

Dr. Tom McGuire's Dental Wellness Series

Healthy Teeth – Healthy Body

*How to improve
your oral and
overall health*



Tom McGuire, DDS

A leading authority on Dental Wellness and
author of the best-selling *Tooth Trip*

Healthy Teeth Healthy Body

How to Improve Your Oral and Overall Health

Tom McGuire, DDS



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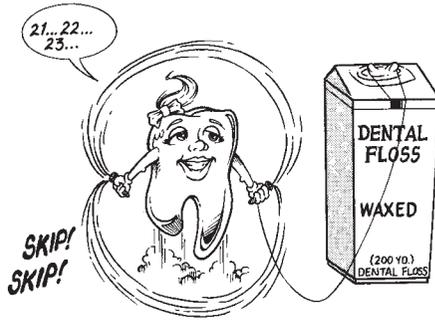
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Introduction

Hmmm, a book about teeth? That's true, but don't let the title throw you, because *Healthy Teeth—Healthy Body* is much more than just a book about teeth and gums. It's a self-contained Dental Wellness Program and will serve as your complete A to Z guide to achieving optimal oral health. It explains:

- the cause of decay and gum disease
- how to self-examine your mouth
- the dental tools and products you need, and how to use them
- the value of working with the dental hygienist
- how to develop an effective at-home oral hygiene program

But it is critical to understand that the benefits of taking care of your gums and teeth go far beyond just keeping them healthy.

You Can Never be Healthy without Healthy Gums and Teeth!

The Relationship of Oral to Overall Health For example, are you aware that gum (periodontal) disease, of which 85% of the population has some form, can have a devastating effect on your overall health? The long held belief that dental disease is a localized, minor disease of the teeth and gums is simply not true.

Dental disease may originate in the gums and teeth, but left unchecked, the destruction it can cause is definitely not restricted to the mouth. There is no longer any doubt that gum disease is a very serious disease of the body and we now know that it increases the risk of:

- heart attack by as much as 25%
- stroke by a factor of 10

- respiratory disease
- digestive disorders
- pancreatic cancer
- preterm low birth weight babies

Gum disease can also make it more difficult to control diabetes and is now considered a major risk factor in osteoporosis. It also severely stresses the immune system, lowering the body's resistance to more serious diseases and illnesses.

Practically speaking, two recent studies showed that gum disease increases the cost of medical care. One showed that the medical costs of those with periodontal disease was 21% higher than those without it!

**Restoring your oral health will also improve
your overall health and extend your life expectancy.**

Gum Disease: A Serious Infection of the Body Health professionals understand that the body is negatively affected by any infection, wherever it is located. Gum disease is far more destructive to your health than most infections because it does its damage 24 hours a day, seven days a week.

The more advanced form of gum disease doesn't just involve the soft tissue surrounding the teeth, but gum pockets as well. Left unchecked, it will ultimately break through the infected pockets and enter the underlying bone of the upper and lower jaw. Because bone has an extensive blood supply, the heart and blood vessels will then be continuously exposed to many virulent strains of bacteria, and their toxins, from the infected bone and gums.

It has been estimated that in the case of moderate-to-severe gum disease, the total infected area could cover an area the size of a standard 8 ½" x 11" sheet of paper.

SOMETHING TO THINK ABOUT

Based on what you've just read, I wonder what your reaction would be if an infection of this size was found on any other part of your body, say your shoulder or leg. If a doctor saw it, he/she would consider this to be very serious and suggest immediate treatment. Yet even today most gum infections remain untreated.

Of course, the extent and severity of an infection is important, but so is its duration. Gum disease will continue to worsen every day, for as long as it is present. Unfortunately, it could be active for 5, 10, 20 years or more. It shouldn't be difficult to imagine the intense stress this infection places on your immune system and how it can weaken your body's resistance to other, far more serious diseases. So don't be fooled into thinking that gum disease will go away on its own—because it won't!

The Value of a Dental Wellness Program The issues I deal with in *Healthy Teeth—Healthy Body* go beyond how, when, and why you need to brush, floss and irrigate. The book also explains how to work with the hygienist to reduce and eventually eliminate gum disease.

The following four reasons are why *Healthy Teeth—Healthy Body* is the book for you. It's a must if you:

- Want to improve your oral and overall health, increase your energy and extend your life.
- Think you'll always be a helpless victim of dental disease—ultimately ending up with false teeth.
- Believe that improving your oral and overall health is worth taking the small amount of time required to free yourself of dental disease.
- Have children, or grandchildren, and want to make certain their dental experience will be better than yours has been.

Changing the Past Regardless of what you have been led to believe, there is no reason for you to suffer from gum disease, tooth decay, or tooth loss. Why? Because not only is dental disease treatable, *it's also preventable*. If what you've been doing hasn't worked and you want to stop your dental *past* from becoming your dental *future*, you'll need to change your dental *present*. After all, what do you have to lose? . . . except your teeth and your health!

A NEW APPROACH TO ORAL HEALTH

Healthy Teeth—Healthy Body is written in everyday language and I've made every effort to make your learning experience an enjoyable one. But the aim of this book is not to entertain. Its purpose is to raise your dental awareness and motivate you to cease being a victim of dental disease.

However, you must realize that preventing dental disease isn't something that is done to you . . . it is done by you!

Preventing this disease isn't the same as treating it, so don't expect your hygienist to do for you what only you can do for yourself. But keep in mind, you won't be alone in your efforts, because your hygienist will be there to support, guide and monitor you through this process.

Remember, you don't have to take care of all of your teeth— just the ones you want to keep!

SIX STEPS TO ORAL HEALTH

There are six key steps you must take to ensure the success of your Dental Wellness Program.

Step One: Read *Healthy Teeth—Healthy Body* If you truly want to eliminate gum disease and improve your overall health you must

read *all* six chapters. Don't worry, it's written for patients, not dentists, and it's easy to read.

It doesn't matter how much you now know about this subject, by the time you finish this book you'll have all the information you need to free yourself from gum disease and tooth decay—forever.

And no matter what you've believed, it isn't enough just to go to the dentist twice a year, have your teeth cleaned and the damage repaired. The truth is that no amount of dental treatment has ever prevented dental disease—so you must be willing to commit to establishing an effective oral hygiene home care program.

I also want you to understand that there is absolutely no need for blame, guilt or shame about your dental past! Falling into that judgmental trap will only drain your energy. Make today the first day of your dental life! Make the conscious choice that you will no longer be a dental victim and I guarantee that your personal Dental Wellness Program will be a great success!

Step Two: Find a Dentist and Hygienist If you don't see a dentist on a regular basis you will absolutely need to find one to support your efforts to eliminate gum disease and tooth decay. You will need the dentist to diagnose and treat the existing damage to your teeth and gums. You'll need the hygienist to help you design your personalized oral hygiene program. Both are absolutely necessary to achieve optimal oral health and improve your overall health and well-being.

Step Three: Make a Connection with the Dental Hygienist Studies have proven that a wellness program will be more successful if it's monitored and supported. I agree completely! While my book contains valuable and necessary information it doesn't have eyes, ears, hands, or a mouth. A book can't listen to or answer your questions, fine tune your hygiene program, or clean your teeth. It can't give you a pat on the back and acknowledge your great efforts and progress. There's no doubt that the hygienist is a necessary component of your Dental Wellness Program (or dentist if he or she is acting in that capacity).

Chapter 6 is one of the most important chapters in the book. It will explain how to effectively work with the hygienist to customize my program to fit your unique dental needs. I can assure you that she/he will be there to enthusiastically, monitor, guide, and cheer on your efforts.

Step Four: Utilize the Periodontal Pocket Chart The periodontal pocket chart, explained in detail in Chapter 6, is used to show where gum disease is located and the severity of the infection in those areas. With this knowledge you'll see which areas to focus your energy on and where to spend the most time and effort with your preventive dental tools. (I offer a number of effective preventive dental tools, nutritional supplements and products on my website: www.dentalwellness4u.com.)

Step Five: Write Down Your Questions for the Hygienist I encourage you to read my book before you go for your next oral hygiene appointment. Write down any questions you have, so you won't forget them, and take them with you to the dental office. Please don't feel embarrassed about doing this. Hygienists are trained to support your efforts, including answering your questions. I suggest getting a small notebook so you can keep track of your questions and also write down the answers. Remember, hygienists don't have crystal balls so it will be up to you to communicate your questions and needs.

Step Six: Personalized Dental Wellness Program Once you've read the material in this book, had your oral examination, your teeth cleaned, asked your questions and had them answered you'll have taken the first big step towards obtaining optimal oral health. With the information in *Healthy Teeth—Healthy Body*, the support of your hygienist and your personal efforts, it won't be long before you'll not only be free of gum disease and tooth decay, but will have a personalized prevention program that is designed to perfectly fit your unique situation.

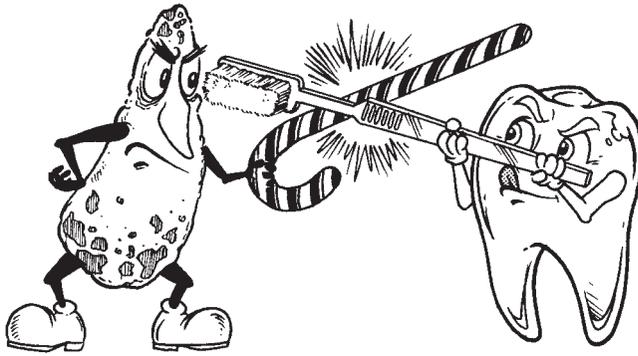
NOW IT'S UP TO YOU

Ultimately, the success of your personalized Dental Wellness Program is in your hands. Together with your efforts and the information in my book, you'll be able to make an educated choice—that of choosing health over disease. You'll be empowered to take control over your oral health and cease being a victim of this insidious and health destroying disease. You'll also have the satisfaction of knowing you've reduced the risk of other, far more serious diseases, and improved your overall health.

In Conclusion This book is guaranteed to bring you a new awareness and understanding of your mouth and its relationship to your overall health. I encourage you to read on and I know it will be an enlightening and worthwhile experience—one that will change your life in a positive way—forever!

In health,

Dr. Tom

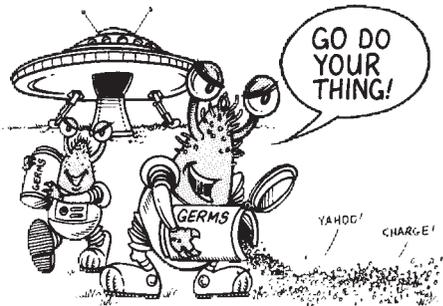


Chapter 1

Know Thy Enemy: The Truth about Tooth Decay

Dental disease is not an obscure and mysterious ailment. You didn't inherit dental disease from your mom or your grandfather. It's not something that was left behind by visiting aliens. You don't get it from kissing, and in spite of what some people believe, it certainly isn't part of a secret plot by the dental profession to stir up business.

Dental disease is not only a disease of the mouth but also a disease of the body. Any time part of your body becomes diseased, it stresses your entire body's immune system. The stress can be most harmful when the disease is a chronic one, which is the form of dental disease from which most patients suffer. Dental disease, especially gum disease, starts slowly, increases in severity, and then tenaciously hangs on, overloading your body's protective defenses twenty-four hours a day, for as long as you have the disease. Not only does this drain you of energy, it ends up drastically lowering your resistance to any other disease to which you may be exposed. When you look at it this way,



you can no longer afford to think of dental disease as an insignificant or harmless condition that affects only your teeth.

There are many types of dental disease, but the two that will concern you the most are tooth decay and gum disease. These diseases aren't the same—not in their cause, their severity, their treatment, or their cost to you. You can have both at the same time or one without the other. Because they're so common, and the vehicles of so much pain and destruction, it is critical for you to understand their cause, treatment, and prevention.

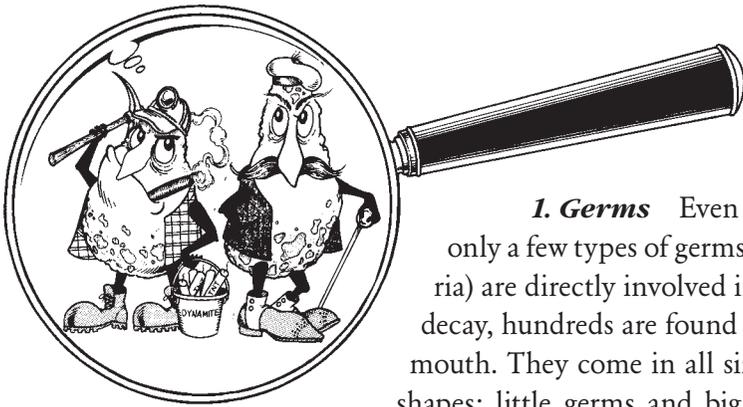
Learning how to take care of your mouth is not difficult. Fortunately, you don't have to become a dentist or a hygienist to learn how to become an enlightened patient. But you do have to understand the basics of what you're up against in order to overcome dental disease. This chapter explains tooth decay, not because it's the most serious form of dental disease, but because it's the most familiar. Chapter 2 looks at what I consider to be your mouth's number one enemy, gum disease.

Remember the words of that famous philosopher and scholar, Anonymous: "If you don't change it, it sure as heck will stay the same." Ready? Good. So am I.

TOOTH DECAY—THE INSIDE STORY

All tooth decay, in one way or another, is related to diet. As we've become more civilized, our diet has become more refined, processed, overcooked, and overpreserved. As we've developed new processing techniques and made more of this type of food available to more people, the incidence of decay has risen proportionately. In other words, as we change our naturally balanced diet with so-called advances in food technology, without making corresponding changes in oral hygiene, we are literally creating tooth decay. Thus it really is a man-made disease, another by-product of our wild rush toward progress. Progress is a good-news/bad-news venture; while it has given us many good things, it has also made us more susceptible to dental disease.

The cause of tooth decay is pretty straightforward, and once you understand the process, it will make freeing yourself from it a heck of a lot easier. In order for decay to occur in your teeth, three things are necessary: germs, food, and teeth.



1. Germs Even though only a few types of germs (bacteria) are directly involved in tooth decay, hundreds are found in your mouth. They come in all sizes and shapes: little germs and big germs, long ones and round ones. You will have to take my word for that, because they're so small that no matter how hard you look for them, you'll never see them with the naked eye. Except for right now, that is. You may be the first to see them like this, so don't be too surprised if they look a little indignant. (If you happen to be a biologist you'll know that the artist and I have taken certain liberties in characterizing and drawing germs, but as you'll see, the process I describe is accurate.)

2. Food By "food," I don't mean just any kind. The foods that are most responsible for decay are highly refined and processed carbohydrates. Once the refining is over they are known by another name, sugar. There are many kinds of sugars, but when it comes to causing decay, sucrose (more commonly known as white sugar) is the most destructive.

3. Teeth You guessed it! Teeth are an indispensable part of this trio. Without them you'd never get decay, but then you would not get to eat corn on the cob either. Some teeth are harder than others and may resist decay longer, but the decay process is the same no matter how quickly or slowly it proceeds.

These three ingredients need a nice, cozy place to get together, and your mouth fills this requirement to a T. But in order for the germs to really do a number on your teeth, they also need as much freedom from the brush, the floss, the water irrigation device, your hygienist, and the dentist as they can get. I'm not pointing any fingers, but don't you think you might have been helping them out (unconsciously, I'm sure) by providing them with the environment they so dearly love? If you have been giving them free rein you're not alone. In most of

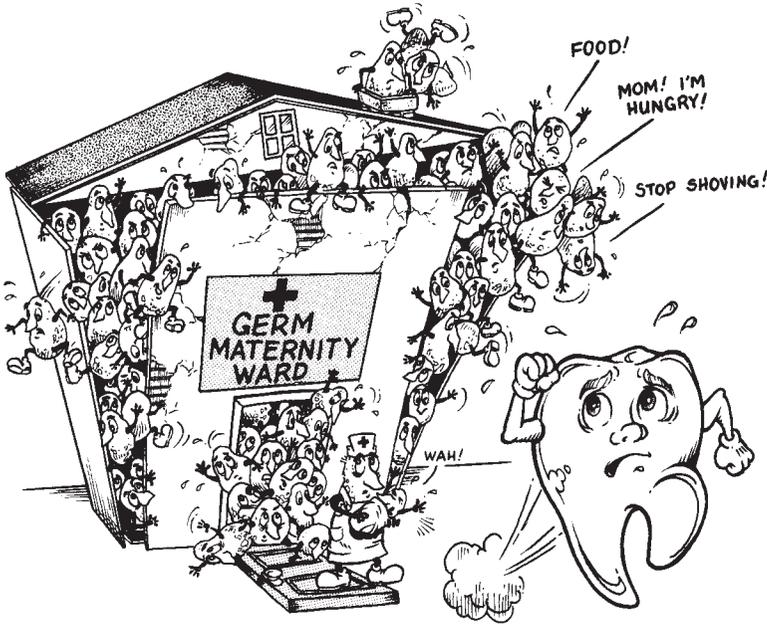
us (except the over 13 million people with no teeth), there exists the potential for tooth decay.

Let's get some background material on the germs that have helped create all of this oral havoc.

Germ Facts

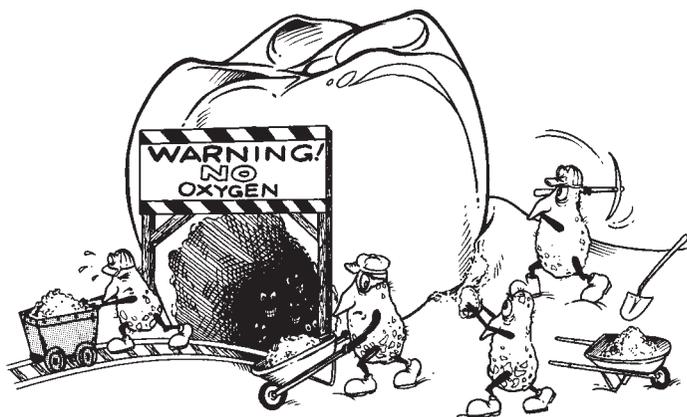
Here are some little-known facts about those little buggers that love boring holes into your precious choppers.

1. Size As I've said, these characters are small-even smaller than small. Just how small are they? Well, small enough that millions of them can fit onto an area the size of this dot (.). By the way, did you know that there are more germs in a diseased mouth than there are stars in our Milky Way galaxy?



2. Sexuality Sexually, germs are truly amazing. Their birthrate is simply outrageous. Given the proper conditions, which most of us give them regularly, one germ can produce millions of offspring in a few hours. The concept of family planning has escaped them entirely.

3. Life-style Unlike humans, the germs that cause tooth decay don't need oxygen to survive. This is important in the decay process because, even after they have tunneled their way into your tooth's



enamel, where there's no air supply, they continue to eat, eliminate, reproduce, and tunnel some more. They also love it when they are left under fillings, can sneak in under a flaw in a filling, or are protected by the plaque and calculus that shield them from the brush and decay-fighting saliva.

4. Will to live Germs are tenacious characters. If it were not for the fact that they can cause so much damage to your teeth and gums, I'd admire such tenacity. As a group they have survived everything human beings have tried to do to get rid of them and have come out unscathed. It's not as if they're mean or inherently evil. Like us, they're just trying to survive. In a healthy mouth they are kept in balance and cause no dental problems. We're the ones who have turned them into monsters by continuing to feed their insatiable appetites. These microscopic little guys were here before we were, and I think there's a good chance they may still be here long after we're gone.

5. Habits In my opinion, germs are addicts. They're not addicted to cigarettes, alcohol, heroin, or caffeine, but they do love sucrose. Their sugar addiction is so bad that if you leave foods containing sugar in your mouth (heaven forbid) they would go on eating and eating and eating and eating, twenty-four hours a day. The waste that these germs eliminate as a by-product of digestion, also twenty-four hours a day, is very acidic—a biological and chemical fact that does not bode well for your teeth. The important thing is to keep these germs from congregating in one place for any length of time. You can control their population by controlling what you feed them and by keeping your teeth clean.

6. Diet Germs don't need a lot of food to do well in their world. In fact, they need only microscopic amounts to survive and multiply like lemmings. The food that you might leave in your mouth doesn't seem like it would support any living body, but you can bet your car's pink slip it can support about 10 zillion germ bodies. And once they penetrate your tooth's *enamel* (the outermost protective layer) and get into the *dentin* (the tooth structure found under the enamel), they no longer need an outside source of food. Why? Because now they have a handy source of living food—your dentin—and it is unlimited. When you realize how much dentin there is in each tooth and how microscopic the germs are, it's easy to see that they have enough food to live on for billions and billions of their lifetimes. And the more germs there are, the more of your enamel they destroy and the more dentin they eat. This may sound like morbid humor, but how does it feel to know a part of your body is slowly being eaten alive by these little carnivores?

These germ characteristics play a very important role in the decay process. Before we learn how that process works, let's take a quick look at a decay-free environment.

A Decay-Free Mouth

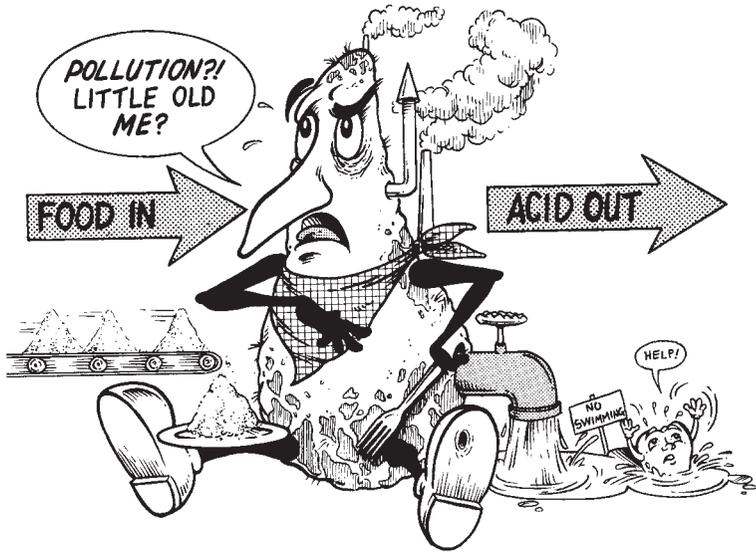
A decay-free mouth requires the following:

- Freedom from germ food (food containing sucrose)
- A stabilized germ population, controlled by your mouth's defenses and your oral hygiene program
- A normal saliva flow, which protects the teeth by neutralizing the harmful acids that germs eliminate after dining on the free meals you provide

ACID AND THE BEGINNING OF DECAY

The only time germs can cause a healthy tooth to become decayed is when you don't keep your mouth free of germ food. If you don't keep your mouth clean you give germs the opportunity to vastly and rapidly increase their population. The result is that all the little acid-producing germs combine to create one big decay producing factory.

Once a member of the germ gang has eaten and digested the sugar that you left for them, he does the same thing you eventually



do: he eliminates his waste products. This elimination process is as natural a function for germs as it is for us, except germs do it all day and all night long. This acid waste, if undiluted and left in contact with the tooth, is actually powerful enough to dissolve your tooth's enamel, which is the hardest substance in your body. If you multiply one germ's acid output by billions of his buddies, you end up with more acid than your saliva can possibly neutralize. When that happens, the decay process begins.

The key to preventing the decay process is this: the three items that combine to cause decay—germs, germ food, and teeth—must not be allowed to be present at the same time. Obviously, we can't eliminate all the germs, and I doubt if anyone would be in favor of eliminating the teeth. Let's see . . . that leaves germ food! We're in luck, because germ food can be eliminated.

Sucrose: A Germ's Favorite Food

Germs can't order out—their menu is our menu. But they do have their preferences, and their small size limits what they can eat to very small things. And because germs can only eat very small things, their choice is pretty much restricted to refined sugars, the smallest and simplest of the carbohydrates. *Carbohydrates* are a class of energy-producing foods. Some are complex, like starches and cellulose, and

some are simple, like sucrose (white sugar). Most of the carbohydrates found in natural foods are too large and too complex to be broken down into sucrose either by chewing or by the enzymes found in your mouth. So complex carbohydrates don't make good germ food. But simple carbohydrates-especially refined sugars-are another story. Just think what would happen to your teeth if germs could digest any kind of food that gets left in your mouth. Your teeth wouldn't have a prayer of surviving. (It shouldn't take too much imagination to visualize a world in which we all buy dentures in the supermarket.)

The refining of foods, in the simplest terms, is a process by which the original, whole, and natural food is broken down into many smaller parts. This alteration is most dramatically illustrated by the refining process that creates white sugar. Most plants naturally contain small amounts of sucrose, as well as other simple sugars, but the plant must undergo a refining process for the sucrose to be extracted. The sugar beet and sugarcane are the two most commonly used plants from which white sugar is extracted. I flipped a coin to see which to use to demonstrate the refining process, and the sugar beet won.

In its natural state, the sugar beet is a pretty stout-looking character. No self-respecting germ would ever take him on. But when that hardy character is refined, the picture changes drastically. The refining process reduces poor Mr. Beet down to one of the smallest sizes to which a carbohydrate can be reduced and still be called a food-if white sugar

can ever be called a food. (In my opinion, and that of many others, it should be classified as a drug, and an addictive one at that.) When simple white sugar is left in the mouth, even in small quantities, it provides the trillions of starving germs with enough food to allow them to commit the hideous crime of tooth decay.



Bear in mind that any processed food containing sucrose can cause the same result as plain old white sugar. And be wary of

so-called natural foods, because even they can contain sugar. So be sure to read the label. There are manufacturers who claim white sugar

is natural just because it comes from a natural source and don't hesitate to use it in their "natural" products.

It's really pretty simple: the more sugar a food contains, the faster it will cause tooth decay.

A Germ's Least Favorite Foods

Even after a good chewing, most of the carbohydrates in natural (unrefined and unprocessed) food are still so much larger than the average germ that germs can't possibly digest them. The amount of accessible sugars, including sucrose, released from chewing most fruits, vegetables, and grains is so small that it's not a significant factor in the normal decay process. And although the enzymes found in saliva do initiate the breakdown of complex carbohydrates and prepare them for complete digestion in the intestines, they can't break them down into sucrose in the mouth.

But no enzymes are needed to reduce sucrose to the size germs like. These sugar molecules are already bite-size, and the germs can begin feasting on them immediately upon contact.

I've given you a general idea of the sugar-refining process and why white sugar is the real villain, and now it's time to graphically explain how all this ties together.

The Decay Experiments

In the interest of scientific knowledge (though certainly not in the interest of the animals tested), some very original experiments were performed to show the relationship between natural foods, refined foods, germs, and tooth decay. The following experiments demonstrate what I call the "triad theory" of tooth decay. In the simplest of terms, if you want tooth decay, just invite your teeth, decay-causing food, and germs to the same party. If you don't, leave one of them off the guest list.

Group A experiment In part 1 of the experiment, the mouths and the surrounding environment of a group of laboratory animals were sterilized in order to remove all the germs. These animals were then fed a diet consisting solely of white sugar. This diet was continued for a set period of time. At the end of that period they were examined and the researchers found no decay. There is, of course, a very good reason for this, and I know that you've figured it out. Yep, one of the three



requirements for decay had been removed—the germs. Which means no one was at the dinner table to eat and digest the decay-causing sucrose that was abundantly available. Therefore, no acid was produced and there was no decay.

In the second part of the experiment, large quantities of germs were introduced to the same animals who participated in part 1. They were then fed the same amount of sugar, but this time through a tube connected to their stomachs. The idea here was to keep any food from touching the teeth and mingling with the germs now in their mouths. The researchers wanted to see if large numbers of decay-causing germs kept in constant contact with teeth but deprived of refined foods could cause decay. Again, 10 and behold, no decay was found in any of the animals. Why? Again, one of the trio was missing; this time it was refined food. The experiment conclusively demonstrated that even with a vast increase in the germ population, germs can't cause decay on their own. They must eat sugar to cause tooth decay.

Part 3 of the experiment, the ultimate test, was soon carried out. The same, still decay-free, animals that were used in the first two parts were used again. This time both sucrose and decay-causing germs were introduced *at the same time*. This third phase lasted the same amount of time as the previous two phases—apples for apples. The results showed that the same teeth that seemed to be decay-proof were now rapidly decaying. This was to be expected. For the first time in the experiment, all three of the trio were found together at the same time—germs, teeth, and sucrose.

In part 4 of the experiment, the same animals were used, and all of the animals' teeth were extracted. (I personally do not think this was necessary to prove the point, but researchers are sticklers for detail.) The animals were fed the same decay-causing diet and were pumped full of decay-causing germs. The test lasted the same amount of time as the previous three. The difference was that the animals had no teeth. In its own inhumane way, this test also proved the triad theory: when you remove one of the three ingredients, decay can't take place.

This should, once and for all, make it perfectly clear that there is truly a direct cause-and-effect relationship between diet, germs, and tooth decay. You can now forget every other theory you have ever heard about the cause of tooth decay.

EXPERIMENT A

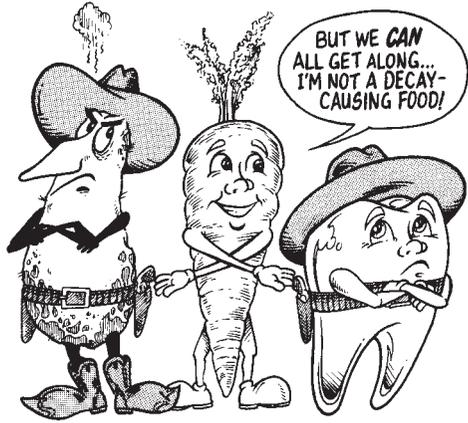
Part	Teeth	Type of Food	Germs	Results
1	Yes	Sucrose	None	NO DECAY
2	Yes	None	Present	NO DECAY
3	Yes	Sucrose	Present	DECAY
4	No	Sucrose	Present	NO DECAY

Group B experiment The researchers didn't stop with one experiment. They wanted to find out what would happen if the animals were allowed to consume a natural diet. I salute them for that.

In the first part of experiment B, the researchers used the same kind of animals that took part in experiment A. Again the germs were eliminated from their mouths, but in this experiment, their diet consisted of the food found in their natural environment. See if you can come up with the answer before you read it. Right: no decay. Reason? Right again: one part of the trio didn't show up for the party—the germ crowd.

In the second part of this experiment, the animals were again fed through a tube, and the germs were reinstated in abundance. Results? Again, no decay. Reason? One of the three amigos was missing. (This story might be getting a little predictable, but don't get too complacent, there's an interesting twist to it.) In part 3, the natural food was left

for the germs to eat, the teeth were left in place, and zillions upon zillions of bacteria were pumped back into the mouth. Results? No decay. But wait just a minute. That seems to shoot down the triad theory because in this experiment all three ingredients were found together, yet no decay occurred. Hmm? When all three were combined in experiment A, the teeth decayed like wildfire. Well, the theory still holds true; we simply need to distinguish between decay-causing food and natural, healthy food.



There was one more part of experiment B . . . the coup de grace. In part 4, all the animals in group B, still decay-free, had their natural diet replaced by the same refined diet that was fed to the group A animals. Everything else remained the same. Result? Their teeth decayed. Reason? The refined-food-loving bacteria got their diet of choice and did what they'll do every time those conditions exist-rot the teeth.

EXPERIMENT B

Part	Teeth	Type of Food	Germs	Results
1	Yes	Natural	None	NO DECAY
2	No	None	Yes	NO DECAY
3	Yes	Natural	Yes	NO DECAY
4	Yes	Sucrose	Yes	DECAY

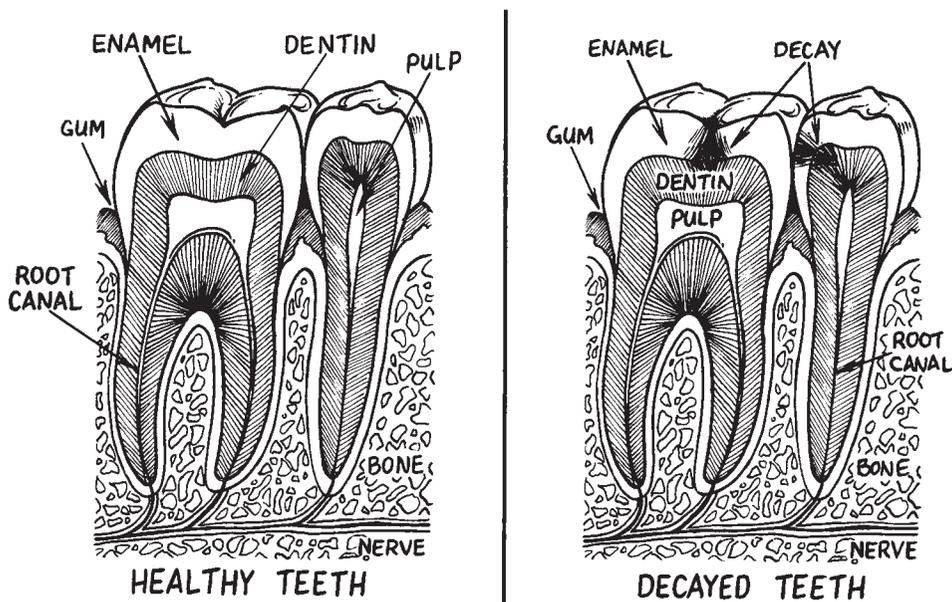
These experiments demonstrate two important ideas that are necessary for you to understand your battle against tooth decay:

1. How decay happens
2. The role refined foods play in the decay process

As long as you don't eat foods containing refined sugars, or if you remove the remains of these foods from your mouth *immediately after eating*, chances are very good that you'll never get tooth decay again.

WHEN ACID MEETS DENTIN

Okay, let's get back to what happens when the acid produced by germs hits your teeth. In order for the acid to etch its way through the enamel (which, you'll remember, is the hardest substance in the body), it has to be concentrated, in constant contact with the tooth, and protected from both saliva and the toothbrush. Plaque, which adheres to the teeth, is a mixture of germs, food particles, and dead and living cells—a perfect medium that allows all three conditions to exist. (Plaque is discussed in detail in Chapter 2.) The decay-causing germs congregate in the plaque, where the acids they produce become concentrated and are protected. So although plaque itself doesn't directly cause decay, it certainly promotes it.



And now what? Well, when those little germs have used their acids to etch a tunnel through the enamel and have reached the dentin, you are past the point of being able to prevent further damage with home care alone. Now the damage will have to be repaired by the dentist. Part of the tooth's dentin is organic and not nearly as hard as the inorganic enamel. Not only can the acid dissolve dentin more easily and faster than enamel, but about 30 percent of the dentin exists in a form that can be eaten by the germs. This means that even if you

were to hone your oral hygiene skills to perfection and always remove every particle of food from your mouth immediately after eating, you would still be unable to stop the destruction from taking place under fillings or in the tunnels bored by acid. The initial tunnel is so small that no brush can gain access to it; even your decay-fighting saliva cannot reach into this microscopic tunnel. Therefore the destruction will continue unabated. If you interviewed a germ and asked him what would be an ideal situation in which to live happily ever after, the one I just described would be the one he would choose.

As you have no way of seeing or feeling when the germs have reached the dentin, you should now be better able to appreciate the value of a dental examination, including a full-mouth series of X rays. Only an X ray will reveal the extent of the decay. Unless X rays are used to detect decay, you won't know what's happening until the pain comes. And if that has ever happened to you, you know what a miserable experience it can be.

SUSCEPTIBLE AREAS

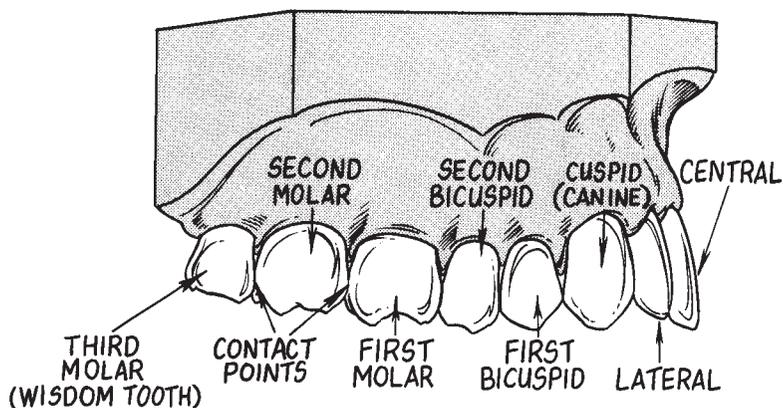
There are many parts of the tooth that are difficult to keep clean and thus are vulnerable to decay, but the two prime locations are the *occlusal grooves* and the *contact points*.

Grooves

Grooves (or *fissures*, as they are called by the pros) are found on the tops, or occlusal (grinding) surfaces, of the molars and bicuspid. If you look at the cusps of teeth as hills, the grooves are the canyons that form between them. Grooves are formed as the tooth develops. Unfortunately, the enamel at the bottom of these grooves is usually so thin that it doesn't take the acid long to penetrate it and reach the dentin. The problem is made worse by the fact that toothbrush bristles are too thick to fit into the grooves. This makes these grooves terrific plaque traps, and once plaque is formed in them, no amount of brushing or fluoride treatments will be able to keep them from decaying.

The grooves on the occlusal surfaces of the back teeth, especially in the thin, soft enamel of baby teeth, are especially vulnerable to this kind of decay. Nearly 60 percent of all the cavities in children are found

NAMES OF THE TEETH



in the fissures of their back teeth, both baby and permanent. In these cases they should be filled or cleaned out and preventively treated with sealants. However, not all grooves will need to be filled. A simple check by the dentist, with the aid of his trusty *explorer* (a thin, curved, metal pick), will tell you which ones will need treatment.

Contact Points

The next most vulnerable area is the contact point, the area where two teeth touch. This area is susceptible to decay because when food is forced between the teeth it often gets stuck there. Once this happens, germs congregate, plaque forms, and decay soon follows. Contact points are extremely vulnerable because the bristles of the toothbrush cannot reach them. Dental floss is the most effective preventive measure.

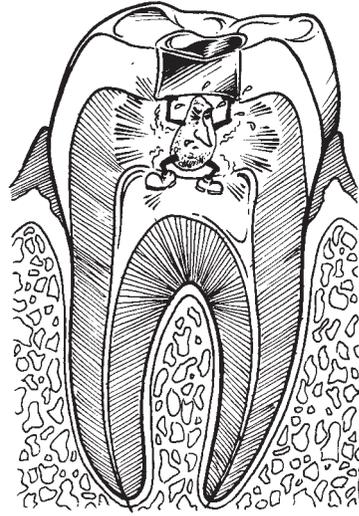
Other Susceptible Areas

Pits and defects Pits and defects can be found anywhere on a tooth but are most often found on the backs of the cuspids, on the cusps, and on the backs of the front teeth (centrals and laterals). These irregularities in the enamel result from improper formation while the tooth is developing. They are food and plaque traps, and like grooves, most can't be kept clean. As with grooves, not all will develop decay, but they all should be checked, then filled or smoothed out to prevent food and plaque from accumulating.

Roots If bone loss and the inevitable gum recession have taken place, the exposed roots become extremely susceptible to decay. They're not covered by protective enamel, and the food and plaque now have access to the spaces that once were filled by bone and gums. These areas are difficult to fill and to keep clean-brushing alone won't be sufficient here. Root decay is a very serious problem for people over sixty.

Margins A *margin* is the term dentists use to describe the seam where the tooth and the filling meet. Margins are very vulnerable to decay because even the best-fitting filling, when viewed microscopically, is rough, has gaps and defects, and is an ideal hang-out for food, germs, and plaque.

Underneath fillings The tooth structure underneath fillings is an area where decay can sometimes recur, but only if all the decay was not removed when the tooth was prepared for the filling. Sometimes, but not always, X rays will show if there's decay under a filling. This depends on the type of filling. For example, if a tooth has a full crown, the X rays can't penetrate the crown's metal. Learning how to pick the best and most conscientious dentist is the best way to prevent this type of decay.



Smooth Surfaces

The smooth surfaces of a tooth, except around the gum line and the contacts, are normally not susceptible to decay. Because of the action of the tongue, the lips, and the cheeks, as well as the cleansing action of food and saliva, these areas are generally kept free of plaque and the germs that hang out in it.

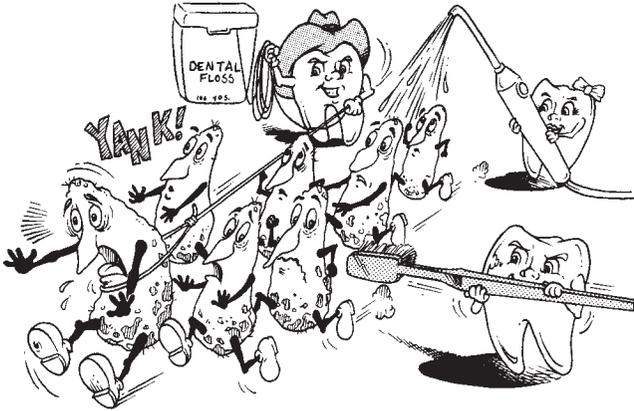
SOMETHING TO THINK ABOUT

As destructive as tooth decay can be, most damaged teeth can be repaired-if you can afford it, that is. And while it's true that fluoridation has reduced the incidence of decay in our society, everything is

relative. When you consider the fact that the average six-year-old has one decayed, missing, or filled tooth, and that the same child will have twenty-two decayed, missing, or filled teeth by the time he's in his sixties, you will probably agree with me that decay is still a serious problem.

Teeth are not inanimate objects that you can buy or rent. They're as much a part of your body as your eyes, ears, hands, and heart. When you view them in that way it should motivate you to want to take care of them. But even if you don't get decay, or have had all the susceptible areas filled, you're not yet out of the woods because the real killer of teeth is gum disease.

You may think gum disease is not your problem, and you might be right. But then again, you might be wrong. Gum disease is now the most prevalent form of dental disease for people over thirty. (By the way, how old are you?) Maybe you're not too concerned about gum disease, but I've got a feeling that the large percentage of people over sixty who have lost half their teeth, or who don't have a single tooth left, also didn't think gum disease would be a problem. Now that I have you thinking about it, let's find out more about this nasty disease.



Chapter 2

Gum Disease

Although the term *gum disease* is a familiar one and easy to remember, it is not an altogether accurate term, and it doesn't convey the seriousness of the disease. The fact is that "gum disease" may attack not only the gums but also the ligaments and the bone. The term *periodontal disease*, meaning "disease around the tooth," is therefore actually more accurate because it is more inclusive. In this book, I use the two terms interchangeably.

Learning the proper terminology for the various forms of dental disease will make it easier for you to communicate with your hygienist and dentist, because they may use "in-house" terminology to explain your condition to you. Whatever words they use, make sure you understand the concepts and issues that apply to your case.

The dental community acknowledges two main stages of periodontal disease. The first is a disease of the gums, or *gingivae*, called *gingivitis*. The second is called *periodontitis*, which is a disease of the ligament and bone that hold your teeth in your jaws. Although these two forms of periodontal disease are the most serious forms of dental disease, they've never been given enough recognition by the public for the destruction they can cause. Tooth decay wounds, but the real killer of teeth is periodontal disease. If we had a criminal penal code for

classifying dental disease, decay would be considered a misdemeanor and periodontal disease would be a felony. Most tooth decay can be repaired, but once advanced gum disease destroys the bone that supports the teeth in your jaws, those teeth will be lost forever. When that happens, even King Midas wouldn't have enough money to save them.

It's one thing to think you might have a little gum problem; it's another thing entirely to realize that this disease is actually destroying the tissues, ligaments, and bones of your body. If you knew that the tissues, ligaments, and bones of your arm, for example, were slowly being destroyed, and would eventually be lost because of infection, you'd be very concerned, to say the least, and you would do whatever you could to treat it. Am I right? Well, the tissues, ligaments, and bones in your mouth are every bit as much a part of your body as those of your arm. Ponder that for a few moments.

THE CAUSE OF PERIODONTAL DISEASE

You have probably read, or been told, that the cause of periodontal disease is anything from a poor diet, germs, bad genes, plaque, or calculus (tartar) to kissing too much or not enough. There may be a bit of truth to each of these, but when you get right down to it, the primary cause of periodontal disease is *poor oral hygiene*. Whether you have this disease because you didn't know how to prevent it, or you just didn't care, the results are the same. As they say, ignorance is no excuse in the eyes of the law.



Although poor oral hygiene is the main cause of periodontal disease, there are other significant factors that affect its onset, extent, and severity: the germ population of your mouth, your general health, genetics, your bite, your age, diet, your life-style (smoking, drinking, etc.), stress, drug side effects, and your relationship with your hygienist and dentist.

CLASSIFYING GUM DISEASE: GINGIVITIS AND PERIODONTITIS

Periodontal disease is complicated by the fact that different types of disease can exist in different areas of your mouth at the same time. The severity of gingivitis and periodontitis can vary from one tooth to another and even from one part of a tooth to another, meaning different stages of disease can occur simultaneously around the same tooth. With periodontal disease there is no clear-cut visual way for you to tell exactly when irritation and inflammation turn into gingivitis or when gingivitis ends and periodontitis begins.



DR. TOM'S TIPS

Most forms of gum disease progress slowly, and there's no way for you to accurately determine how severe your disease is without a detailed examination by the hygienist or dentist.

Gingivitis

Gingivitis is the most common form of periodontal disease. In simple terms, it is an inflammation of the gum tissue. Uncared for, the inflammation turns into more serious forms of infection and eventually evolves into periodontitis.

The most common way to classify gingivitis is by cause and severity. Generally, it's enough to know that it has three stages, and if, for example, you are in the third stage you have the most serious form. Your hygienist will guide you in determining what caused your gingivitis and what stage it is in, but it's important for you to be familiar with the most common types.

Simple gingivitis Over 90 percent of all Americans have had, have now, or will have this form of gum disease. It can occur around one, or all, of your teeth. The first sign is a reddish, shiny band that is seen at the point where the gums meet the teeth. In the early stages of the disease the gums may not bleed, but they will as the disease progresses. This condition can arise in as little as a week if the teeth and gums aren't cared for. If caught soon enough you can treat it yourself. With the right attention, and depending on how serious it is, it should heal in one to three weeks. If you can't reverse this process in that amount of time you'll need the help of the hygienist.

Chronic gingivitis At this stage, the disease is no longer simple. Chronic gingivitis is like an old tree with widespread roots that are entrenched and difficult to remove. This is a very common form of periodontal disease in patients who brush enough to keep the disease from moving rapidly but not enough to stop it. The rate this disease progresses will be a direct reflection of the amount of time you spend taking care of teeth, your diet, how fast you form plaque, and how efficiently the plaque is removed. Generally, the areas of the mouth that receive the least attention are the ones that are the most affected. This stage of the disease may not be painful, but there is inflammation and infection, and bleeding will take place occasionally. It's important to note that the degree of bleeding isn't all ways an indication of the severity of periodontal disease.

Acute gingivitis Common names for this type of gingivitis are Vincent's infection, trench mouth, and ANUG, acute necrotizing ulcerative gingivostomatitis. If these don't scare you, nothing will. Acute gingivitis can appear suddenly and is very painful, but it usually responds well to proper treatment at the dental office. Some of the most common symptoms are fever, swollen lymph nodes, and malaise (tiredness). Its visual signs are angry, red, and swollen gums; craterlike depressions at the edges of the gums between the teeth; and gray-colored skin around the edges of the infection. The infected area will be painful when touched by anything: your finger, food, or the toothbrush. Because brushing at this stage is painful, the tendency is to cut down on the already insufficient oral care, and this only makes the condition worse. The infected area bleeds easily and is accompanied by a nasty smell.

This is the most serious form of gingivitis. It can involve one or more teeth, and it can rapidly expand to the ligament and bone if not treated. As in most forms of dental disease, the initiating cause is poor oral hygiene and the resultant plaque buildup. Many dental professionals, including myself, believe that lowered resistance, poor nutrition, and stress (possibly from other diseases) share the blame in the cause and persistence of acute gingivitis. The milder forms of gingivitis can be likened to smoldering coals just waiting to be fanned into an acute gingivitis flame. Lowered resistance, poor nutrition, and stress are the fan.

Periodontitis

Periodontitis is an ominous and frightening word. It represents an ominous and frightening disease. If you have this type of periodontal disease, you are at the stage where the infection has broken through the first line of defense, the gums, and has begun to attack the ligaments and bone supporting the teeth. This is the stage where bone loss occurs, causing the pocket (sulcus), the space between the gum and the tooth, to deepen. Periodontitis, like gingivitis, occurs in different forms and can involve parts of, or all of, one tooth or many teeth at the same time. Like any disease of your body, it can be treated—if it's detected in its early stages. However, if it isn't treated *you will eventually lose your teeth*.

You can certainly obtain enough information from Chapter 3, “Oral Self-Examination,” to get a pretty good idea if you have the disease and which stage it's in. But any final diagnosis will be up to your dentist or the periodontist. With the right knowledge, diligent home care, hygiene therapy, and guidance from your hygienist, you'll be able to cure periodontitis, if it hasn't progressed too far.

Simple periodontitis Although simple periodontitis can be found in teenagers, it is seen more often in people over thirty, and the most serious cases are found in people over fifty. But it is definitely not limited to any age group.

This disease is characterized by chronic gum inflammation, bone loss, and a deepening of the gum pocket—ranging from a little to a lot. In the advanced stages tooth movement will occur. The speed at which the disease advances is directly related to how well you take care of

your gums, both the outsides and the pockets. Simple periodontitis doesn't always involve pain, but it's usually associated with some, or all, of the following symptoms:

- Sensitivity to heat and cold, sugar, acidic foods, and possibly brushing. Sensitivity develops when you've had bone loss, because bone loss exposes the microscopic *tubules* in the dentin. These tubules run like pipes from the outside of the dentin into the pulp of the tooth, which contains the tooth's nerves and blood vessels (see illustrations, pages 26 and 27). When the tubules are exposed to acid, germs, air, and temperature changes, these irritants cause a pain response in the pulp.
- Acute and sudden pain or throbbing that is made worse by tapping on the affected tooth. This symptom points to more extensive bone loss and may also be associated with a deep abscess of the gum pocket or an infected nerve.
- Constant or periodic bleeding.
- A dull, deep, almost painlike sensation that feels as if something is putting intense pressure on the root of the tooth. Most often this is the result of food or other substances that have been jammed into the gum pocket. It is often associated with a bad contact between two teeth that allows food to be forced into the pocket. This feeling worsens the longer the irritant is left there.
- Toothache. Any rapidly moving decay can cause acute pain, but the toothache associated with periodontitis is usually of the throbbing variety. It's an indication that decay has started in the root and has begun to irritate the tooth's main nerve. Root decay is the only kind of decay associated with periodontitis.

Complex periodontitis The primary factors associated with complex periodontitis are the same as those found in the simple variety. However, they are complicated by the stress and trauma resulting from forces exerted on the teeth and bone. Any abnormal and long-term pressure that is placed on the bone by chewing improperly, clenching, or grinding can cause the bone to recede.

Therefore, tooth movement is often seen at an early stage in complex periodontitis—earlier than in the simple form. Increased and

irregular pressure is being placed on the teeth and bone because the bone is being attacked both by germs and by occlusal stress. Complex periodontitis usually progresses at a more rapid rate than the simple form.

Dentists often find that a bite problem is also associated with advanced bone loss. This is a lot like the chicken and the egg: which came first? In essence, a bad bite will make the existing periodontitis worse, and periodontitis will then make the bite problem worse. In other words, when you combine periodontitis and a severe bite problem, the destructive processes are accelerated.

Juvenile periodontitis In most cases, juvenile periodontitis is found in children and young adults with other diseases, such as Down's syndrome or Papillon-Lefevre syndrome. It is believed that these diseases are not necessarily the cause of periodontitis, but contribute to it by lowering resistance and causing nutritional deficiencies that interfere with the development of bone and surrounding tissues. Juvenile periodontitis is classified according to the location of the most severe infections, that is, whether it's found around all the teeth or only involves specific teeth, usually the molars and front teeth.

Diseases caused by atrophy and by disuse Periodontal disease can be caused by atrophy and disuse, and both conditions may exist without any active plaque involvement or any active infection. Disease caused by atrophy is usually found in older people and is generally the result of a long time of wear and tear on the teeth and on the underlying bone that supports them. Bone loss and the resulting gum recession can occur without the presence of infection.



DR. TOM'S TIPS

Periodontitis is nothing to be sneezed at. It is a major threat to your health and well-being. If you have periodontitis your mouth is in serious trouble, and you must be willing to do whatever it takes to correct this problem. You must accept that once your gingivitis turns into periodontitis, it cannot be treated and cured with home treatment alone.

In periodontal disease caused by disuse, the ligament surrounding the tooth is the area most affected. Teeth are designed to chew, and when they don't, or when they don't chew normally, they become more susceptible to disease. Over time, the ligament gets thinner and is severely weakened. This is the result of chewing improperly, eating food that is too soft, or having a misaligned bite that prevents teeth from actively participating in the chewing process. If they were now suddenly asked to do a lot of work, the affected ligaments could become tender and sore.

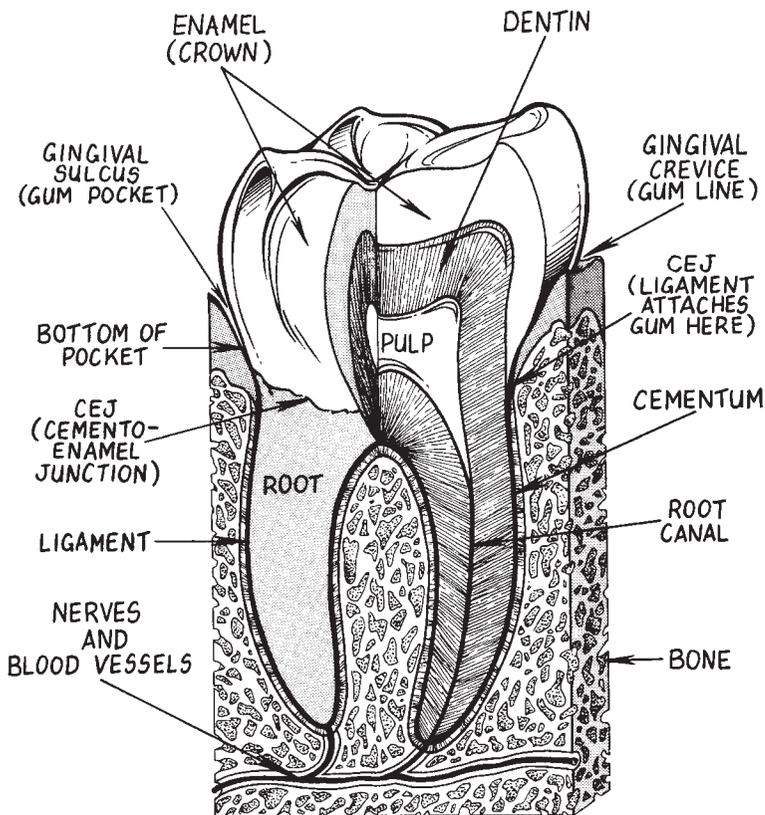
THE SAD STORY OF PERIODONTAL DISEASE

To most people, their mouth is a mystery land. They've never examined their own mouth, they don't know what a healthy mouth looks like, and they have little or no idea of how gum disease begins and ends. In this section I describe how your mouth can go from a state of health to a state of toothless misery, a process that few people understand. You will follow a tooth on its journey from a healthy mouth to a jar sitting in the oral surgeon's office. Keep in mind that there are literally thousands of jars in thousands of dental offices that contain millions of teeth—teeth that, with a little care and attention, could have stayed in their owners' mouths. Though the disease can last a lifetime, the story of how it evolves is a short one.

The Cast of Characters

In order for gum disease to occur, all the following characters must be on stage with you at the same time: teeth, ligaments and pockets, gums, germs, bone, plaque, calculus, food, and saliva. As in the case of tooth decay, if the participants are left on their own, in the absence of oral hygiene, you will certainly contract this disease.

Teeth In the ideal mouth—a mouth that has never experienced any form of dental disease—each tooth has a crown; one, two, or three roots; and pulp. (See illustration on page 26.) The *crown* (the part of the tooth above the gum line) is covered by enamel, and the *root* (which is below the gum line) is covered with *cementum*, a type of calcified tissue that is about as thick as a human hair and is softer than both enamel and dentin. (I discussed enamel and dentin in Chapter 1.)



THE ANATOMY OF A HEALTHY TOOTH

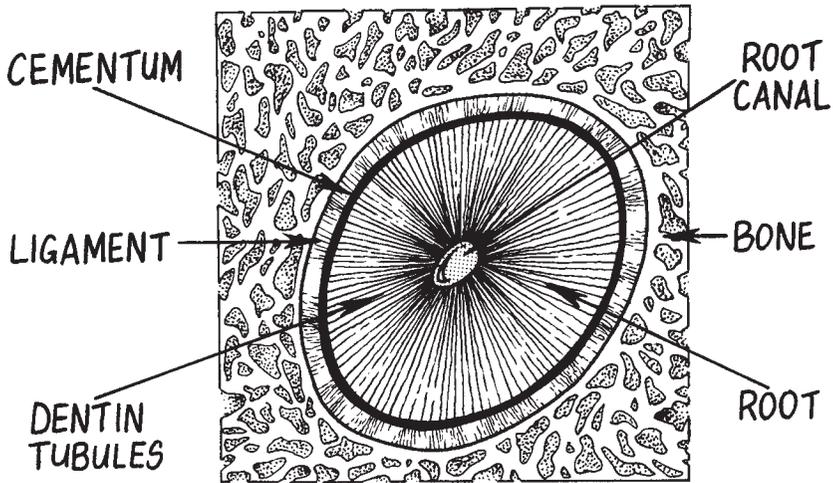
The crown and the root meet at what is called the *cemento-enamel junction* (CEJ).

The *pulp*, which contains blood vessels and nerves, leads into the *root canal*, which in turn connects to the nerves and blood vessels of the jawbone.

Ligaments and pockets The *periodontal ligament* averages about one-fifth of a millimeter in width and completely surrounds the root of the tooth, filling the space between the root and the bone. It attaches the root to the bone. It has a blood and nerve supply and also serves to act as a shock absorber—helping to protect the bone from the forces exerted while chewing. Without it your teeth would fall out.

In a healthy mouth, one that has never had gum disease, the ligament and the gum join at the cemento-enamel junction. Here's where

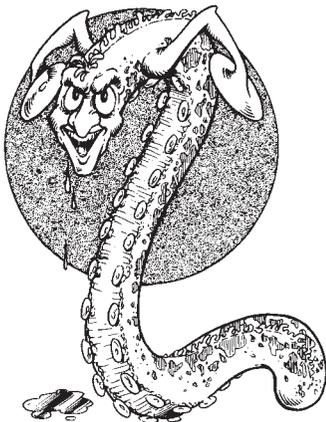
CROSS SECTION OF ROOT



the ligament attaches the gum to the tooth, forming the bottom of the gingival sulcus, or gum pocket. The pocket, just like the pocket of your shirt, has two sides (the tooth and the gum) and a narrow bottom (where the gum and the ligament meet the tooth).

Gums The gingiva, or gum, is really a type of specialized skin, much like the skin that covers your hands. It covers and protects the bone that surrounds the teeth. Before your baby teeth erupted, the gums completely covered both jaws. Nature, in her infinite wisdom, allowed the teeth to penetrate the gums and devised a way for the gums to stay attached to the teeth after they erupted.

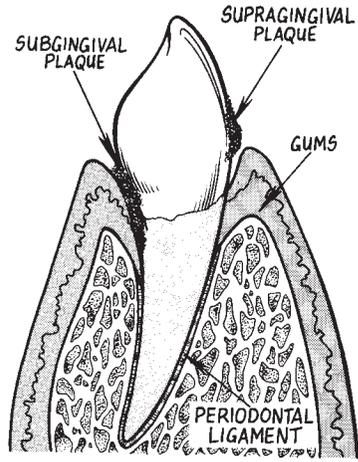
As long as the gums remain free from disease, the ligament keeps them attached to the root. Healthy gums hold tightly to the tooth, closing the pocket, so to speak, and helping to prevent food and plaque from reaching the ligament, the roots, and the extremely vulnerable underlying bone.



Germs As you now know, your mouth contains hundreds of types of germs. Some germs are more active in the gum disease process, but in general, the degree and seriousness of gum disease are directly proportional to the total germ population. Even in a healthy mouth, a

small drop of saliva can easily contain 50 to 100 million germs, but the same amount of saliva from a diseased mouth can contain *billions* of the little monsters.

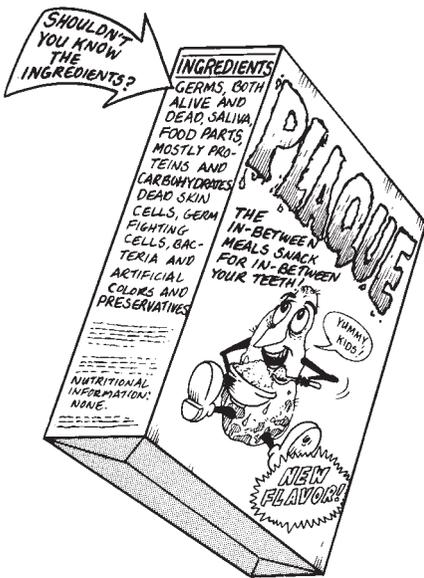
Plaque Plaque is an accumulation of germs (both dead and alive), saliva, food substances (mostly carbohydrates and proteins), dead skin cells, and the germ-fighting cells that have been released by the body to fight the bad guys. Initially it forms a sticky, nearly invisible layer that attaches to the tooth



but not the gums. As it continues to grow it takes on a whitish-gray color.

There are two kinds of plaque. They are distinguished by where they are found and their composition. The first type, *supragingival*

plaque, is found above the gum line, usually on the lower third of the tooth (or upper third for top teeth), with most of the deposits found in or close to the *gingival crevice*. The second type of plaque formation is called *subgingival plaque* and is found in the gum pocket.



The main difference between the two types of plaque is that the subgingival plaque contains many more kinds of bacteria than does the supra plaque. This is because the bacteria in the pocket are protected from most of the cleansing done by the tongue, the saliva, and the toothbrush. Thus, the pocket

supports more germs in general, and more of the nastier ones in particular. This, along with the fact that it is much more difficult to keep the pocket clean and healthy than it is to keep the gums around the outside of the teeth clean and healthy, makes subgingival plaque the

more serious of the two. If you didn't have a germ in your mouth you would not get the infectious forms of periodontal disease. Likewise, if you never formed plaque you wouldn't get them, either.

Calculus This is what plaque is called after mineral deposits have caused it to become calcified. Calculus (also called *tartar*) is composed mainly of inorganic compounds, mostly calcium phosphate, with traces of other mineral compounds. The rest of it is organic material: skin cells, dead germs, germ, fighting cells, various carbohydrates, protein, and a tiny bit of fat.

The easiest way to visualize how plaque turns into calculus is to think of a coral reef. Originally, coral is composed of living organisms and is soft. Then, because it stays in one place too long, minerals accumulate and it calcifies. Calculus is just oral coral. Plaque not only creates the matrix from which calculus starts, but also, once calculus forms, plaque collects on top of the calculus after it has hardened. This ongoing process is like building that coral reef. First you have plaque; it hardens to form calculus; then more plaque forms on top of the calculus and hardens to form more calculus; and so on. The rate of calculus formation depends on your diet, your saliva, and your oral hygiene. But left unattended, it can begin in as little as eight hours after plaque has formed. All plaque does not necessarily undergo calcification, but if you are susceptible to forming calculus your plaque can become 50 percent mineralized within only two days and from 60 to 90 percent mineralized in twelve days.

Food An important distinction must be made between the type of food that causes decay and that which promotes plaque formation. Decay can only take place in the presence of sugar, while *any type of diet* will contribute to plaque formation, including a high, protein, low-fat diet or a carbohydrate-free diet. In fact, plaque formation can take place *even if no food is present*. Thus, just because you remove sugar from your diet does not mean you'll eliminate plaque. But it will help, because a soft, sticky, processed, and overcooked diet—one that is high in refined carbohydrates—is the biggest promoter of periodontal disease. In short, any food left in your mouth will contribute to plaque formation, but a diet that is high in sugar will increase the amount and rate at which plaque forms.

Saliva Saliva plays a very positive role in preventing decay and periodontal disease, but once plaque has been attached to your teeth for more than twenty-four hours, the many minerals found in saliva can contribute to the formation of calculus.

You You are the final member of the cast of characters that contribute to gum disease—or more correctly, how well or how poorly you take care of your mouth. Knowing what causes this disease will help you tremendously when it comes to preventing it. It can be very frustrating and discouraging to think you’ve been doing everything you should to take care of your teeth and gums, only to find that you still have the disease. Unfortunately, although you were making the effort, you didn’t know how to take care of your mouth in the right way, at the right time, and with the right tools. I include among the “tools” your relationship with the hygienist, because your disease will always be worse if you don’t see her on a regular basis.

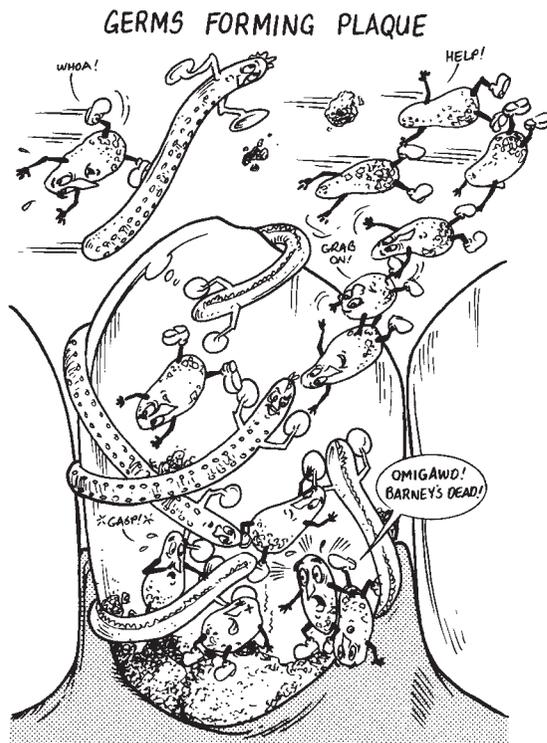
Now you that you know something about the characters in the story of periodontal disease, let’s see what takes place when they appear together on the same stage, your mouth.

The Beginning: Plaque Formation

All periodontal disease begins with plaque formation. In other words, without plaque formation you wouldn’t get gum disease. I should repeat that, but I won’t.

Plaque is initiated when millions of disease-causing germs attach themselves to the tooth by releasing a glue like substance. These germs can attach to what appears to the naked eye as a perfectly smooth tooth surface but, to the germs, is actually more like a rut, filled country road. They especially love areas of the tooth that don’t get cleaned properly, rough spots where decay has already started, pits and defects, and overhanging fillings. They also love the gingival crevice, the little groove where the tooth meets the gum, and the gum pocket, because these areas offer them a protected place to hang out.

But germs alone—even those that initiate plaque formation, no matter how many are attached—are not considered plaque. As more and more germs congregate, however, they’re able to snag the other materials



and other germs. Once all of the ingredients have joined together—and this can occur in as little as one hour after brushing—you've officially begun to form plaque.

At this point, and up to about four hours after this sticky and nearly invisible substance has formed on your tooth's surface, the plaque is vulnerable to all forms of oral cleansing. But if you give it more than four uninterrupted hours to establish itself, it becomes a lot tougher to remove. Left longer than that, plaque can adhere pretty solidly to the tooth, and in most cases, even brushing won't remove it all. You may scrape off the top layers, but the part that is most firmly attached to the tooth will usually remain. This makes it easier for the next layer of plaque to form, and it can begin to do so immediately after the next brushing. Remember, plaque can form in the absence of food, so even if you fast you'll still have to keep brushing.

Resisting the Plaque Invasion

As soon as the germ, laden plaque starts to form at the gum line, your body musters its defensive forces to battle the bacteria. The germs

that come in contact with the gum tissue release toxins that irritate and inflame the tissue. Soon the inflammation stimulates the release of germ-fighting cells in the immediate area of the plaque formation, causing an increase of blood flow to the surface of the gum tissue, which causes the gums to swell. A battle between health and disease has now been initiated—your body’s defenses versus the germs. The result is a buildup of millions of dead germs and millions of used-up, dead defense cells. As the fight continues, the battlefield debris is added to the growing plaque, and more and more plaque is formed. Once it has begun, this process goes on minute by minute, hour by hour, until you step in to have the plaque removed and to control the germ population, or until your teeth fall out. Believe me, there are better ways to overcome plaque than to lose your teeth.

Within a few days, the gums that once were firm and healthy begin to lose their tone and elasticity. As the infection proceeds, the gums lose their ability to grip the tooth firmly at the gum line, and the pocket between the gum and the tooth loosens and becomes more accessible to the invasive plaque. The plaque on the teeth now spreads in all directions and begins to push into the pocket. As it does so, it comes in contact with more gum tissue, and the inflammation process expands. An ever-increasing number of your body’s defensive cells are called upon to resist the germs. Without your intervention, your body’s natural defenses may win a few battles, but in time they’ll surely lose the war.

The Formation of Calculus

Soon, within as little as eight hours after it has begun, this massive onslaught of germ-filled plaque moves into its next phase. The portion



DR. TOM’S TIPS

It should be noted that not everyone forms calculus, and people who do form it do so at differing rates. Although calculus contributes to gum disease, you don’t need to form calculus to get periodontal disease. All you need is a poor diet, poor oral hygiene, and plaque.

of the plaque that lies next to the tooth begins to mineralize. You now have the beginning of calculus.

The mineralized layer of calculus bonds to the tooth even more powerfully than plaque. More plaque becomes calcified and starts to spread in all directions, pushing outward against the gum tissue, while simultaneously making its way into the extremely vulnerable gum pocket. New plaque is constantly being formed on top of the ever-spreading calculus.

As more gum tissue comes in contact with the spreading plaque and calculus, the infection intensifies, and the substance that holds your gum cells together is weakened. This weakening makes the gums more fragile, and soon the gums are no longer able to protect themselves even from the most mild forms of stimulation, such as brushing and eating hard foods. As a result, bleeding takes place. Once the bleeding starts, the germs get an additional source of food—the blood and other body fluids that are now being released from the gum tissue at an alarming rate. Now certain types of germs can begin to penetrate the gum tissue. This infection process is no different from what happens when you cut your finger. The germs normally found on your finger and in the air are unable to penetrate healthy, intact skin, but once the skin is cut, the invasion begins.

Bye-Bye Ligament

Once plaque begins to form in the pocket, it is protected against most forms of oral hygiene. As plaque moves into the once healthy gum pocket, the infection begins to involve the place where the ligament attaches the gum to the tooth surface. Infection here is bad enough by itself, but the whole process is made even worse by the formation of subgingival calculus. As the calculus grows and spreads, it pushes against the swollen gum tissue. The new plaque, which is continually forming on top of the expanding calculus, comes into contact with areas of gum tissue that are still healthy. When this happens the inflammation and infection spread more rapidly than ever. When the infection reaches the place where the ligament attaches the gum to the tooth, the ligament is forced to let go of its hold on the tooth surface, and the pocket now begins to deepen. In essence, the calculus acts as a scaffold by which the plaque gains access to the surrounding gum tissue.

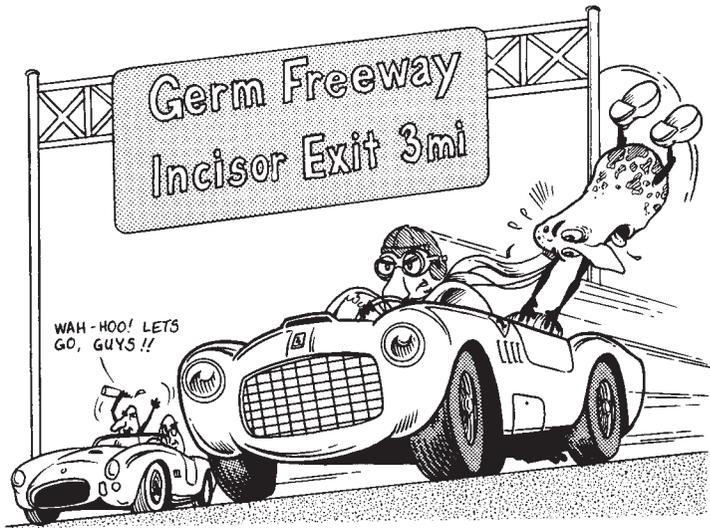
How Gingivitis Becomes Periodontitis

Once the infection involves the ligament that holds the tooth to the bone, you have officially moved from gingivitis to periodontitis. As the infection destroys the ligament, both the root and the bone are exposed to the bacterial hoards and the toxins they release and to the deadly plaque and calculus. Periodontitis and root decay go hand in hand because the thin, soft layer of cementum that surrounds the root and the vulnerable dentin underneath it are directly exposed to the acid-producing germs found in the plaque.

The bone surrounding the tooth is also now at risk. The bone of the jaw is extremely susceptible to any form of irritation and infection. The bone resists this invasion on its own in the best way it knows, but without help from you, the hygienist, and the dentist, it is overwhelmed and soon has to retreat. The retreat begins when osteoclasts, which are cells that dissolve bone, start breaking down your jawbone to remove it from the plaque invasion and its accompanying germs and toxins. This is how bone loss occurs.

Prior to this stage, the battle was raging on the outer surfaces of your body; but now the battle has moved deeper within because the first line of defense, your gums, has been breached. As the bone recedes, the pockets deepen, more plaque is formed on top of the continuously growing calculus . . . and, again, the disease process is accelerated. Over time, as more and more bone is lost, the tooth begins to loosen. This loosening is expedited by chewing because there's not enough bone supporting the tooth to resist the tremendous forces of mastication. Eventually, the tooth becomes loose enough to be wiggled by your fingers. And the once inaccessible opening between the tooth and the gum becomes a germ superfreeway.

Now everything you put into your mouth has direct access to the bone, the gum tissue, and the root of the tooth. More food is packed in, more germs are born, and more plaque and calculus are formed. There is now very little you can do about it on your own. If left untreated the disease will soon pass the point of no return and it will be too late to save the tooth. Once the framework that holds the bone cells is lost to gum disease, new bone won't form to replace what has been lost, even after you get rid of the disease. At this critical stage the damage is irreversible. If the tooth is not pulled, it will eventually just fall out.



Epilogue

There you have it, the story of gum disease and how it can take a perfectly healthy tooth from your mouth on the long and painful journey to the oral surgeon's jar. If you let gum disease go too far, your story will end in the same unhappy way that it has for more than 13 million people who are now toothless.

If you're not yet concerned about this disease, you should be. Knowledge gives birth to hope and motivation, and the following chapters will give you the knowledge you need to do something about this disease. Let's begin Chapter 3 with an oral self-examination.



Chapter 3

Oral Self-Examination

You need to understand health before you can understand disease, so first I'll describe the look, feel, and smell of healthy gums. After that, I'll tell you how to spot the signs of gum disease, using a home method of oral self-examination. Then, in the second part of this chapter, you'll examine your teeth. And in the third part, you'll take a look at your tongue, glands, and saliva.

This self-examination is, of course, optional, but I strongly recommend that you participate. By examining your own mouth before you are professionally examined, and before you begin your new hygiene program, you'll get an invaluable baseline picture, your own visual reference point from which to monitor your progress. So write down the results of your examination; then take your results to the dental office in order to compare what you've found to what the dentist and hygienist discover.

If you repeat your home examination after spending three to four dedicated weeks on your home care program, you'll see for yourself how much can be accomplished through your own efforts. Ideally, at this point, the RDH (registered dental hygienist) will have already performed hygiene therapy, provided a lot of support and guidance, and given you your personalized instructions—but she won't have brushed, flossed, and used the water irrigator for you. Your progress will be your own, and seeing it for yourself will be motivating and empowering.

If you're one of the millions who don't regularly see a dentist this chapter will be especially important to you. Far too many people erroneously believe that if there's no pain there's no problem. This is the worst approach you can take with your teeth and is the cause of much suffering and expense. Examining your mouth will, perhaps for the first time, give you a chance to see what is actually going on in there. It's one thing to hear words like plaque, decay, gum disease, etc., and another to actually see these processes in action—in your own mouth. You still may not want to do anything about them, but you can no longer use ignorance as an excuse. Use what you see to motivate you, not only to get involved with your hygiene but also to get your mouth repaired.

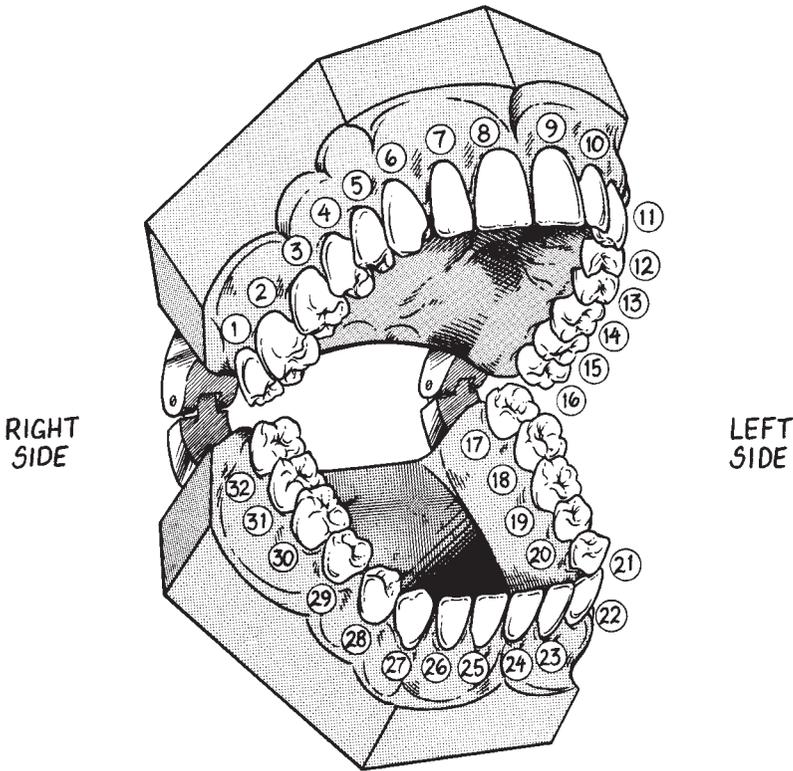
Don't worry about missing something, because your home examination will be double-checked by the hygienist or the dentist. They'll make the official diagnosis for you. Remember, no matter how well you do on your own, you'll need the aid of the dentist and the hygienist, not only to verify what you've seen but also to pick up what you may have missed. I feel pretty confident that your self-examination will show you things you've never seen before. Are you clear about what self-examination can mean to you? Great, I like your attitude already.

WHAT YOU NEED

The tools for your self-examination are few, simple to use, easy to obtain, and inexpensive:

- A penlight
- A mouth mirror
- A bathroom mirror
- Some absorbent cloth or gauze to dry the teeth and gums

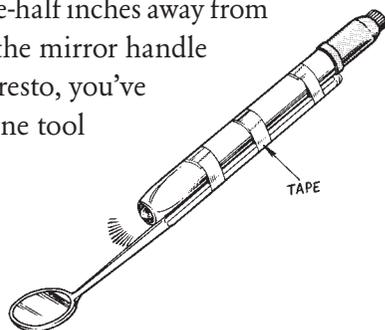
TOOTH NUMBERING SYSTEM



- A good place to prop *Healthy Teeth* while you're performing your exam. You can buy a small bookstand, or you can create your own.
- A diagram of the teeth. The drawing above shows you the tooth numbering system the dentist and hygienist use when they communicate with each other. Whenever you find a problem area, make a note of it using this numbering system. They'll be amazed and pleased when they hear you speak of "sensitivity in number 22" versus "I have pain in the lower left side." They might even think you went to dental school.

The best way to perform your oral self-examination is with a combination mouth mirror and penlight. Order my mouth mirror penlight from my website, www.dentalwellness4u.com, or you can get creative. You can buy a small penlight and a mouth mirror in most

drugstores. Mating the two is a simple procedure. Place the penlight on the handle of the mouth mirror, with the bulb facing the mirror. Position it about one and one-half inches away from the mirror. Secure the penlight to the mirror handle by taping it in at least two places. Presto, you've just created a very functional hygiene tool that will serve you well, for a long time.



This is the best way to do it, but if you don't want to go through this process, you can perform the examination by holding the mouth mirror in one hand and the penlight, or small flashlight, in the other hand. Place the mirror in your mouth, position it to reflect the area you want to see, and shine the light on the area. Make whatever adjustments you need to until you can see the mouth mirror reflected in the bathroom mirror. Although the mirror-light combination is easier to use, a little trial and error using them separately will provide the same results.

If the mirror fogs up, it's because the mirror is colder than your breath, but there's a way around that. Equalize the temperatures, either by running warm water over the mirror for a few seconds or by putting the mirror in your mouth and rubbing it along the inside of your cheek. The saliva will coat the mirror and keep it from fogging.

GETTING A FEEL FOR THE PROCEDURE

Before you begin the actual examination, I'd like you to get a feel for the procedure, so we'll practice viewing the gums. It's a simple technique, and after you run through it once you'll be ready to start your home examination. Don't worry about looking for anything specific at this point. You'll use the same approach to examine your teeth; so later, just replace the word *teeth* for the word gums. If you've got kids, this is a great way to introduce them to their mouths.

Get your equipment together, wash your hands, plant yourself firmly in front of the mirror, and as soon as you're ready, we can get down to business.

Viewing the Gums around the Front Teeth

You don't need the mouth mirror for this part of the examination.

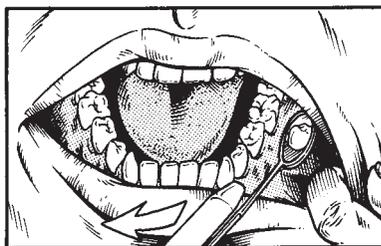
- Lean over as close to the mirror as necessary to get a good view.
- Place your index and middle fingers of each hand at the corner of each side of your lips and gently pry them apart. Your mouth and lips are very sensitive and delicate, so be gentle. Only separate your lips as much as necessary to clearly see.
- Keeping your teeth together, barely touching, move your lower jaw forward so your lower front teeth are even with the upper front teeth.

In this position you should be able to see enough of the gums around the front teeth to do the examination.

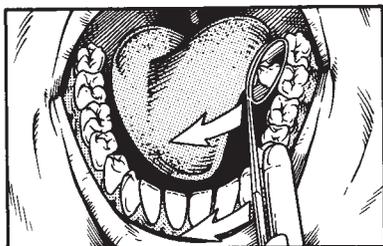
Viewing the Gums around the Back Teeth

You have two jaws to examine, so take your pick: which one do you want to explore first? I see you chose the lower jaw. Good choice, because that's where I'm starting.

Lower jaw The gums around the outside of the lower left back teeth can be seen by taking your left index finger and pulling your lower lip out and down. Insert the mouth mirror (mirror facing toward the teeth) between the cheek and the gums. Reverse the procedure for the right side. You'll have to play with the position of the mouth mirror until you see its reflection in the bathroom mirror.



To see the gums on the inside of the lower jaw you only have to open wide enough to place the mouth mirror between the tongue and



the teeth. If the tongue fights back (it can be rebellious) you can use the mouth mirror to hold it back. Tilt the mouth mirror as needed in order to see your teeth and gums reflected in the bathroom mirror. Play with it until you feel comfortable. Be sure

to periodically rinse the mouth mirror with warm water if it fogs up.

Upper jaw The basics are the same. As long as you know what you're looking for, have some patience, and use your mouth mirror in the right way it'll be a breeze. Now that you're familiar with the technique, it's time to get started.

PART 1: YOUR GUMS

Healthy Gums

There are seven characteristics of healthy gums that can be observed at home. Don't flip out if your gums don't display all of the healthy signs—few do. But be honest. When your RDH examines you, she most definitely will be. Read through each description, then examine your gums and compare.

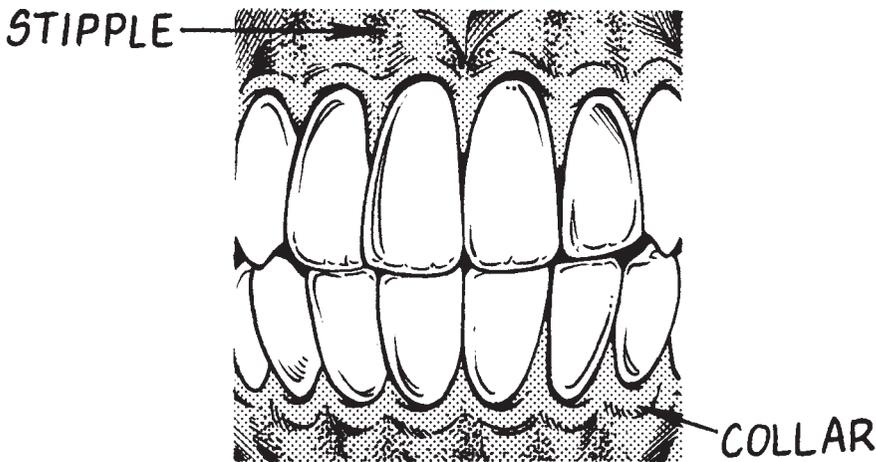
1. Healthy gums are firm. They look like someone pulled a tightly fitting spandex suit over the teeth. Think in terms of tone, as you would with muscle tone, and you'll get the idea.

2. Healthy gums are generally a pinkish color. Some may even look whitish pink. For the lower jaw, this color should extend down about one-half inch from the highest point the gum reaches on the tooth. (Reverse this for the upper jaw.) However, dark-skinned people often have healthy gums with dark pigmentation, and fair-skinned people sometimes do too, so color can't always be used as a definitive criterion. The point is: if your gums are darkly pigmented but the remaining features check out okay, your gums are healthy.

3. Healthy gums fill in the spaces between the teeth. At the highest point between the teeth (on the lower jaw) they should be shaped like an upside down V. (Reverse this for the upper jaw.)

4. Healthy gums form a collar like rim around the teeth. This collar, or rim, is nothing more than a roll of gum tissue that begins where the gum meets the tooth, rises up, and blends back into the gum. It's about one-sixteenth of an inch wide.

5. Healthy gums have little dot like indentations called *stippling*. The stippling effect begins just below the collar (or above, for the upper jaw). The stippled areas should look somewhat like the skin of a naval orange.



6. Healthy gums are not tender. This also means they don't bleed when you eat or brush.

7. And finally, healthy gums are odorless. No morning, noon, or evening breath. I'm not talking about obvious breath, meaning breath that has an obvious cause (garlic, onions, cigarettes).

Unhealthy Gums

Now you know what healthy gums should look and feel like. You're also becoming more familiar with a part of your body to which you've probably never given a great deal of attention. Kind of like living next door to someone all your life and never really meeting her. It's time to see what kind of neighbors your gums are.

After you've read through the following questionnaire, which addresses the most common gum disease symptoms, I want you to examine your mouth and see how many you can find. If you think you recognize any of these symptoms, check the box and note the location. The RDH can verify it one way or another. (Please, if this book is from the library, photocopy the pages or write everything on a separate piece of paper. Thanks, from me and your librarian.) There are three boxes, one for this exam and two for additional exams, plus space for you to note the location of what you discover. Be sure to note the date of each exam.

Are your gums shiny, smooth, and without the stippled effect? To check for this, take your drying cloth and pat dry the areas that you're examining.

- _____
- _____
- _____

Are your gums swollen, puffy, red, and angry?

- _____
- _____
- _____

Do the tips of the gums (where the gums fit between the teeth) have a crater like or hollowed-out appearance? Sort of like the recessed tip of a volcano?

- _____
- _____
- _____

Is there a whitish, pus-like substance at the tips of your gums? Look especially in the area of the lower front teeth.

- _____
- _____
- _____

Is food easily caught between any of the teeth?

- _____
- _____
- _____

Do your gums bleed when brushed, when eating, or at any other time, especially for no apparent reason? One good way to check for bleeding is to push on the gums with your finger in the area between the teeth.

- _____
- _____
- _____

Another way is to generate a suction effect, as if you were trying to suck the gums into your mouth between your teeth. Even if you have no bleeding at other times, but you do with this test, check the box.

- _____
- _____
- _____

Do you have bad breath? Dental disease (especially gum disease) and trapped food particles are the main causes of bad breath.

- _____
- _____
- _____

Are your gums painful? Do they feel hot or exhibit a burning sensation, as if your breath could melt snow?

- _____
- _____
- _____

Have the gums receded? Are there spaces between your teeth that were once filled by gums?

- _____
- _____
- _____

Do you have any loose teeth, or have any of your teeth shifted from their original position?

- _____
- _____
- _____

Is there any plaque or calculus stuck to your teeth? This is commonly seen at the gum line.

- _____
- _____
- _____

If you have checked a majority of the above, have you also noticed a slight fever, sore throat, loss of energy, and a general feeling of the blahs?

- _____
- _____
- _____



DR. TOM'S TIPS

The extent and seriousness of your gum disease will vary from area to area. You may have only the beginnings of a problem in one place and advanced disease in another. So I want you to check out your gums around every tooth, inside and out, not just the around the front teeth. When you've done this, you'll have a pretty good idea of the general condition of your gums, but you'll never know the exact condition without a full dental and oral examination.

PART 2: YOUR TEETH

While you were examining your gums you most likely saw some teeth. You'll now use the same tools and techniques to check them out. You can start the examination anywhere you want, but make sure you start and end at the same place and examine every one of your teeth. Don't brush before this examination—you're not trying to impress anyone, and I want you to see how things look before a brushing. When you examine your teeth, cover all of the following areas. If you

think you have a problem check the box and note the number of the tooth or teeth involved (according to the tooth numbering system shown on page 38). Don't forget to jot down the date of your exam.

Number of Teeth

First see how many teeth you have. You should have thirty-two, counting the four wisdom teeth (if they haven't been removed).

Are you missing any teeth? Which one(s)?

- _____
- _____
- _____

If so, have the teeth adjacent to the missing tooth (or teeth) moved or rotated? This seems to happen most often in the lower jaw.

- _____
- _____
- _____

If you have a missing tooth, has the tooth above, or below, the empty space moved into the void? You can check this by closing your mouth as you would normally, and then, with your fingers, separating your lips; see if the tooth above (or below) the missing one has moved into the empty space. You might have to use your mouth mirror to see this.

- _____
- _____
- _____

If the tooth has moved, your situation is serious; some of the tooth may have to be removed or crowned to make room for the false tooth. But whether it's moved or not, you'll have to replace the missing tooth or you'll probably end up losing the opposing tooth. Whenever you lose a tooth, the opposing tooth no longer functions while you are chewing, and, in effect, you lose both of them. For example, if you keep your lower teeth but lose all your uppers,

you lose the function of all thirty-two because the bottoms can't function without the tops.

Shape and Size

Judging by the wide variety of sizes and shapes found in nature, I'd say that God or Nature isn't too concerned with creating every, one alike. Statistics show that the so-called perfect mouth, dentally speaking, is found in only 2 percent of the population. A tooth that is misshapen, too small, or too large will usually not be a problem for your dental health. As far as aesthetics are concerned, however, it could be. Cosmetic dentistry can do wonders to correct a problem tooth, so make a note of its location and point it out to your dentist.

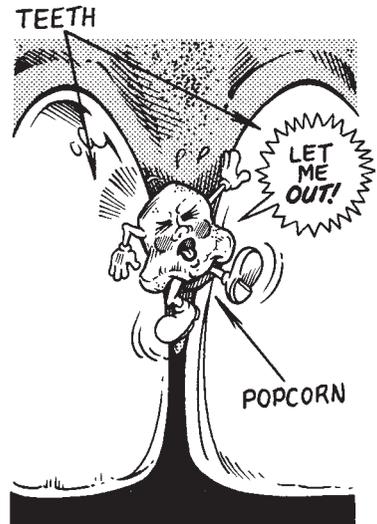
Are any of your teeth candidates for cosmetic dentistry?

- _____
- _____
- _____

Spaces between Your Teeth

There are natural and unnatural spaces found between the teeth. Most natural ones won't cause a problem—they're usually wide enough so that most food won't get stuck in between them—and other than your own feelings about them aesthetically, they're nothing to be concerned about. In children it's actually normal and desirable to have these spaces in order for there to be enough room for the proper emergence of the permanent teeth.

Unnatural spaces are another story entirely. These spaces—and I'm not speaking about the spaces caused by lost teeth—are more easily felt or experienced than seen. For example, if after eating certain types of fibrous, tough, or stringy foods—like meat,



oranges, popcorn—you feel some, thing stuck between your teeth that even a good brushing won't remove, you can be pretty sure that you've located an unnatural space. It may feel like the food is stuck in the gums or wedged between the two teeth. In the dental profession the place where two teeth touch is called a *contact point*. "Bad contacts" or "poor contacts"—where the contacts aren't as tight as they should be—can be caused by decay, a broken filling, or a poorly designed or placed filling. No matter how it's caused, an unnatural space is going to end up causing you some serious gum problems. Because food that gets stuck can't be removed by brushing, these areas are very susceptible to decay and gum disease. They must be fixed. Until you do, make sure you floss immediately after you eat.

Do you have any unnatural spaces between your teeth? Note location.

- _____
- _____
- _____

Overlapped (crowded) and Rotated Teeth

If only 2 percent of us have perfectly straight teeth that means you have a 98 percent chance of having at least one tooth that isn't. Aside from genetics, lost teeth are the most common cause of this problem. Teeth that are too far out of normal alignment can cause one or more of the following problems:

- They're more difficult to keep clean.
- They can interfere with your bite and with normal chewing.
- They can cause *temporomandibular* joint (TMJ) problems.
- They can be unsightly.
- Children's permanent teeth may come in improperly.

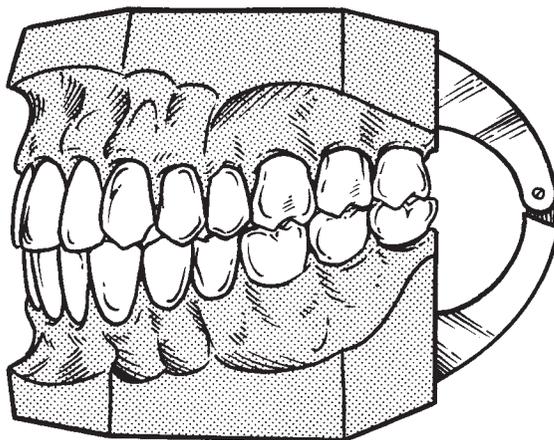
If you can afford it, there's much that can be done through orthodontic treatment and cosmetic dentistry. If you choose not to go that route, or you can't afford orthodontic treatment, you can still keep them healthy by knowing how to take care of overlapped or rotated teeth.

Do you have any teeth that aren't properly aligned? Note the location because you'll need to spend extra time keeping them healthy.

- _____
- _____
- _____

Malocclusion and TMJ Problems

There are a surprising number of people, whether they're aware of it or not, who have at least some problems resulting from malocclusion, or a bad bite. Bite problems can range from minor ones involving only an improperly placed filling (easily corrected), to those caused by lost teeth, to genetic ones (overcrowding and jaw misalignment) involving most or all your teeth.



Is your bite even? A simple way to test this is to swallow and then immediately lightly tap your teeth together. If the sound is an evenly distributed "tap, tap" or "clunk, clunk," you should be fine. You can also use your mouth mirror to check this. Bite down, insert the mouth mirror, pull your lips apart, and see if the teeth come together as shown in the drawing. Note any differences.

- _____
- _____
- _____

Bite down slowly (without food in your mouth). Are you hitting on one side of your jaws before the other? To test this, relax your jaw muscles as much as possible, swallow, and your teeth will come together naturally. Don't try to guide your lower jaw closed. Think about something else—so your mind doesn't get too involved—and let your mouth close naturally.

- _____
- _____
- _____

Again, closing slowly, does it feel as if you're hitting on just one tooth, or a filling, first? This is subtle, so pay attention. You may notice that instead of hitting evenly on all the teeth's surfaces at once you first hit on one tooth and then the rest of the teeth slide into place.

- _____
- _____
- _____

Do your teeth, or some of them, feel sore for no apparent reason, and are they especially tender during or after chewing?

- _____
- _____
- _____

If you have difficulty opening your jaw fully this could be an indication of a *temporomandibular joint* (TMJ) disorder. This disorder, marked by pain and discomfort in the jaw joint, affects millions of people. It's most often caused by prolonged tooth clenching or grinding; a bad bite; injury to the joint, ligaments, or muscles; genetics; or a degeneration of the bone or the ligaments of the jaw joint. It could also be caused by a wisdom tooth impaction or extraction. If you have any of the following symptoms you may have a TMJ problem.

Are the muscles in the general area where the lower jaw hinges with the upper jaw sore, tired, or tense?

- _____
- _____
- _____

Can you hear a cracking, clicking, or popping sound when you open your mouth to talk, yawn, or chew?

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- _____
- _____

Does your lower jaw slide out of its socket (or almost do so) when you open wide?

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Check the tops of your teeth. Are there any wear spots, either on your fillings or on your natural tooth surfaces? Check especially the place where you seem to hit first when you bite down. These high spots will appear shiny if there's a filling, or worn if it's the natural tooth. If you have a very serious problem you'll see that your cusp tips are worn down.

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It is very important to verify any suspicions you have about a bite or TMJ problem with your dentist. Most of these bite problems begin as simple ones and become complex through neglect. They not only can cause nutritional problems (by forcing you to change to a softer, less natural diet) but may also lead to severe bone loss. If the problem is caught early enough it can easily be corrected, but if you

let it go the problem could become very serious, and at that point the average dentist may not be able to offer you a simple and inexpensive solution. You could thus end up paying an unnecessary, heavy price for delaying its treatment.

Serious bite and TMJ problems are among the least understood aspects of dentistry. If it has been determined that you have an advanced condition ask your dentist to refer you to a dentist who specializes in TMJ problems. I suggest you don't let anyone experiment with you unless he specializes in these areas. Have the dentist explain thoroughly what he plans to do and what are the likely outcomes, so you have a clear idea of what to expect.

Stains and Discolorations

It's easy for the layperson to confuse a stain with decay, but most stains have an external cause and are generally harmless, though they can be an eyesore. You can also mistake a stain for the discoloration caused by an amalgam filling, which can darken the surrounding tooth structure. Normally, routine hygiene therapy will remove self-imposed stains, but if any stain remains after the cleaning have the dentist check it out.

Stains come in all colors and can be caused by many things, most of which aren't good for you.

Natural discoloration Most teeth start out bluish white when you're young and get yellow to grayish yellow as you get older. So if you used to have white teeth and they're now yellow, don't panic. You may just be facing the thing most of us try to avoid—the normal aging process. The white part of your teeth, the enamel, gets worn away with age, and because it's somewhat transparent, the more the enamel is worn off, the more the yellow colored dentin found directly under the enamel shows through.

This is a normal process, unless the enamel wears off too rapidly. For example, if you're thirty years old and your teeth were white one month and yellow the next month, you may have a problem. Rapid wearing of the enamel can be caused by any number of factors: genetically



soft enamel, an abrasive diet, a highly acidic mouth, an acidic diet (are you sucking on lemons, drinking acidic soft drinks?), rare diseases, overuse of an abrasive or acidic toothpaste, or a potentially harmful work environment (like a sandblasting company). Whew!

Have you observed that your teeth are yellowing too fast? If so, you and your dentist should do a Sherlock Holmes and ascertain the cause. Once the cause is known you have a chance to correct it.

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Green stains Green stains are most often found on children's teeth, usually at or around the point where the teeth and gums meet, most obviously on the front teeth. The stain is actually on the membrane that covers the erupting tooth. Normally the membrane is sloughed off during the eruption process. If it isn't, a simple cleaning should remove it.

Did you find any green stains?

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- _____
- _____

Brown stains Brown stains are usually caused by smoking or by chewing tobacco. They can also be caused by drinking a lot of coffee or tea. But the major contributor is poor oral hygiene. What? Well, these substances will more readily stain plaque and calculus than your teeth. Many people think their teeth are stained when it is actually the plaque and/or calculus that is stained.

So look closely. Do you have this type of stain on the portion of the teeth closest to the gum line?

- _____
- _____
- _____

Dark gray, yellow, brown, or black stains These are discolorations that you should look for not only in your own teeth but also in your child's. They usually indicate that the pulp (the portion of the tooth containing the nerves and blood vessels) is dying or has died. It can be the result of decay. Or it can be from a blow to the tooth (usually it's the front teeth that are involved). It doesn't have to be a powerful shot to the tooth to kill it. A well-placed blow will cause the blood vessels in the pulp to hemorrhage; the blood then leaks into the pulp cavity and into the tubules in the dentin. The resulting dark dentin shows through the transparent enamel and—voilà!—you have a discolored tooth. The discoloration won't show up immediately; so if you fell off a horse last week, ran into a wall, or were hit by a baseball, forgot about it after the pain subsided, and now have a discolored tooth, you can put two and two together. If you're a parent you know that kids are always taking weird falls, so be sure to watch for this.

Have any of your teeth become discolored over a short period of time?

- _____
- _____
- _____

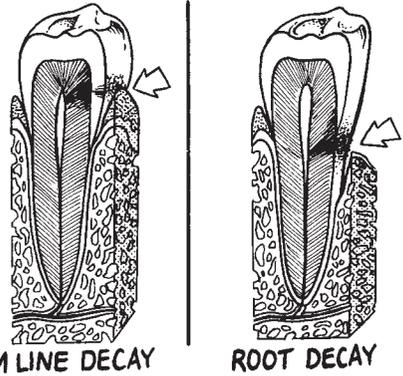
White or brown chalky spots An excessive intake of fluoride during the formation of the crowns of the teeth can cause discolorations. Although this is somewhat unsightly, you won't find decay in those areas.

Do you have any chalky stains?

- _____
- _____
- _____

Decay

We've already discussed tooth decay and the areas where it is most often found. (If you want to refresh your memory, turn back to pages 14–16 in Chapter 1.) When you examine your teeth always look closely in these areas. Usually there will be discoloration and a flaw, or hole, in the enamel or root.



Do you see anything that looks like decay?

Broken or Lost Fillings

All restorations can wear down, fracture (except gold), or fall out. Check the margins around every filling to see if they're intact, especially those on the tooth's chewing surfaces.

Are any of your fillings worn down, broken, or missing?

Broken, Chipped, or Cracked Teeth

Broken and chipped teeth are easy to find. If you see a tooth that doesn't look normal check its twin on the opposite side. If it doesn't match up you should make note of that tooth. Keep in mind that a tooth can break or chip without giving pain, so unless you examine your teeth, it may go unnoticed. Look especially hard at the front teeth and at teeth where you have experienced any sensitivity to heat, cold, acidic substances, and, especially, sugar-containing foods or snacks.

Do you have any broken or chipped teeth?

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- _____
- _____

Cracks and fractures are often too small to see with the naked eye. It will be much easier to spot them if you dry the teeth before you start looking. Most often a crack in a tooth will be noticed more by feeling than by sight. You wake up early one day, walk outside, take a mouth full of refreshingly cool morning air, and feel a pain in number 9. Or, lord forbid, you eat a candy bar and soon feel a sharp twinge of pain, or even a little twinge, in number 29. If this happens be sure you make note of it, because the dentist may not see the fracture unless you tell him, and it could, so to speak, slip through the cracks.

Have you noticed any area of pain, or sensitivity, in a tooth that shows no other signs of disease?

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Erosion and Abrasion

These terms simply mean that your teeth are being abnormally worn away by various substances that probably have no business being in your mouth in the first place. Erosion and abrasion are much easier to feel than to see. A dramatic way of detecting them is to visit the RDH. When she starts poking around with her little metal explorer and she touches one or more of those eroded or abraded areas, you may immediately feel a sensation that can only be de' scribed as shocking. Don't tough it out. Tell her immediately. Unless your scream provided her with the information she needed.

Erosion Erosion is abnormal wear due to a chemical reaction. A good example of an erosion-causing agent is the lemon. Lemons, as well as other citrus fruit, contain natural acids that are strong enough to completely dissolve the tooth's enamel and dentin, given a long

enough period of time. This process is akin to a river's effect on rocks. Of course it happens much faster in your mouth, especially if you're a heavy lemon sucker and also have soft teeth.

Have your gums receded, showing more of the tooth than before, although you don't have gum disease? What's happening is that acid is etching away the tooth and chemically detaching the ligaments that connect the gum to the tooth. If you have exposed roots you will be more vulnerable to both erosion and abrasion, so be sure and check out these areas.

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- _____
- _____

Are your teeth sensitive to heat or cold, sweets, or brushing at the gum line?

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If you can't break the lemon habit you can at least rinse well immediately after sucking on one, or juice the lemon and drink it through a straw and then rinse. Other acidic substances may also cause erosion, with the basic symptoms being the same. For example, take the phosphoric acid that is normally found in many types of soft drinks. This acid is strong enough to dissolve an iron nail—so what chance have your teeth got? Combine this acid with the approximately four and one-half teaspoons of sugar found in a twelve-ounce bottle of some soft drinks and you have more than enough to cause not only erosion but also decay. Soft drinks and candy have probably decayed more teeth than all other foods and drinks combined. Just imagine if you drank a lot of soft drinks, ate a lot of candy, and also sucked on lemons. Whew! Do you have dental insurance?

Many times the sensitivity stemming from erosion can be corrected by simply finding and eliminating the cause. There are also a few special kinds of toothpastes that can help treat it. If the problem

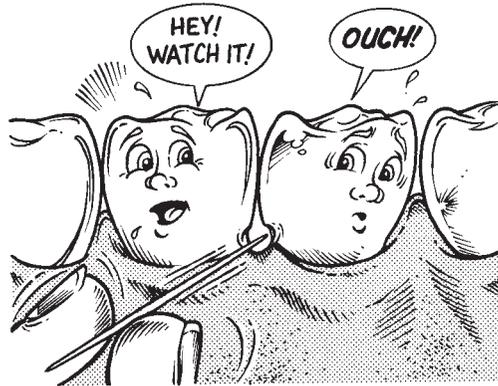
has gone too far your dentist can desensitize the area with any one of the many desensitizing methods available to him; or you can have fillings placed in the sensitive areas, as a last resort.

Abrasion Abrasion is like erosion—the tooth is being worn away—but the cause is mechanical rather than chemical. Abrasive sandpaper rubbing on soft wood will abrade the wood very rapidly. Same goes for the teeth, except the cause, I hope, won't be sandpaper. The rate of wear will depend on the hardness of your enamel, the abrasiveness of the material, and how often you use it.

The end result is very similar to that of erosion, so look for the same symptoms and signs, but look for a different cause. Abrasion can be caused by a surprising variety of activities.

BRUSHING THE WRONG WAY I've seen cases where incorrect brushing, a side-to-side motion instead of an up-and-down rotary motion, has worn teeth in half. The teeth looked as if they were sandblasted. The effects of wrong-way brushing will be compounded if you use an abrasive toothpaste, if you use a hard-bristled toothbrush, if you brush often and with a lot of force, and if any of these things is done over a long period of time.

TOOTHPICKS When the toothpick is pushed in and out of the spaces between the teeth, it not only pushes the gum downward (or upward, depending on whether you're working on the lower or upper teeth), but also acts like a piece of sandpaper on the thin part of the enamel near the gum line. Eventually, this procedure will push the gum past where it normally attaches. When this happens, the toothpick will begin to abrade the root, creating toothpick "craters." If you have any bone loss this process will be accelerated. As well as being unsightly and increasing tooth sensitivity, these craters are food traps. Used correctly, toothpicks can be an



effective tool, but if you see any signs of toothpick abrasion you'll have to lighten up. (Its proper use is discussed in Chapter 5, on home care.)

Examine the areas where you use a toothpick the most. Do you detect any abrasion or gum recession?

- _____
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THREAD AND HAIRPIN BITING If you use your teeth to break thread or open hairpins, the effects are very easy to spot, especially on the edges of the upper front teeth. That seemingly small notch you have created can set up a fracture line in the tooth, and if the notch is hit in the right way it can fracture or crack the tooth. The best treatment is to stop using your teeth for these purposes and to have the dentist smooth and polish the notched areas.

Do you have any notches on your teeth?

- _____
- _____
- _____

SEED SHUCKING If you love sunflower seeds, pumpkin seeds, or any others (the way I do), eat a lot of them (the way I do), and shuck them with your front teeth (the way I used to), you can wear away the enamel of the front teeth and set up fracture lines on their chewing edges. Use your back teeth instead; they're better suited for the task.

Do you have any irregularities on the edges of your front teeth? Ask the dentist to smooth them off.

- _____
- _____
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CLENCHING AND BRUXISM Severe clenching and bruxism (grinding) can actually flex the tooth at the junction where the enamel meets the root. This may cause sensitivity.

Are the tops of your teeth excessively worn? Are your chewing muscles always sore? Do you have pain in the TMJ joints? If you answer yes to any of these questions be sure to tell your dentist.

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PART 3: YOUR TONGUE, GLANDS, AND SALIVA

No self-examination would be complete without taking a peek at some of the other parts of your mouth besides teeth and gums. As with your teeth and gums, this exploration is only meant to help you become better acquainted with your mouth—to check things out and become aware of where they're found and what is normal—but by no means should you attempt to make a final diagnosis. If you find something that seems suspicious, bring it to the attention of your hygienist and dentist.

The Tongue

You might think that the tongue is best used for sticking out at someone or for kissing. If that's what you think, you're only partly right. The tongue also serves you in many more practical ways. In fact, it's one of the most interesting and observable organs of your body. Let's take a look at it before I tell you what it can do for you.

Examine your tongue Get a small piece of clean cloth or a four-by-four-inch piece of gauze. Stick out your tongue and fold the cloth over the protruding tip, then hold it out. Be firm but gentle; the tongue is a slippery little bugger and doesn't seem to like leaving its den. The cloth or gauze will help keep it in line. If you're a person with a strong will, you might try to skip the gauze and order it to do as it's told. Give it a try. But remember, it's an organ that normally acts on its own. While you have your tongue out, examine the following characteristics:

SIZE AND SHAPE The size and shape of the tongue varies from individual to individual. I've always thought tongues were as unique as fingerprints because I've never seen two alike.

The tongue has the unique ability to change its size and shape. It can grow or shrink, depending on the conditions. For example, if you lost your teeth and didn't have them replaced, the tongue would grow larger and try to fill all of the new available space. (I guess you could say that one of the unsung achievements of your teeth is keeping your tongue in place.) And it's so adaptable that when you have your teeth replaced, your tongue will eventually shrink back to the space God gave it in the first place. This shrinking process normally takes a few months.

The shape of your tongue is a reflection of your jaws and genetic heritage. Though I've seen many shapes, I've yet to see a forked one . . .

COLOR AND COATING Another aspect of this snakelike organ is its color and its coating. Some theorists believe the tongue's appearance means absolutely nothing, while others believe it can be a mirror of your entire digestive system and a good indicator of your general state of health. Personally, I subscribe to the latter theory. It has been aptly said that the eyes are the window of the soul, and I wholeheartedly agree, but I would add that the tongue is the window of the body.

The color and the thickness of the coating vary from day to day and can range from a fiery reddish purple, to a calm and healthy-looking pink or light red, to a pasty white and gray. You can also have a mixture of the reddish color and the pasty coating. The most important thing to know is that a healthy tongue has no bumps, lumps, open sores, ulcers, abnormal swellings, major discolorations, or pain.

Does your tongue have any lumps, sores, ulcers, swellings, discolorations?
Does it give you pain? If so, have your dentist check it out.

- _____
- _____
- _____

What the tongue does for you This fascinating muscle organ is absolutely necessary for many of the functions we take for granted. It is especially important for maintaining our oral health.

See if you were aware of the following functions of the tongue:

- It's the principle organ of taste, and this is an excellent reason to keep it clean. If it's heavily coated your sense of taste will be

reduced. This generally leads people to an unnecessary, and possibly unhealthy, increase in the use of salt, spices, and seasonings.

- It's invaluable when it comes to talking. Hold it still and try talking. See what I mean?
- It moves food around the mouth as you are chewing, mixing and shifting it from one side of the jaw to the other so that you don't overwork the teeth on just one side. You can consciously experience this movement by focusing on your chewing. Don't try to control anything, just feel what happens as your tongue moves from side to side.
- It's the main mover of food to the back of the throat so that it can be swallowed.
- It's one of the most sensual parts of our bodies. I'll say no more about this—it's better left to your own imagination—except to add that it deserves to be treated better, if only for that reason.
- It's a decay fighter. While chewing, talking, or just having fun, the tongue helps to clean the teeth and massage the gums. You can consciously take advantage of this ability by moving it around the teeth and gums, especially when you find it impossible to brush, floss, or rinse after eating.

Now that you're more aware of its value, you can treat it a little better. In Chapter 5, I'll discuss how to do just that.

The Salivary Glands

Have you ever thought about the role your salivary glands play? Do you know where they're located? No? Well, you're not alone, because most people don't. Though you don't have to be a student of them, you ought to know a few things about them.

There are four of these glands in your mouth. Two *mandibular salivary glands* are found under your tongue, directly behind and below your lower front teeth. You would be right on target if you stuck your (clean) index finger over your lower front four teeth and gently pushed it down and back until you touched what feels like soft skin. This is also the area where the tongue is attached, and once your finger is

there you can wiggle your tongue slightly. This will confirm that you are right on top of the mandibular salivary glands.

The other two glands are located in the cheeks, one on each side, almost directly opposite the upper last two molars. These are called *maxillary salivary glands*, and they're a little harder to see. Take a good look, and if you notice two little sack like projections in that area you've found them. However, it is nice to know that even if you can't find them, they're still there and working for you.

These little spit glands are very sensitive, and if bruised or damaged in any way they can become very tender and even painful. The area around the irritated gland will feel as if you have a small piece of leather hanging there. The lower gland is particularly susceptible, so be careful when you brush in this area, bite on hard substances with your front teeth, or use a water irrigation device.

Are you having any tenderness around your salivary glands? Which one?

- _____
- _____
- _____

Though relatively rare, you may encounter another problem-plugged salivary glands. This is caused by stone like objects created either by the mineralization of saliva or by disease. They are somewhat like gallstones or kidney stones. As they grow in size they block the opening into the mouth; the saliva is trapped and the gland swells up. If this happens you will both see and feel it, as it can become quite painful. This condition can happen to any of the three glands and you'll recognize the problem by the location and the pain. If you think this is happening to you make an emergency appointment with your dentist or an oral surgeon.

Saliva

The consistency of the saliva can vary from person to person and from one time of the day to another. It can range from a light, watery consistency to a heavy, ropy, mucous consistency, changing with the conditions in which you find yourself. If you are dehydrated your saliva

is reduced and is thicker, reflecting your increased need for liquids. The flow of saliva is also reduced if you're nervous, angry, or afraid. The best indicator of general health and the most effective decay-fighting saliva is the watery kind.

Check the consistency of your saliva. Is it thick and syrupy? So much so that you have a hard time spitting? Or is it dry or foamy, and does it seem as if you don't have enough?

- _____
- _____
- _____

The benefits of saliva Saliva lubricates and allows us to swallow our food. The tongue may be the forklift that delivers food to the throat, but without the saliva it would never get to its ultimate destination. Ever try swallowing food when you don't have any saliva?

- Saliva acts as a chemical buffer: it has the unique ability to neutralize things that end up in your mouth that may be too acidic or too basic. This is critical when it comes to neutralizing the acid produced by decay-causing germs. If the saliva is too thick, however, it cannot effectively penetrate the germ filled plaque.
- Saliva helps disinfect your mouth, on a small scale, and helps heal wounds and cuts that occur in the mouth. Along with the acid buffers, the saliva contains minerals, enzymes, germ fighting cells, and a few other guardians that help keep the peace.

The bad news Except for a few blessed souls, nothing on this planet is perfect. Such, too, is the case with saliva, because there are two ways it can do harm.

1. Saliva is high in minerals. That alone isn't a bad thing, but if you leave plaque around too long the minerals in the saliva will turn the plaque into calculus.

2. The second major problem associated with saliva is a disease called *xerostomia*. (This is a great Scrabble word.) This condition, the inability to produce saliva, is relatively rare in its pure form, but it

can occur to lesser degrees in many people. Most of us have temporarily experienced it as “dry mouth” or “cotton mouth.” If you’ve ever had it, you have a general idea of what this disease is about only the victim of this disease has it all the time. This condition, even in its milder forms, should be treated, because it not only creates problems with speech, digestion, and swallowing but also drastically increases the incidence of decay and other oral infections.



SUSIE COTTONMOUTH

Are you experiencing “dry mouth”? If it persists for one to two weeks, or more, and there doesn’t seem to be any obvious reason for it (like being scared out of your boots), make an appointment to see your dentist.

- _____
- _____
- _____

In general, the healthier you are, the healthier your saliva will be. Make sure you drink a lot of water and cut down on your consumption of alcoholic beverages, because alcohol is a diuretic and causes dehydration.

OTHER DISEASES OF THE MOUTH

Although it’s true that dental disease is the most prevalent oral disease with which you must contend, it isn’t the only one, nor is it the most serious one. There are many types of cancers, growths, and abnormal skin conditions that involve the mouth. Every year nearly thirty thousand people are diagnosed with oral cancer. If the cancer

is caught early, the five-year survival rate is 90 percent. If not, it drops to 50 percent. Prevention . . . prevention . . . prevention!

You may have eliminated tooth and gum disease, and your hygiene therapy visits may have been reduced to one per year, but cancer and other diseases that show up in the mouth won't follow your recall schedule. This makes performing your periodic oral exam doubly important—your own exam could reveal a potential problem much earlier than your recall exam.

The two main reasons that oral cancers are so difficult to detect early are (1) many people don't have regular dental exams, and (2) most people never examine themselves. Have you ever—before now—examined yourself for oral cancer? That's what I thought. I'll admit that it's much easier to see something on your hand than on your gums, your tongue, or on the inside of your cheek, but if you ever get an oral cancer you'll wish that you'd taken a few moments to do an exam. Don't—*ever*—hold back from pointing out something that you think might be abnormal because you don't want your dentist or RDH to think you're silly or a hypochondriac.

After you've had your dental exam and it's been determined that you're free from any oral disease, you'll know what a normal, healthy mouth looks like. Make sure you imprint that picture in your mind's eye. It'll be your reference point. I recommend that you give your oral cavity a quick check for diseases at least once a month. You don't have to know the name of what you find—just that it isn't normal, where it is, and when you first noticed it.

Pull your lips back, use the mouth mirror and light, and give your mouth a once-over. If something strange has appeared with no obvious cause, and it doesn't disappear within two weeks, call for an appointment. This applies even if it's something you think you recognize, like herpes or cold sores.

Although you may not be able to prevent these diseases from occurring in your mouth, you can definitely catch them early. To do this, you should know the six warning signs of oral cancer:

1. An ulceration, redness, or sore spot on the lips, tongue, or inside of the mouth that does not heal itself within two weeks
2. Swelling of the lips, gums, or other areas of the mouth, face, and neck

3. White scaly areas inside the mouth
4. Recurrent bleeding, with no apparent cause
5. Loss of feeling (numbness) in any part of your tongue, lips, or oral cavity
6. Persistent coughing or difficulty in swallowing or speaking

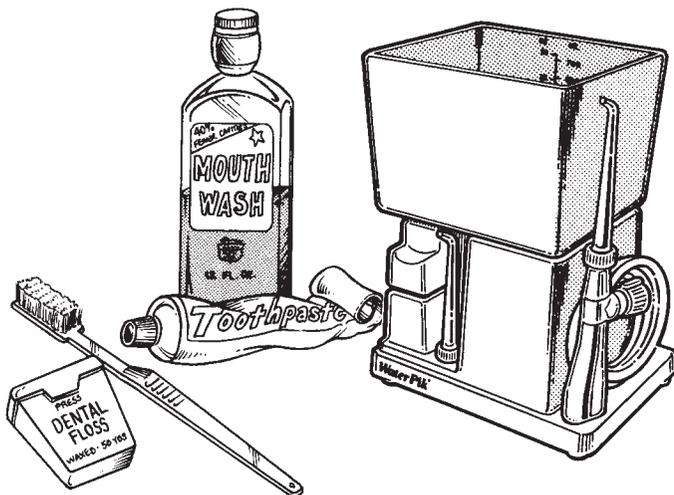
Because most people aren't aware of just how many kinds of cancers and other diseases are found in the mouth (or show signs and symptoms there), I've listed twenty-five of them. There are more, but this list should make it dramatically apparent that dental disease isn't the only oral disease you must be on the lookout for:

- | | |
|--|-----------------------------|
| 1. abnormal bone growth | 14. leukemia |
| 2. abnormal soft tissue growth | 15. leukoplakia |
| 3. AIDS | 16. malignant melanoma |
| 4. canker sore | 17. myoblastoma |
| 5. drug reaction | 18. nevus |
| 6. epilepsy | 19. nutritional deficiency |
| 7. fibroma | 20. papilloma |
| 8. hairy tongue | 21. skin disorder |
| 9. hemangioma | 22. squamous cell carcinoma |
| 10. hemophilia | 23. syphilis |
| 11. herpes | 24. thrush |
| 12. idiopathic disease (unknown cause) | 25. tuberculosis |
| 13. Kaposi's sarcoma | |

SOMETHING TO THINK ABOUT

It's not within the scope of this book to teach you how to diagnose or treat any of the many oral diseases that can show up in your mouth. It takes years of training to be able to do that, and treatment is updated regularly. This isn't the time to play doctor—leave the diagnosis and treatment up to your dentist or doctor. We're not just talking about saving a tooth here, we're talking about your life.

All right. You've just learned a ton of stuff. You definitely know more about your mouth than you did thirty, two pages ago. I know this was a long chapter, but this information will serve you well.



Chapter 4

The Tools of Your Trade

You are about to become a specialist in preventive dental hygiene. Like any specialist, you need to be thoroughly knowledgeable about your tools. You need to know which tools are available and how to pick the best tools for your unique oral condition. How and when you use these tools will be an important part of a successful preventive program.

WHY USE TOOLS?

The last few decades have seen radical changes in the way we eat. Unfortunately, our modern diet is not as kind to our bodies as was the more natural diet of the past. It has taken us a long time to understand the dental health problems these recent changes have created. We are finally realizing that if we can no longer prevent tooth and gum disease by consuming a natural diet we must some' how make up for what nature once freely provided. Therefore you need to know everything you can about the tools that replace the cleansing action of a natural diet. Your present diet and the extent of your dental disease will together determine which tools you need to cure your dental disease and prevent future disease.

THE FREE TOOLS

The following will certainly not be considered tools in the classic sense, but without them, the store, bought ones will be like pictures on the wall—only nice to look at.

Time

This could be easily the single most important tool at your disposal. Also, it's free and needs no maintenance. Without the willingness to commit your time, the quality and number of your preventive tools won't matter at all.

Hands

These are also free. If you want to get rid of nasty gum and tooth disease you'll have to convince your hands to go to work. At first you may have to be patient with them. Making the necessary eye-to-brain and brain-to-hand connections can be awkward in the beginning—but don't worry, in a few weeks your hands will act as if they've always been performing preventive hygiene. Once you get them programmed, it will be a breeze. Your commitment to change your old patterns must be firm if you don't want to continue down the same old dental disease path.

Diet

The only completely natural way to clean your teeth is with your diet. Every other tool you use was invented because most of us haven't taken advantage of this natural tool as much as we should. By diet, I mean disease' preventing foods, not disease-causing ones. Eat as many whole (unprocessed) foods as possible, including plenty of grains and fresh vegetables. If you're willing to use more of these natural tools you'll need fewer of the mechanical ones.

TRADITIONAL DENTAL TOOLS

The Toothbrush

There are over seventy different kinds of toothbrushes, with new ones appearing constantly. Toothbrushes come in all sizes, shapes, and colors. The condition of your mouth will dictate which kind of brush will be best. For example, the type of brush you use during the initial

treatment stage of your preventive program may not be the same type you'll use for the maintenance stage. Also, you may find that you need more than one kind of brush in order to care for different areas of your mouth. The information you obtain from this book and your hygienist will help you decide which brushes you need. Here are the main points to consider when purchasing your toothbrushes.

Stiffness of the bristles Most brushes come with hard, medium, or soft bristles. For people with periodontal disease, the general rule is to use a soft-bristle brush until the disease is eliminated and a soft or medium one for maintenance. Personally, I do not recommend hard-bristle brushes while you're treating periodontal disease. The bristles of most hard brushes are not flexible enough to bend into the gingival crevice, and if used incorrectly, or with too much force, they can cause more harm than good to the tender and diseased gum tissue. When your gums have healed and can withstand the contact with harder bristles you may then want to change to a medium-bristle brush.

Hard-bristle brushes are valuable when you've missed a few brushings and want to give your teeth some extra scouring action; however, you could also use a medium brush with baking soda to get the same results, but with less trauma to the gums.

I know of no industry rules standardizing the stiffness of toothbrush bristles. One brand of hard-bristle brushes may be harder than another brand. Therefore, be tuned in when you choose a brush, and switch to a softer or harder brush if you or your hygienist feel you should.

Composition of bristles There are two kinds of bristles available—natural and synthetic. I suggest that you try both and decide for yourself which you like better.

Natural-bristle toothbrushes are made in fewer sizes, shapes, and stiffnesses. They are also more difficult to find; your local health food store is the best place to look for them. Because they are porous, natural bristles need more time to dry out in order to retain their normal stiffness. So if you decide on a natural-bristle toothbrush, keep two of them around: one for the morning and one for the evening. This gives each toothbrush twenty-four hours to dry. Over time these bristles will fray at the ends, and some dentists feel this is an advantage because there will be more bristles working for you. Most natural bristles are made from boar hair.

Synthetic, bristle toothbrushes generally have bristles made of nylon. These brushes are much easier to find and come in greater variety. Now, more and more toothbrush manufacturers are rounding the ends of the bristles during the manufacturing process, the theory being that rounded tips won't irritate gums while you are brushing. Some professionals feel that this is an advantage, albeit on a microscopic level. I think that rounded bristles are a nice touch, but not necessary for maintaining dental health.

Regardless of the type of bristle you select, a toothbrush will only do for you what you do with it.

Size To choose the best size, consider the size of your mouth. The smaller and narrower your mouth and dental arch, the smaller the brush's head and handle should be. Don't judge your mouth's size by your body size: you can have a large body and a small mouth!

The right-size toothbrush gives you better control and better access and therefore does a much better job. For adults, the length of the brush head (bristle portion) should be somewhere in the three-quarter to one-inch range. You don't have to bring a tape measure to the store with you, however, to check the length—just use your thumb as a guide (it's about one inch at its widest point). You may be tempted to buy a brush with a longer row of bristles, thinking you'll cover more ground with each stroke. A longer brush may work fine for the outsides of the teeth, but it makes it almost impossible to effectively brush the insides of the front teeth and the backsides of the last molars. Always keep in mind that it's not the speed or size of the boat that counts but how well you can sail it. Be brave. Experiment. But be sure to let the results of your brushing be your final guide. If your RDH keeps telling you that there are areas you're not reaching, you may have to change brush sizes or get an additional, different-size brush for problem areas. If she recommends that you change to another type of toothbrush, or that you add any other dental tool, be sure to take her advice.



A few more details. The overall length of the toothbrush should be about seven inches. You have many handle shapes and sizes from which to choose: angled ones, thick ones, thin ones. Select one that feels comfortable. Ideally, your brush should have between seven and thirteen rows of bristles the long way and three to four rows across. Finding a brush with the number of rows in this range is important because it allows enough flexibility to give you access to the gingival crevice without having to force too many bristles into the crevice.

The rule for adults applies as well to children: the size of the mouth determines the size of the brush. If you are a parent or guardian, just make sure your child's brush isn't too big. Unless your dentist or hygienist tells you differently, use a soft children's brush when you brush a child's teeth, and change to a larger one when all the baby teeth have been replaced by permanent ones.

Shape The straight, standard, average, old-fashioned brush is just fine—but only if you use it in the right way. If you use a brush specifically designed to work in a particular area it may not be as effective in other areas. For example, a curved brush will work well in curved areas, but it isn't very effective in flat areas or where the curve is reversed. The standard-shape brush is the most universal, but without you to properly guide it, no brush will work.

Specially shaped brushes You only need to use specially shaped brushes if you have one or more of the following conditions:

- Missing teeth
- Rotated teeth
- Bridges or partial dentures
- Orthodontic braces
- Severe gum disease with bone loss, especially combined with any of the above

There are almost as many oddball brushes available as special dental problems requiring them. For example, interproximal brushes are designed to reach areas where a regular toothbrush, because of its size, does not have access, such as spaces created by bone loss between

the teeth and around bridges and implants. When periodontal disease has set in and teeth have been lost or replaced, a standard toothbrush won't be sufficient to maintain your oral health. Your hygienist or dentist can recommend the interproximal brush that is best for your needs.

If you have a special dental problem and would like to know if there is a brush that will clean your teeth and gums better than the standard-size one you're using now, you should try an interproximal brush, a gingival crevice brush, an orthodontic brush, or a brush with bristles on the end. If you can't find them in stores you should ask your hygienist to order them for you. Remember, special problems require special solutions. Also keep in mind that the more efficient your dental tool is, the more time you'll save.

How many toothbrushes do you need? The number depends on the condition of your gums. If your gums are healthy and you have no bone loss you could get by with three: your regular brush, a hard, bristle brush for those special scrubbing times, and a hard, bristle brush to clean the toothbrushes. If you have periodontal disease with bone loss, you'll have to add periodontal or interproximal brushes that effectively deal with your unique dental condition. Your hygienist will tell you what you need.

There are many advantages to having at least two regular brushes. First, you'll always have a spare if you lose the first one or if someone decides to use your brush to clean the car's carburetor. Second, by having two brushes you can use one while the other is drying. I've also found it worthwhile to keep an extra in my traveling kit. I used to forget to put one in when I traveled and then I would have to buy a new one—this is one way of accumulating brushes, but I don't recommend it.

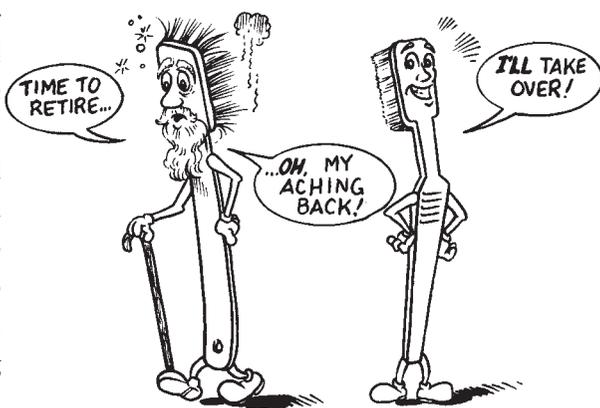
Keeping your brush clean In case you didn't know, the toothbrush is a very good germ incubator. The food particles and moisture that become trapped at the bottom of the bristles provide everything that germs need to reproduce rapidly . . . right on your very own brush. Research has shown that an unclean brush can contribute to dental disease by introducing germs from your brush into your mouth. This frustrates your hygiene program and can contribute to colds and sore throats. Studies have also shown that toothbrushes may contain more bacteria after they have sat for a time than immediately

after you have brushed. So, you can see that an unclean brush will go against what you're trying to accomplish with oral hygiene, that is, to reduce the number of bacteria in your mouth. What this means is that you should sanitize your brush after each brushing. (You won't be able to completely sterilize it—even boiling won't do that.) Plus, you should never share your brush with anyone else because you don't want their germs, and they don't want yours. Of the two types of bristles, the natural fiber ones tend to breed more germs because they are more porous and attract and hold more water than the synthetic ones.

Here are my suggestions for keeping your brush as clean as possible.

- Rinse your brush thoroughly with hot water after each use, even when you use it without toothpaste.
- Let it drain by standing it on its handle in a glass or placing it in a toothbrush holder. Never let it lie flat with the bristles pointing to the sky.
- Alternate brushes so that they have a chance to dry out completely. Germs hate it when brushes dry out because they die when their environment is not moist enough.
- Use a hard-bristle brush to clean the bristles of your regular toothbrush every week, or as needed. This is easy to do, just like cleaning a hairbrush. While running your toothbrush under water, as hot as you can stand, scrub it thoroughly with the hard-bristle brush. When you've cleaned it, rinse it in hot water and hang it out to dry.
- Change brushes often. Some dentists recommend using a new brush every two weeks. If you have advanced periodontal disease or a depressed immune system some dentists say you should change your brushes more often. Those with infectious disease should change brushes at the onset of the disease and when the disease has subsided.
- Use a sanitizing device or agent. Some devices effectively reduce the germ count by means of ultraviolet light. Other products use an antibacterial agent to reduce the germ count.

How long will a toothbrush last? This is an intriguing question. The answer depends on how hard or soft the bristles are and how much the toothbrush is used. A soft brush, given the same amount of usage, will wear out sooner than a hard one. Used properly, the average toothbrush will wear out in three to six months. If yours lasts a year, which is about as long as most people use a brush, it means one of three things: It's worn out and you're waiting too long to buy a new one. It's still in good shape because you aren't using it enough. Or, the bristles of your brush are too hard, even if the label says it's a medium or soft. The best criterion to use for replacing a brush is really simple. If you're diligently following your hygiene program, let the actual condition of the brush be your guide. When it gets all gunked up or when the bristles start to flatten, it's time to replace the brush, no matter how long you've been using it. It's also a good idea



to change to a new brush after each hygiene visit. This is a perfect time to start fresh because you don't want to introduce bacteria found on your brush into your mouth after a good cleaning.

Electric Toothbrushes

Electric toothbrushes have been a valuable addition to toothbrush technology. There are a number of these on the market, and although they come in different sizes, shapes, and colors, they all have one thing in common: they rotate the bristles faster than any human hand can. I call them the lazy person's toothbrush. But whether they rotate four thousand times a minute or a thousand, go clockwise or counterclockwise, you still have to control them. This means you have to use them when you should and at the proper angle. If you find that

you have not been able to solve your hygiene problem, with a regular toothbrush, then give the electric toothbrush a try.

Toothpaste

Oh boy! There now seem to be about as many brands of toothpaste as there are makes of cars. There are pastes, powders, and gels; whiteners and brighteners; fluoridated pastes, flavored ones, those that contain baking soda, and pastes for sensitive teeth. What to do? Oh, what to do? Well, I won't presume to tell you what to do, but I will give you the information you need to make your own choice.

Why pastes? Toothpaste was originally invented to clean the teeth of food debris and unsightly stains. When toothpaste was first marketed, very little was known about the cause of dental disease, but people did know enough to realize that it was more appealing to keep their teeth clean than to leave them dirty. The first toothpastes were either too abrasive, too acidic, toxic, yucky-tasting, or all of the above. From that humble beginning, toothpaste making has grown into a multibillion-dollar-a-year industry. One that markets its products with every conceivable come-on-from sex appeal to promises of decay and plaque reduction.

Over the years, manufacturers of toothpastes have cleaned up their act to some degree. But I do not believe that consumers are protected as much as they should be. For example, do you know what toothpastes contain and why they're composed of these substances? Thought so. At any rate, I recommend that you never swallow your toothpaste, even if you do know what it contains.

Toothpaste categories All toothpastes fall into one of two categories. They are either therapeutic or cosmetic. Therapeutic toothpastes contain ingredients that have been shown to prevent or significantly reduce tooth decay and gingivitis.

The makers of cosmetic dentifrices (*dentifrice* refers to all kinds of tooth cleansers, from pastes to gels to powders) promote these products for their ability to make your teeth whiter and brighter. These products either bleach the tooth itself or remove stains through abrasion or acid etching. Some manufacturers may suggest that their toothpastes are both cosmetic and therapeutic, but unless they directly attack the

disease process, manufacturers cannot claim that their products are therapeutic.

Toothpaste ingredients Although the ingredients, and their proportions, of many toothpastes are closely guarded secrets, most toothpastes (including therapeutic pastes) contain all or some of the following substances:

1. ABRADING, POLISHING, AND BLEACHING AGENTS Abrading and polishing agents comprise as much as 50 percent of most dentifrices. The abrasive ingredient actually grinds off enamel and dentin, much like rough sandpaper abrades wood. The polishing agents are included to help smooth off the roughened areas, like using a fine sandpaper. The extent to which any dentifrice will abrade your teeth will depend on the following factors:

- Its abrasive index (which I'll explain in a moment)
- Its acidity
- The hardness of your tooth enamel
- The hardness of the toothbrush bristles
- The force with which you use your brush
- How long and how often you brush

Thus, you could use an abrasive toothpaste but not brush very hard or very often and therefore not wear away as much tooth as if you used a less abrasive paste, used hard bristles, brushed hard, and brushed often. Clear?

As you will see in the home care chapter (Chapter 5), abrading and polishing agents can be valuable if they are used correctly. But toothpastes that are highly acidic or abrasive—I call these toothpastes “glamour pastes”—can be double-edged swords if they are abused. Originally intended to remove dietary and other stains, such as those caused by coffee, tea, and tobacco, some of these pastes contain acids that are actually powerful enough to remove tooth enamel and dentin. This is especially true if you have soft teeth.

You may not know it, but although enamel is pretty hard and looks solid white, it is actually somewhat translucent. The dentin, the supportive tooth substance that lies directly underneath the enamel,

is yellow in color. Hmmm, just what's he getting at? Just this: as the enamel wears away and gets thinner, the dentin shows through more and more. And because the dentin is yellow, guess what seems to be happening to your teeth? Yep, they'll appear to be yellowing. Although enamel can be intrinsically stained during its formation and varies in color, the truth is that, once it has formed, the enamel itself never actually becomes yellow, it just becomes thinner, pitted, or stained. If the enamel is intrinsically stained, or if it has been getting thinner, using a strong abrasive or etching agent defeats the whole purpose of the whiter-and-brighter promotion, doesn't it?

Many people are born with yellow-looking teeth. This could be the result of thinner, colored, or more translucent enamel or of dentin that is more yellow than normal. If you find yourself in this category, don't fall into the whitener paste trap. When you first use a whitener, you may think your teeth are getting whiter because the toothpaste removes the surface stains. If you only use such pastes periodically to remove dietary stains and then stop, you will be using them correctly. But if the continual search for those movie-star whites (most of which are capped, anyway) has led you to think that scrubbing and polishing your enamel away is the right way to go, you're barking up the wrong tree.

You have every right to want to look as good as you can, but there's a better way to whiten your teeth—without damaging them. Bottom line, don't get sucked in by toothpastes that promise you unrealistic results. The good news is that the whiter-and-brighter toothpaste manufacturers seem to be getting the message, and some of these companies are cutting back on abrasive and acidic ingredients and are replacing them with bleaching agents, which makes these pastes less harmful to your enamel. But they still are not nearly as effective as having your teeth whitened and brightened at the dental office.

If you are dead set on using this kind of paste, I have a suggestion. First go to the RDH to get a good dose of hygiene therapy. She uses a paste containing pumice, one of the most powerful and safe abrasives. Believe me, once your teeth have been scraped and polished, they will be as white as they will ever be from brushing. They couldn't get any whiter if you brushed with an acidic or abrasive paste two hundred

times a day. If they still are not as white as you would like, then ask your dentist if he thinks a professional bleaching will do the trick.

Abrasive and acidic pastes not only wear away the enamel; they can also erode and dull composite fillings and older plastic fillings. Also, soft teeth will be worn away faster than hard teeth by the same abrasive action.

THE ABRASIVE INDEX Thankfully, there is a measuring system that is used to monitor the abrasiveness of any substance. On the abrasive index, the lower the number, the less abrasive the material. As a rule, a substance with an abrasive index under 70 will not abrade fillings or enamel, or will do so very slowly; it will, however, wear away the dentin of an exposed root, because the root surface is much softer than enamel. (In fact, the brush alone, without paste, is able to abrade the root surface.) Any substance that has an index ranging from 70 to 100 can begin to wear away soft enamel. Anything above 100 could wear most enamel. How fast an abrading substance will wear away enamel depends on its abrasive index, the hardness of your enamel, and how often you use the abrading substance.

When choosing a dentifrice, it is valuable for you to know which abrasive has the highest abrasive index. So if you want control, read the labels.

If you run across an abrasive substance with which you are not familiar, your dentist or hygienist will be able to tell you its abrasive index. Remember, by itself, baking soda is a powerful abrasive. Even salt is somewhat abrasive.

The Most Common Abrasives	ABRASIVE INDEX
Zirconium silicate	Over 150
Pumice	Over 150
Calcium carbonate	Over 125
Anhydrous dicalcium phosphate	110 to 130
Calcium pyrophosphate	105
Insoluble sodium metaphosphate	100
Dihydrate dicalcium phosphate	25 to 75

2. BINDERS Binders, like sodium carboxymethylcellulose (one of those typical household words), are substances that keep together the liquid and solid parts of the toothpaste or gel. Some other commonly used binders are tragacanth, karaya gum, and gum arabic. These are natural substances from plants. Alginates from sea weed, gum carrageenan, xanthan gum, and cellulose derivatives are also popular binders. You can feel pretty good about all these substances.

3. ANTI-DRYING AGENTS (HUMECTANTS) Humectants are chemical compounds that help prevent the gel or paste from drying out when it contacts air. The three most commonly used are sorbitol (also used as a sweetener), glycerol, and propylene glycol. Humectants comprise a substantial part of the paste, about 25 percent.

4. DETERGENTS OR FOAMING AGENTS Yep, many toothpastes have a soap ingredient to help cleanse and bubble away the bad guys. There's not much chance of these detergents removing the layers of

plaque that have become firmly attached to the teeth, but they can have an effect on germs either by foaming them away like your laundry detergent does dirt or, in some cases, by killing them. Regular soap used to be common in toothpastes, but so many people complained about the bad taste that manufacturers stopped using it. Now most toothpastes contain a compound called sodium lauryl sulfate. I think it's also found in some shampoos. Although it too is



a detergent, it's a more palatable one. Other common detergents are sodium coconut mono, glyceride sulfonate, dioctyl sodium sulfosuccinate, and sodium N-lauroyl sarcosinate. This last one is believed to have some antibacterial actions. Detergents make up only about 3 percent of the toothpaste.

5. FLAVORING AGENTS Flavor is not necessary for a toothpaste to fulfill its purpose, but it is necessary if the toothpaste is going to sell. Flavoring agents can range from natural essential oils such as pep-

permint, wintergreen, glove, anise, and cinnamon to purely synthetic flavors with long-winded chemical names. Those in charge of marketing toothpastes have figured out that not every one's taste buds are the same, and just as when people shop for cars, people like to have a choice. Free enterprise in action.

6. SWEETENERS Most dentifrices add a sweetener to go along with the flavoring agent. The good news is that I haven't found one brand of toothpaste that uses sugar as a sweetener, although I believe some of them used to. The most common sweetener is saccharin. If using saccharin is a personal dietary problem take the time to write the manufacturer of your favorite toothpaste to find out if they use it.

7. COLORING AGENTS Does anyone seriously think that teeth or germs care about the color of toothpaste? But we humans seem to care a great deal. So we get reds and blues and red-and-white candy cane twists. In my opinion, artificial coloring agents found in commercial toothpastes are unnecessary, but as long as you make sure you rinse well, are not allergic to them, and do not swallow the stuff, you should be fine. The choice is yours.

8. WATER Wow, we finally get to a pure and natural substance. Water makes up about 25 percent of your toothpaste.

9. PRESERVATIVES Back to the artificial. The most common preservative used in toothpaste is sodium benzoate. This compound is also used as a preservative in many foods. If you're concerned about preservatives check your toothpaste label. Ingesting a lot of them may not be healthy. Most toothpastes use preservatives to control the possibility of germs feeding on some of the other, more natural compounds found in the ingredients. Get ready for this: among the preservatives used are formaldehyde, paraben, and di-chlorophene.

10. ANTIPLAQUE AGENTS Fluoride and other chemicals, because of their ability to kill or inhibit germs, are often added to toothpastes. Whether or not you need this type of paste is up to you and your hygienist to decide, but I'm against the use of fluoride in any oral health care product..

Natural pastes I recommend that you use natural toothpastes. Natural toothpastes are those that have no artificial ingredients. You're going to assimilate some of the compounds found in the toothpaste whether you absorb the ingredients through the tissues of the mouth or actually swallow them. I would rather ingest natural substances than artificial ones. And if you have children, you certainly don't want them taking in any more chemicals than they're now ingesting. If you feel it's in your best interest to use a natural toothpaste here are a couple of things to consider:

- Check the abrasive ingredient and then check the list on page 79 to find its rating on the abrasive index. Then decide whether this paste should be your regular one or saved for special use. Make sure that you use a highly abrasive paste for stain removal only when you have missed a regular brushing or two.
- Look for one that tastes good. As I have said before, taste is unimportant as far as your teeth are concerned, but if you really don't like the taste it may prevent you from brushing as often as you should. This is especially true for children. Don't settle for a toothpaste that is natural but tastes lousy, and be sure to ask your child's opinion. Please, as a special favor to me, skip the "I like it so you should too" or "It's the cheapest" or "We have to use it up first" rationales.

Toothpastes by themselves will never cure or prevent dental disease whether they are standard or natural. After all, you could chew on toothpaste twenty times a day, but if you never put it on a brush and start scrubbing it would do very little to prevent dental disease.

What about the container? Most toothpaste tubes are lined with an inert substance so that the chemicals in the paste will not react with the lining of the tube and create some weird, harmful compound. Some tubes are lined with aluminum, and most scientists agree that too much aluminum is not healthy. Whenever possible, buy toothpastes that come in plastic containers. I am no great lover of plastics, but it's the safe alternative to avoid chemical interactions, particularly lead contamination since lead is sometimes used to seal the seams of metal containers.

Sensitivity to toothpastes Some people are sensitive to various ingredients found in toothpastes. Their reactions range from mild irritation and burning sensations to inflammation of the mucous membrane, swelling, and even ulcerations of the oral membranes (the skin found in the mouth). These effects are even more pronounced if a person already has open sores or inflamed or infected gums.

The most common irritants found in toothpaste are detergents and essential oils, like clove or peppermint. Pay attention to the sensations in your mouth when you're brushing and soon after. If you notice any symptoms, try brushing a few days without paste and see if they disappear. If you have a sensitive mouth or are susceptible to cold sores or herpes, the irritants found in pastes could make your condition worse and be a contributing factor to its initiation. If you think your paste might be a contributing factor try changing to a blander toothpaste, one that contains no detergents and no essential oils. If you make the change and the symptoms go away, the culprit could very well be in the paste. If irritation persists keep changing brands, but be sure to speak with your dentist or hygienist about this, because the cause may be something more serious than an allergy to an ingredient found in your toothpaste.

Tooth powders Most tooth powders seem to be going the way of the buffalo: they're still around, but not the way they used to be. You may be sold on them, and if they work for you then keep on using them. Just be sure to check your tooth powder's abrasiveness.



Pastes for Special Problems

There are toothpastes that are specifically formulated to treat sensitive teeth—teeth that are sensitive to the normal ranges of hot and cold food and drinks, air temperature, brushing, acidic foods like lemons, or basic substances like baking soda. When teeth are sensitive like this, what's happening is that some of the nerve endings are being exposed to the outside environment. But unless you are aware of the specific cause of your sensitivity, you probably will be wasting your money buying toothpastes that are supposed to reduce it.

Tooth sensitivity can be caused by new fillings, decay, fractures, or exposed root surfaces. None of these pastes will permanently alleviate sensitivity caused by new fillings, and they may only temporarily relieve sensitivity caused by decay and fractures and may even irritate a decayed area.

This type of toothpaste does have value, though, when used temporarily to treat root sensitivity caused by abrasion. If your sensitivity is due to exposed root surfaces, you may be using an overly abrasive dentifrice which is wearing away the mineral deposits that form inside and over the dentin tubules. These microscopic tubules contain fluid and connect the outside of the dentin to the pulp's nerve. (See illustrations on pages 26 and 27.) Even though the tubules themselves don't contain actual nerve endings they, in effect, act as nerve endings, because they transmit the external irritant (be it heat, cold, or chemical) to the nerve. If abrasion continues, the minerals deposited by your saliva and the secondary dentin that is deposited in the outer portion of the tubules will not be able to seal the tubules and the sensitivity will continue. If you stop wearing away the dentin with an abrasive paste, these tubules will seal themselves and the sensitivity should stop. It is truly amazing what the body can do.

Unfortunately, many patients use paste for sensitive teeth as they would aspirin, to help relieve the symptoms, and often avoid permanent long-term treatment when the pain subsides. But it is the cause that needs to be addressed, not just the symptoms. When the cause has been eliminated (you have repaired the decay, cured the gum disease, are brushing in the right way, have stopped sucking on lemons, etc.), the sensitivity should go away on its own within two weeks. As long as you are working with the dentist to treat the real cause of the sensitivity, I see no reason not to use these antisensitivity toothpastes to help relieve the symptoms. But remember, if you have sensitivity, are using this kind of paste, and are not seeing a dentist, you could be masking the symptoms of a more serious problem.

Baking Soda

The best use of baking soda is for baking and for scouring pots and pans. However, it does have a use in your oral hygiene program, under controlled conditions. Pure baking soda is a valuable cleansing

aid and can be used when you have been unable to brush for a day or more and as a once-a-week tooth scrub. Some toothpastes have baking soda in them, giving you that abrasive quality in a more palatable form. For the every-so-often super scrub, however, use it straight. But remember, it is a highly abrasive substance and you should use it with discretion. Another caution: baking soda contains sodium that can be assimilated through the permeable oral membranes or even swallowed during brushing and rinsing. If you're on a low-sodium diet I do not recommend that you use baking soda without approval from your doctor.

Baking soda also has value because it neutralizes the acid produced by bacteria. Some people actually use baking soda as a mouthwash, and if you don't have a dietary problem with sodium this is an excellent and inexpensive way not only to neutralize oral acids but to freshen breath. Always remember to rinse and gargle well after using baking soda. It will reduce the amount of sodium you absorb.

Salt

Salt has value as an antibacterial agent when used to treat gum disease, especially when used with an oral irrigation device. But once your gums have healed, I suggest that you only use it occasionally, if at all. Because the relationship between salt and heart attacks is too conclusive to be denied, there is no reason to add more sodium to your system by overusing it in your oral hygiene program. You can always use hydrogen peroxide or other antibacterial agents. Remember, only use something that gives results and causes no harm.

Dental Floss

If the toothbrush is king, floss is the queen. If you have gum disease or if you've had any bone loss, floss is an absolute must for a successful hygiene program. This magical material is used to clean and polish between the teeth and under dental appliances. If used daily it can prevent plaque from forming in these areas and can remove food wedged between the teeth that a toothbrush cannot budge. But don't ever think that you can avoid a visit to the hygienist by using floss on calculus: floss will never remove calculus. However, floss is truly one of the best preventive tools you can use. It is versatile, easy to carry, and, once you learn how, easy to use.

There are three main kinds of floss—waxed, unwaxed, and the newest kind, coated with silicone. There are also flosses that are impregnated with baking soda and fluoride. Flosses come in different thicknesses and widths: regular, tape, fine, shred-resistant. Some are flavored. Your choice of floss is personal, practical, and functional. There are more than twenty different brands, so discovering the best type for you may end up being a trial-and-error process. Take a short-cut and ask your hygienist or dentist which kind of floss is most appropriate for your particular situation.

But regardless of which kind you buy, you must use it, and use it correctly, to get results. See pages 103-6 for how to floss. If you have any trouble learning, ask your dental team for guidance.

Waxed versus unwaxed I believe waxed floss is easier to use. It doesn't fray as easily and seems to slide between the contacts of the teeth better than does unwaxed floss. Because it doesn't fray so easily, it works better in areas where you have fillings. Some dentists and hygienists prefer unwaxed floss; they say it attacks plaque better than waxed floss because the wax coating interferes with the effectiveness of the floss on the plaque. Why not try them both? Then use the type with which you feel most comfortable.

Regular floss This is the most common kind of floss. It's thinner than dental tape, and most people feel it is easier to use, including me. In most cases it will do the job for you. Some brands are thinner than others and thus slide more easily through tight contacts.

Dental tape This is a wider, and usually thicker, form of floss. It is most effective when you've had bone loss and gum recession. It is more effective than regular floss when there's a lot of root surface to clean and polish. I've had patients who swear by dental tape.

Floss holders There are a number of handy little dental gadgets on the market that look like miniature slingshots. These are called "floss holders." Basically, they hold the floss tightly between two plastic arms attached to a handle. When you are first developing your flossing technique, holders may seem easier to use, but I like the control I have when I use my fingers. If you just can't master the manual use of floss, try a holder. However, many patients and hygienists have told me that floss holders are harder to control when you're trying to floss all areas

of the root surface, especially if there has been bone loss. There is a tendency to slam the floss straight down into the gum between the teeth. This can cause injury to the gum tissue. It may seem difficult to learn how use floss manually, but the results will be worth the effort.

Floss threaders Bridges require a special tool to reach the areas under the bridge and keep these areas free of plaque and food debris. Yep, plaque and calculus can even form on artificial teeth. The floss threader has a large loop and can be easily threaded under bridges and orthodontic appliances.

Mouthwash

The value of mouthwash goes beyond its use as a fighter of bad breath. Mouthwash is also effective in the treatment of gingivitis. There are many brands of mouthwashes on the market, and although they have differing formulas, colors, and tastes, they all have one thing in common—they reduce the number of germs found in your mouth.

A mouthwash's effectiveness will depend on how it's delivered to your gums and how often you use it. Rinsing with mouthwash will produce good results: reduced bleeding, reduced gingivitis, and reduced plaque formation. But the best results are achieved when the mouthwash is used twice a day (after you brush and floss) with a water irrigation device. The water irrigation device is more effective because it delivers the germ-fighting ingredients to the gingival crevice, or pocket. You can use the mouthwash at full strength, but a solution of equal parts water and mouthwash is also very effective and is less expensive.

Rinsing with mouthwash after brushing and flossing is about half as effective as irrigating with it. Use mouthwash at full strength when rinsing, and be sure to forcefully suck the solution between your teeth. If you rinse well with water before you use the mouthwash it will be more effective.

You should include mouthwash in your hygiene program until your hygienist gives you a clean bill of health. After your gums have healed you should be able to keep them healthy without mouthwash, and its further use will be up to you. If you do continue using a mouthwash in a preventive way the two best times are after your final brushing of the day and following the ingestion of anything that contains sugar (if

you are unable brush). There are two groups of mouthwash, prescription and over-the-counter.

Prescription mouthwashes These mouthwashes most commonly use chlorhexidine as the active ingredient. Studies have shown them to be more effective at reducing plaque and gingivitis than over-the-counter mouthwashes. But it is important to always consider the potentially harmful side effects before using any prescription drug—and prescription mouthwash is no exception. Prolonged use can cause tooth stains, increased supragingival calculus formation, and, in children, gum irritation. As with most drugs, its effect on pregnant and nursing mothers is inconclusive, nor has its effectiveness and safety for children under eighteen been established. Also, it usually contains alcohol.

Prescription mouthwash has its place in treating gingivitis and reducing plaque, but unless your dentist feels it is absolutely necessary, I would try over-the-counter mouthwashes first. Remember that without the willingness to use your brush, floss, oral irrigator, and hygienist to fight this disease, mouthwash will be like attempting to put out a fire with a squirt gun.

Over-the-counter mouthwashes Although the active ingredients used in these mouthwashes vary, they all claim to do the same thing.

I'm against oral health products that contain fluoride. Although some studies have shown that fluoride reduces decay and plaque, its ability to help heal gingivitis is questionable. Many commercial mouthwashes also contain alcohol and salt. Be sure to read the labels, and if either of these substances is a health concern switch to a mouthwash that fills your needs.

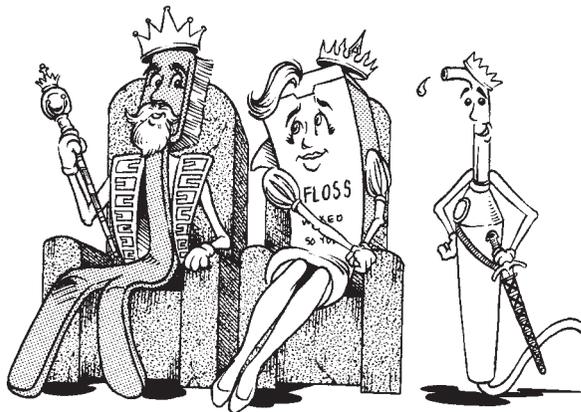
Because mouthwash reduces the mouth's salivary and airborne germ count, many dentists and hygienists have their patients rinse with mouthwash before and after hygiene therapy and dental repair. If this is not the standard policy in your dentist's office, ask them if you can rinse before they begin and after they finish. By killing germs, the mouthwash can promote the healing process.

Gum

What-gum is a dental tool? Yep, and an effective one, at that. Within minutes after eating a meal containing sugar, the acid level

of the mouth rises, and the acid concentration can remain high for many hours if not removed or neutralized. Gum chewing promotes the flow of saliva, and as you know, a healthy saliva flow can help neutralize the acid produced by bacteria—that makes it a decay fighter and an effective between-meal brushing dental tool, especially after eating anything that contains sugar. Rinsing vigorously with water before you chew makes the gum even more effective. Chew for at least twenty minutes. Do not chew gum that contains sugar, because the saliva will have to neutralize the sugar in the gum as well as the sugar in the food you just ate.

Gum has an additional benefit: chewing it exercises the jaw muscles, and that can help relieve the tension many people store there. But if you have TMJ problems, gum chewing isn't recommended.



Water Irrigation Devices

If the toothbrush is king, and floss is queen, then the water irrigating device is the crown prince. If you have advanced gum disease and bone loss, or if you can't seem to keep your gums healthy using the brush and floss, this device could make the difference between losing and keeping your teeth. Its value is not just in treating gum disease but also in preventing it. So don't wait until you have gum disease to start using one. It is truly a wonderful invention and I use it regularly.

The basic concept behind the water irrigator is to shoot a pulsating stream of water out of a nozzle. The most efficient devices have

controls that let you regulate the amount of pressure they deliver. When used in the right way, at the right time, and directed to the right areas, this little machine removes food debris and germs, dislodges newly forming plaque, massages the gums, and delivers antibacterial agents to areas that other dental aids never reach. These devices, wonderful as they are, will never replace the brush or floss—but they sure can help both of them.

Types of irrigating devices Many brands and types of oral irrigators are available. Most are electrically powered, but there are a few that have a universal attachment that lets you hook them up to a water faucet. This is fine if you have both hot and cold water coming out of one faucet, but there are still many sinks that have hot water coming out of one faucet and cold out of the other, which means you cannot control the water temperature. If this is your situation get an electric irrigator because you absolutely must be able to adjust the temperature of the water to your body temperature. The type that hooks up to a faucet is great for people without electricity.

Having tried most of these devices I feel that the Water Pik Oral Irrigator is the best. Water Pik makes a wide selection, including a smaller version for traveling, and a new tip, Pik Picket Tip, that reaches further into the gum's pocket.

Toothpicks: Picking a Pick

Toothpicks come in great variety, ranging from the slender pieces of wood we all know to many kinds of plastic and rubber ones. All are effective interdental stimulators, and used correctly, any toothpick can provide a lot of support for your oral hygiene efforts. The critical thing is to fully understand what a pick can and cannot do so that you won't misuse this important tool. Toothpicks *can* be abused. They can cause gum recession and root abrasion (see pages 58-59), as well as injuries, especially to the eyes and ears of children. The most serious injuries result when toothpicks are swallowed. Be careful.

Wooden toothpicks These come in different sizes and shapes. I prefer the triangular ones, but any of them will work if used correctly. Hand-held toothpicks do not give you access to the spaces between and around the back teeth as efficiently as toothpicks with handles.

Plastic toothpicks Since these are available in many sizes and shapes, you should ask your hygienist which one is best for you. These have handles that give you better control.

Rubber toothpicks These are nice because of their flexibility. And because they don't have a sharp, hard point, you're less likely to harm the gum tissue if you accidentally poke yourself.

Homemade toothpicks In a pinch, you can use carved pieces of wood, small twigs, and just about anything else that is clean and reaches the areas you want to pick. Feel free to be creative. Don't use a sharp point and, before using, fray the end by chewing on it.

Toothpick holders These are great. Their unique handles are designed to hold a wooden toothpick. They give better control and greater access to the gums, are easy to use, and can make a big difference in your oral hygiene program. They come in different styles and sizes and can be found at the drugstore, but many dental offices also sell them or give them away. Your hygienist may have a style she likes best, so ask her about them and have her show you how to use them.

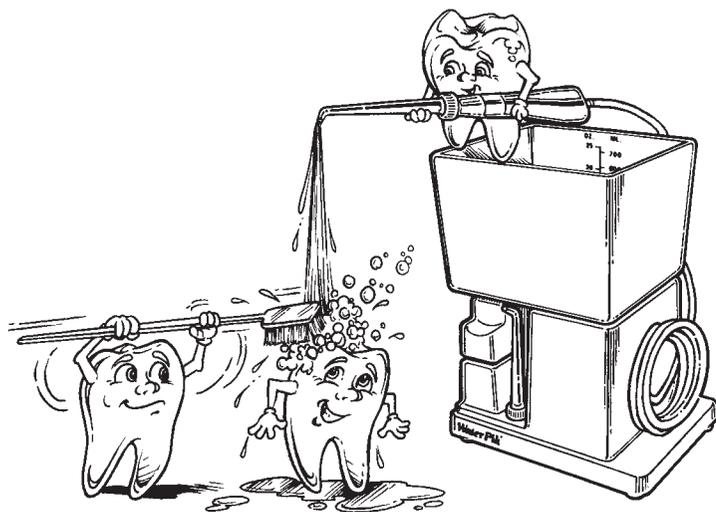
Disclosing Agents

Disclosing agents are colored tablets or liquids containing a vegetable dye. When the dye reaches the teeth, it stains the food debris and plaque a reddish or purple color. It will not stain the teeth themselves.

Just remember, the color doesn't wear off immediately, so you might not want to use a disclosing agent before going out on a date. It can also stain your clothes and should not be swallowed. Always use it according to the directions. You can find disclosing agents at any drugstore or at your dentist's.

SOMETHING TO THINK ABOUT

It is one thing to know about available preventive tools and another to know how, when, and where to use them. There is no free lunch. Your choice is between keeping your teeth for the rest of your life or losing them. None of these tools have brains, legs, or arms. Without you, they can do nothing for your teeth and gums, so if you don't use them, you will lose them . . . not your tools, your teeth. The next chapter tells you how to put your tools to work.



Chapter 5

Your Personal Home Care Program

Well, we've covered a lot of ground together. Now you understand the causes of tooth decay and gum disease. You also know how to perform a self-examination and which tools you need to fight these diseases. But acquiring knowledge is not enough. You must turn that knowledge into action. If you're ready to do that, this is the chapter that will show you how.

When you have integrated what you learn in this chapter with the instructions and guidance your hygienist and dentist provide, you will have an oral hygiene program that is customized to your mouth. However, understand that no matter how well your hygiene program is designed, you must also be willing to include all of the following actions as part of your total preventive program:

- Have existing tooth and gum disease treated and repaired. Remember, you must first get rid of the disease before you can prevent its return.
- Do as much as you can to change your diet from a disease-promoting one to a disease-preventing one.

- Resolve to brush, irrigate, floss, pick, or perform any combination of these activities immediately after eating any refined or processed foods.
- Periodically do a self-examination.
- Follow the hygiene recall schedule established by your hygienist.

ALL ABOUT BRUSHING

Let's begin with brushing, since brushing is the most basic home care procedure. The purpose of brushing your teeth is to accomplish two basic things:

1. To rid your mouth of all food and plaque from your mouth
2. To massage your gums

When to Brush

Any time is a good time to brush, but some times are better times than others. The most crucial times are after eating and in the morning. Brush immediately after eating, especially if the meal or snack contained processed food and refined sugar. By "immediately," I mean as soon as possible, but absolutely within four to six hours after any meal. The damage caused by food left in your mouth is directly proportional to how long it is left there.

Brushing in the morning is vital, even if you don't eat breakfast. You need to break up plaque that formed during the night. Plaque actually forms more rapidly during sleep than during waking hours, because it doesn't require food to attach its gooey self to your teeth and because most of your body's natural plaque fighters—your tongue, lips, and saliva—are not nearly so active at night. Even if your bedtime brushing removes all available germ food, the remaining plaque-forming germs continue to do their thing. Therefore, the morning brushing is critical, even if you don't eat. If you do eat breakfast you can accomplish two goals with a single brushing by brushing after you eat. Otherwise, brush as soon as possible.

Finally, it's a good idea to brush before going to bed, even if you brushed after your last meal, in order break up the plaque that has formed since then. Even if you've skipped meals or are fasting, never let more than eight hours go by without putting a brush to your teeth.

If you have advanced periodontitis your RDH may have you brush more often.

How to Hold the Brush

There is no one way to hold a toothbrush. The best way is the way that works best for you. You could hold it with your toes, as long as you get the job done. You'll find that whichever grip you use, you will have to shift the position of your thumb on the brush to comfortably reach every part of your teeth and gums, especially the inside surfaces. It is often easier to change your grip than to rotate your arm and your wrist. Experiment and see what I mean. When you show your hygienist your brushing technique, she'll see if your present grip allows you to effectively reach all the brushing areas.

Putting on the Paste

Add enough paste to cover about a third of the bristles. Run body, temperature water over the brush and paste for a few seconds to equalize the temperatures of brush, paste, and your teeth. I suggest that you get into the habit of doing this, especially if you have bone loss and/or teeth that are sensitive to cold. If you use a tooth powder, run warm water over the brush before you add enough powder to lightly cover the bristles. Before you begin brushing, rinse and gargle with water. This will make the brushing more effective.

How Much Time to Spend

The only way to find out how much time you need to spend on your hygiene program is to follow the guidelines suggested in this book and by your hygienist. Don't be concerned if someone else needs more or less time than you do. You're not worried about saving their teeth, just yours. Look at it this way: what's important is not how much time you have to spend saving your teeth, but how much time you save by taking care of them. It takes much more time to treat dental disease than it will ever take to prevent it.

The amount of time you put in to keep each area of your mouth healthy is determined by how much disease you have now or have had in the past. For example, an area that's in the early stages of gingivitis will require less time and attention than an area with advanced peri-

odontitis. Also, as you will discover, certain areas are more susceptible to decay and gum disease than others. These areas will always require more care.

The results of your hygiene efforts will determine your total time expenditure. Thus, if you start out spending four minutes a day (no cheating!) and are unable to maintain healthy teeth and gums, you'll have to increase your time to six minutes, seven, or maybe more. On the other hand, if you've been spending ten minutes a day and each checkup proves that your mouth is in great shape, you can reduce the time until you reach a happy balance. There really is no need to spend more time on dental care than you need.

YOUR BRUSHING PATTERN

Most people have a haphazard brushing technique, if they have one at all. Usually the brushing process starts at the front teeth and ends up somewhere in the back. There seems to be no rhyme or reason to their brushing, and in most cases, the front teeth get the most attention. Areas that need the most work are often missed altogether. I bet you can't tell me how you brushed the last time you brushed—where you began and ended. Thought so. Well, establishing a pattern is one of the little known, but very important, parts of a good hygiene program. You have three guides to help you do this. The first is your hygienist. She'll tell you which areas need the most work and how well you're doing. The second is the results of your self-examination. The third, if you have periodontitis, is your individualized pocket depth chart—this gives you a road map that directs you to the problem areas.

Where to Brush

Everyone knows you should brush your teeth, but brushing your teeth is only half the battle. Gums need to be brushed as much as teeth do. Even though plaque forms only on the teeth, the gums need the stimulation that brushing, flossing, and water irrigation provide. This massaging action stimulates blood circulation and toughens the gums, in the same way that callouses form on hands and feet to protect them. So, when you think “teeth,” think “gums” too.

Every part of every tooth must be brushed, especially the gingival sulcus and the gums down to one-third of an inch below the gum line.

Think of the area to be brushed as consisting of four parts:

1. Inside surfaces of the teeth and gums
2. Outside surfaces of the teeth and gums
3. Back side of the last teeth and gums
4. Chewing surfaces of all teeth

Following the Pattern

I want you to pick one side of your mouth to begin brushing, then always start from this point. Let's start with the upper right side. (Lefties may want to start on the left side.) If this starting point is new to you, your movements may feel awkward at first. If you get a little frustrated, hang in there. Establishing a set starting and finishing point has nothing to do with brushing technique per se, but it does guarantee that you will cover all the bases, every single time.

It is very important that you always follow the sequence I've outlined in this chapter because it will ensure that you first brush the areas that normally get the least attention. The insides of your teeth and gums and the outsides of the back teeth are where the highest incidence of gum disease occurs. You don't want to spend time on the less vulnerable areas and run out of gas before you get to the problem areas. If you need a reminder, just stick a note on your mirror.

While you read through the following directions, pretend your index finger is a toothbrush and go through the motions.

- Inside surfaces: Beginning your new brushing pattern with the last tooth on the upper right side, move around the insides of the upper teeth to the last tooth on the upper left side. Move your finger down to the inside of the last tooth on the lower left side, and then around to the last tooth on the lower right side.
- Outside surfaces: Next, put your finger on the last tooth on the upper right side and "brush" along the outsides of the upper teeth to the last tooth on the upper left side. Drop down to the outside of the last tooth on the lower left side. Move your finger around the outsides of the lower teeth, and finish on the last tooth on the lower right side.
- Back surfaces of last teeth: Begin with the back of the last up, per right tooth, then move to the upper left, then down to the

lower left, and finally to the back of the last tooth on the lower right side. I think you get the picture. Always start and end on the same side, and if you space out somewhere in between you'll always know where you've been and where you're going. (Ah, if only life were so simple.)

- Chewing surfaces: Finally, you get to “brush” the chewing surfaces. Begin on the top of the last tooth on the upper right side, and “brush” all the chewing surfaces of the upper teeth until you reach last tooth on the upper left side. Let gravity direct your finger down to the chewing surface of the last tooth on your lower left side. Continue scrubbing the tops of your bottom teeth all the way around your jaw to the last tooth on the lower right side. I suggest you do the tops last; do the other, harder-to-reach areas first, before you run out of energy or get bored.

The number of times you repeat the pattern will vary depending on the condition of your gums, so it might end up being four times or ten times.

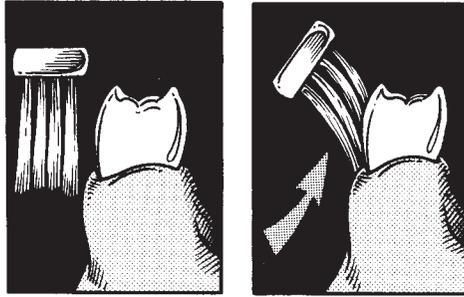
DOWN TO BUSINESS: HOW TO BRUSH

Now that you know why, where, when, and how much time to spend, you need to know how. Each of the four parts of your mouth must be brushed in a slightly different way. I know you'll be practicing diligently at home with your mirror as your guide, but it will still be necessary to have your hygienist watch you run through your brushing technique. She'll be like the movie director for your own oral hygiene motion picture. She'll fine-tune your newly acquired brushing technique to fit your mouth. Remember, different strokes for different folks. Here's how you brush each area.

Inside Surfaces of the Back Teeth and Gums

Hold the brush firmly against the gums at a forty-five-degree angle. Then move the brush from the gums to the teeth. As you do this, keeping pressure against the teeth and gums, rotate your wrist until the brush reaches the point where the gum meets the teeth, the gum line. Once there, gently direct the bristles into the groove, or gingival crevice, between the teeth and the gum. While continuing to exert gen-

tle, but firm, pressure, vibrate the bristles in a small circular motion. This will also force the bristles into the spaces between the teeth. The gingival crevice is the most critical area. Pause here and make sure that you spend the extra time to clean and massage this area thoroughly.



When you have taken care of the crevice, continue across the rest of the tooth surface, increasing the pressure of the brush. With an average-size brush, the bristles will effectively cover about two teeth and the gums around them. As you move the brush to each new position, overlap the last area you brushed to avoid missing any area.



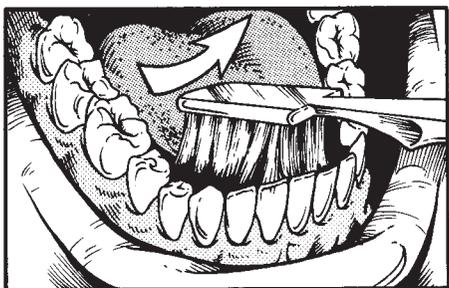
Never brush the teeth from side to side. Over time, brushing with a side-to-side motion, especially if you use abrasive toothpastes, can separate the gum from the tooth and eventually wear a groove in the area of the root that is normally protected by the gum.

Because the inside surfaces of your teeth are usually not given as much attention as the outside surfaces, be sure to spend extra time brushing them. Chances are good that if you check the condition of your gums around the insides of the back teeth, you will find that they show signs of disease.

Inside Surfaces of the Front Teeth and Gums

These are the most difficult areas to reach with the brush. The curvature of the inside of the front teeth makes it nearly impossible to use the same technique on these teeth as you use for the rest of your teeth. Reaching these areas is even more difficult for young children and for people with small dental arches when the toothbrush is too large.

Also, the fact that the mandibular salivary glands lie directly below the lower front teeth makes this a potential trouble spot; most people tend to form a lot of calculus here. So, after you've finished brushing the inside surfaces of the upper back teeth and you've reached the cuspid, what you'll need to do in order to reach the insides of the front



teeth is to change the position of the brush. Use the drawing as a guide and angle the brush so that the tip of it is facing toward the back of the throat. Use the bristles that are closest to your hand to brush this area, both upper and lower. If you have any trouble keeping these

areas clean and healthy you might have to switch to a children's brush.

Outside Surfaces of All Teeth

Use the same position and technique as you did with the inside surfaces of the back teeth and gums. Your toothbrush should be able to cover two teeth at once, but the key to the success of any brushing technique is not only how you brush but how much time you spend



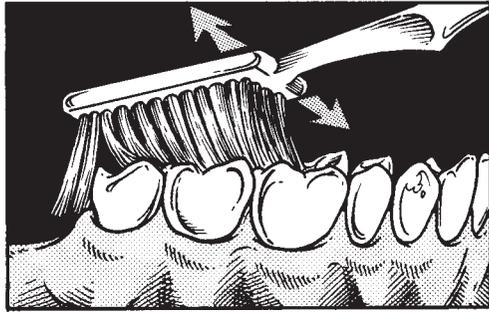
DR. TOM'S TIPS

You may be one of the many people who have trouble reaching the outsides of the last two upper teeth, on both sides, when your mouth is wide open. This happens because your lower jaw slides forward and literally pushes the brush out of the way when you open your mouth as far as you can, especially if you have a small mouth and use a big brush. To solve this problem, put the brush in your mouth, lay the brush flat against your upper back teeth in the position in which you would begin your brushing, and then close your mouth until the teeth are about one-half inch apart. Don't bite the brush. You will find you now have easy access to what was once a hard-to-reach area. Try it both ways and experience what I mean.

in each area. When you and your hygienist have determined which teeth need the most attention you must give those areas extra time.

Back Surfaces of the Last Teeth

Place the brush in the position shown in the illustration below and move it from left to right in short strokes. The size of most brushes makes this movement a little awkward and you need to move the brush around to clean both the tooth and the gum. As when brushing any area of your mouth, you have to take the trial-and-error path to discover the best approach. The backs of the last teeth are one of the most overlooked areas; so don't forget to hit these spots.



Chewing Surfaces

The developmental grooves of the back teeth run in all directions. If you are going to clean these grooves you will need to move the brush in all the directions in which the grooves run. Although it is not always possible to completely clean these grooves, a firm back-and-forth shimmy will clean them efficiently. Even if all the chewing surfaces have been restored with amalgam or composite fillings, it is still important to brush them because these fillings can break down or wear away where they meet the tooth. These margins are perfect breeding grounds for germs and ideal bases for plaque formation. Likewise, if you have full crowns on your back teeth you should still brush the chewing portion, because plaque can form in the grooves and margins of a crown.



Although this does not cause decay, the presence of plaque always means an increase in the germ population . . . and you know that's not good.

DRY BRUSHING

A growing number of dentists and hygienists are promoting dry brushing. The philosophy behind this technique is that dry bristles are more effective at dislodging plaque because neither toothpaste nor water comes between the bristle and the plaque. To dry brush, you do not have to change your brushing pattern or technique, and the only thing you do differently, aside from not adding paste or water, is to frequently wipe your saliva from the bristles with a cloth or tissue.

Combining dry and wet brushing negates the most undesirable aspect of each: the barrier created by paste and the unpalatable sensation (to me, anyway) of brushing dry. I suggest that you try a modified form of dry brushing in the morning. You wet the brush but do not use toothpaste—that is, if you brushed with paste the night before. I don't recommend dry brushing of any kind if you have gone more than twelve hours without brushing with paste. You need the more abrasive action of toothpaste to help dislodge plaque that has had extra time to adhere to the tooth.

At night, I suggest that you first apply toothpaste to the brush, then brush with it until you have completed a few full cycles around the teeth. That will take care of the cleaning and polishing of the teeth. When you've done that, rinse away the paste from the brush and your mouth and proceed with wet brushing. Most patients who have followed this procedure say it is easier to brush longer without the paste foaming up, and I agree.

WHICH TECHNIQUE SHOULD YOU USE?

There are many other brushing techniques besides the one I suggest, all variations on the same theme. And all of them require that you religiously follow their instructions. My brushing technique is not the only one that will work for you, but if you do it consistently you will establish an effective brushing routine. If your hygienist feels that your situation requires a modification of my technique, or even a totally different technique, for reasons she can explain to you, then

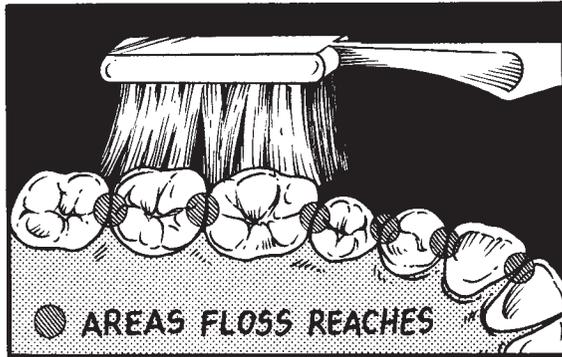
take her advice and adjust your technique until your brushing generates the results you seek.

Remember, if you've had bone loss the brush alone will not be enough to keep your teeth and gums healthy. In these areas you need to use floss, a water irrigation device, mouthwashes, special brushes, and various kinds of interdental stimulators. The function of the toothbrush is unlike that of the other two main preventive tools—floss and water irrigation devices. Likewise, floss's function is unique, and neither can do what the water irrigation device does. Using a variety of preventive tools is like using a saw, a hammer, and a screwdriver in the right situation. You would never hammer a nail with a screwdriver . . . at least I hope not.

ABOUT FLOSSING

If you've never had gum disease; if you have perfect dental restorations, no bad contacts, a healthy diet; if you understand all the haws, whys, and whens of oral hygiene and are faithful to your hygiene program—you may never need to floss. Only a few percent of the population fall into this category, and if you're reading this book, I don't think you do.

Flossing removes food, breaks up plaque formations, cleans the teeth, and massages the gums—but does so only in the areas the floss can reach. For example, you can't floss the outsides or insides of your teeth, only the sides. The drawing shows where the floss and the brush clean. The shaded areas between the teeth, from the top of the teeth down to the gums, are the only areas the floss can effectively reach. All other parts of the teeth and gums belong to the brush and the water irrigator. So now you can see why you need to do both—brush and floss.



You can floss anytime, but if you are brushing and flossing, floss after you brush.

HOW TO FLOSS

Understand, it is more difficult to read about how to floss from a book than it is to actually floss. Over the years I've seen about twenty different descriptions of how to floss, even though they all described the same procedure. Learning to floss correctly is no more difficult than learning to do it the wrong way, but only the correct method will get results. It may seem difficult and feel awkward in the beginning, but if you think your teeth are worth saving you won't give up until you get the technique down pat. With practice, and guidance from the hygienist, you'll soon be able to floss and think about something else at the same time.

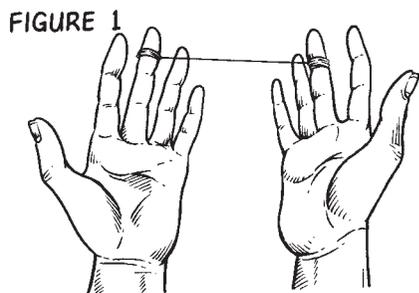
The following description is for right-handed people, so if you're a lefty you'll have to make adjustments. Even if you already feel comfortable about your flossing method, stay tuned to make sure you're flossing correctly. The first part of this section explains how to hold the floss and describes an effective flossing pattern.

Part 1: Positions and Patterns

As with brushing, always start flossing on the same side. I always begin on the upper right side no matter which dental tool I am using, so I always have a reference point. So, start on either the upper right or upper left side, then move around to the opposite side, drop down to the lower jaw, and move around to finish on the side where you started.

1. Start with about eighteen inches of dental floss. If you find that you need more or less floss, be my guest.

2. Wrap the floss three or four times around the middle finger of your right hand at the level of the joint closest to your fingernail. Do the same for the middle finger of the left hand. See figure 1.



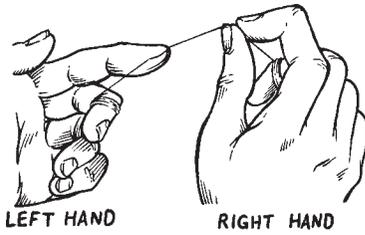
3. Adjust the floss so that there are about one to one and one-half inches of floss between your two fingers.

Flossing the upper jaw Use one position for the right side and a slight variation of it for the left side.

UPPER RIGHT SIDE

1. Move the floss over the soft part of your right thumb, and use your index finger to hold the floss in place. Now, place the floss over the pad of your left index finger. See figure 2. (Thank goodness for artists.)

FIGURE 2



2. Slowly move your hands apart until the floss is tightly stretched.

3. Place the index finger of your left hand in your mouth. Flossing will only work if your right finger and thumb are kept outside the teeth.

4. In order to practice, try this technique on your front teeth, where it is easiest, and when you feel confident, start with the last tooth on your upper right side. You can use this position to floss as far as the cuspid on the upper left side. It is easier to move your lips out of the way if you open your jaw only as wide as you need in order to get your finger inside your mouth.

UPPER LEFT SIDE

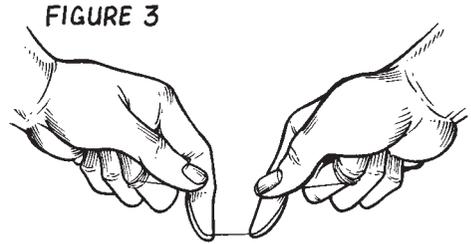
1. To floss the left side, you do everything the same as when you floss the right side, except in reverse. Switch your hands so that your left hand is now held in front of your right hand, the floss is over the pad of your left thumb (braced with the index finger) and your right index finger, and the right index finger is now in your mouth. This changes the position of the floss.

2. Use this position to reach the last six teeth on the upper left side. Try this position between the central and lateral teeth on the upper left side before you work on the back ones. Let out more floss between your finger and thumb if you need more to reach the last teeth.

Flossing the lower jaw I know, it's a trip learning how to floss the upper teeth, and I'm proud of you for hanging in there. Now

I can give you some good news: learning how to floss the lower teeth is much easier. And soon you won't have to read about flossing anymore.

1. Wrap the floss around your right middle finger as you did when you flossed the upper teeth. Place the floss over the soft part of your right index finger. Pinch the loose end between your left thumb and index finger and pull it tight by separating your hands. Leave one inch to one and a half inches of floss between your hands. See figure 3.



2. Then, starting from the lower left side, insert the finger-held floss into your mouth, and floss from the lower left to the lower right side. Are you getting the hang of it?

Flossing the backs of your teeth In a normal mouth there are four teeth with exposed backs: two on the upper jaw and two on the lower. Most people were never told to floss these areas, but these areas need flossing as much as the areas between the teeth.

It's really pretty easy to do. Hold the floss between the thumb and index finger of both hands. Allow about one to two inches of floss between your hands. Adjust your fingers so that you can loop the floss around the back tooth. Each of the four teeth will require a different finger positioning, but because there are many ways to do this, I leave it up to you to find the position that works best. If you have lost any teeth you'll need to floss the two sides adjacent to the void.

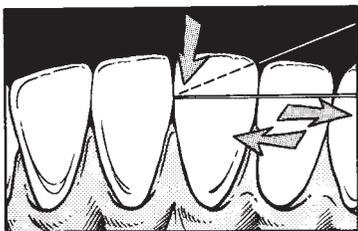
Part 2: Flossing Movements

All your teeth should be flossed in the same way, so I describe flossing movements between only two teeth. Practice these movements between the bottom front teeth; that way you can see in the bathroom mirror if you are doing it correctly.

1. Guide the floss to the space between two front teeth.

2. Pull it to one side (against one of the teeth) and slide it down the side of that tooth. At the same time as you pull the floss down, use a back-and-forth shimmy movement.

This movement helps flatten the floss and allows you to slide by a tight contact more easily than if you tried to force it straight down



through the contact point. This downward, shimmy movement also allows you to use less force. Not all contact points are the same. If you try to force the floss through a tight contact with a lot of pressure you can break the floss or snap it through the contact point,

hitting the gums with a great deal of force. This can break the skin of the gums and cause bleeding, especially if you have infected gums.

3. Once you've passed the contact point, you're in what I call the "triangle area" between the teeth. The contact point is one point of the triangle, each tooth is one side of the triangle, and the gum between the teeth constitutes the third side. Every side of the triangle needs to be flossed.

Cleaning the teeth

1. Pull the floss against the side of one tooth and slide it up the tooth until it hits the contact point.

2. Wrap the floss around the tooth as far as you can. The size of your mouth and fingers determines how far you can wrap it.

3. Slide the floss down the tooth toward the gums, and make sure it goes as far down the tooth as it can go. This movement on the tooth is like shining the top of a shoe, with the floss as the polishing rag. Be careful not to jam the floss into the gums because it can injure them and force plaque into the pocket. Move the floss up and down six to eight times and then do the same to the opposite tooth.

4. Finish off each side with a few in-and-out movements. This in-and-out motion is very important, especially when you arrive at the junction of the tooth and gums, because it carries the food particles and plaque out into the mouth.



Cleaning the gums After you have cleaned both sides of the triangle you need to massage the gums between your teeth. Be careful

if you have gum disease—the gums here may be very soft and fragile. Simply move the floss back and forth across the surface of the gums three or four times, exerting only slight pressure. This pressure massages the gums, helps toughen them, and increases blood flow. Increase the pressure as your gums become healthier, but never to the extent that they become sore and bleed.

Removing the floss How you remove the floss is critical. Since the day floss was invented, probably tens of thousands of fillings have been pulled out by improper floss removal. (Heck, sometimes dentists use floss to remove a stubborn, temporarily placed crown.) If a filling has not been done properly and protrudes beyond the tooth's surface, floss that is pulled out through the contact point can catch on the overhang and rip, fray, or get stuck. If enough force is used it can pull the filling out. This is not fun and will require a visit to the dentist. The trick is to never remove the floss by pulling it through the contact point if either tooth has a filling that overhangs the tooth. It's better to let go of the end of the floss inside your mouth and pull it straight through the triangle, slowly, toward the outside. When you are proficient at flossing, you will be able to tightly hold the floss between the thumb and index finger inside your mouth, instead of wrapping it around your middle finger. This makes it easier to pull the floss out through problem areas.

Flossing Tips

- Check for bleeding. Once a week check the floss after you pull it out. If there is bleeding, it will appear on the floss as a reddish-pink color. Some flosses are colored red—don't use them when you check for bleeding. If you see any sign of blood note its location, because not only do you need to let your hygienist know but you need to give that area more attention when you brush, floss, and irrigate. Wipe or rinse off the floss, or use a new piece, before going on to the next flossing area.
- You can use floss to check out whether the margin of a filling fits as well as it should. If the floss hangs up or frays make a note and point it out to the hygienist and dentist. Ask if the margin can be smoothed. (If the floss gets frayed, use a new piece.)

- Floss after you have brushed and spit out the excess paste, but before you have rinsed. The paste remaining between the teeth acts as a cleansing and polishing agent.

WATER IRRIGATION

You already know how much I like the water irrigator, so it's time to tell you who should use it, when, and how.

Who Should Use It

Anyone who has gum disease, especially if there's been bone loss, should always supplement their brushing and flossing with the use of a water irrigation device. But it's also a great preventive device and should be used even if you don't have gum disease.

When to Use It

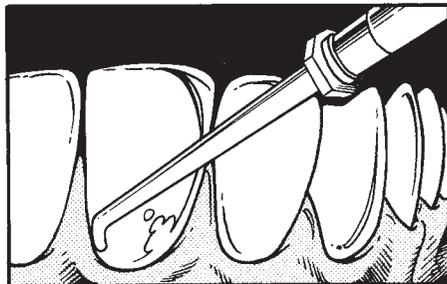
If you have gum disease you should use it after you've brushed and flossed. After the disease has healed, use it at night, after your last brushing and flossing. But since it feels so refreshing, you may want to irrigate any old time.

How to Use It

Make a practice run without water in the container. Do this so that you can see your technique in the mirror and also to get the sensation of how the tip of the oral irrigator feels next to the gums. You can't do this if water is squirting all over the place. First read through the directions, and then run through the motions.

Begin at your regular starting place and follow the same pattern as you do when you brush. By now you should have this down pat. Make two or three complete passes through your mouth to perfect the technique.

Adjust the tip of the irrigator so that it touches the area where the gum meets the tooth. Direct the tip so it is at an angle of forty-five degrees to the tooth. Make sure it is in direct contact with the gum line so that the jet of water has access to the gum pocket. If you have bone loss and spaces



between your teeth, be sure and move the tip between the teeth and direct the water into the pocket on the sides of the teeth. Make the necessary adjustments as you move around the teeth. As you practice this, watch your movements in the mirror and tune in to how it feels, because when the water is shooting out your lips will be closed and you won't be able to see how you are doing. Irrigating is definitely a technique that relies on touch and feel

The manufacturer of your water irrigation device will include directions on the use of its product. Each will have unique features, so be sure to read the directions.

How much time to spend The severity of the disease and the pocket depths on your periodontal chart will guide you as to the amount of time you need to spend. You should spend extra time in any area that has a pocket depth of 3 mm or more. The deeper the pocket, the more time you will spend.

Slowly move from tooth to tooth, and when you get to a problem area, stay there and move the tip back and forth along the gum line for five to ten seconds, then move on. If an area is not healing, spend more time at each session until it responds. As you increase the pressure, the liquid will run out faster, and in order to finish the job, you may have to refill the container.

Setting the water pressure The healthier your gums, the higher you can adjust the pressure setting. But if you have gum disease always start out on the lowest setting. Every three or four days you can move it up one notch, unless you have some spots that will require a lower setting for a longer period of time. The only way you can harm your gums using a water irrigation system is if you use too much water pressure before the gums have healed. Err on the side of too little pressure to begin with and be patient.

The liquid The liquid you use in the irrigator should always be close to body temperature. This is a must if you have had bone loss and/or sensitive teeth. To test the water, stick your finger in it, and if it feels neither cool nor warm it is at body temperature (when a liquid is 98.6°F you actually feel nothing). If you have gum disease use an antibacterial mouthwash or a saltwater solution with your irrigation device. Note: Be sure to check the product instructions to see if the manufacturer warns you against using any solution other than water.

Here are four ways to include mouthwash or a saline solution in your irrigator program (following the directions above with each method):

1. Fill the container with half mouthwash and half water.
2. Fill the container with water, and when you have used all the water, add two to three inches of undiluted mouthwash to finish off.
3. Use straight mouthwash. I recommend straight mouthwash if you are treating advanced periodontal disease. Also use straight mouthwash immediately after you have had hygiene therapy. This procedure keeps the germs in control until the gums have had a chance to recover.
4. If, for whatever reason, you're unable to use a mouthwash and don't have a problem with sodium, use a saltwater mixture. Salt is also very good for healing infection and has some antibacterial action. Use about one-half teaspoon of salt to a full container of body-temperature water. Stir it well. When your hygienist has declared you disease-free, and you're practicing preventive maintenance, back off on the salt or mouthwash solutions if you so desire.

Using straight mouthwash or a 50-percent mouthwash solution, although more expensive, is more effective than saltwater or plain water. The saltwater mix will produce good results, but sodium may not be advisable for some people. Using only water is about half as effective as the above methods, but will still reduce plaque and gingivitis more effectively than rinsing with plain water.

Keeping the liquid in check First, point the irrigator tip at the sink, turn on the irrigator, then let it run for a few seconds. This gets rid of the cold water left in the system after the last use. Shut it off, place the tip in your mouth next to the first tooth in your pattern, gently close your lips over the tip, then turn on the motor. If you forget to close your mouth water will spray all over the place. Lean over the sink, and when the water builds up in your mouth, simply tilt closer to the sink, open your lips a smidgen, and let the water run out. When the water has been released, close your mouth again and continue where you left off. When you do it this way you won't have to shut the irrigator off each time you release the water. You'll quickly get the hang of this.

Cleaning the Machine

If you use only water you won't have to clean the irrigator. If you mix anything else with the water, especially salt, you will always have to flush it out after you finish so the system won't become clogged. First, rinse out the container with fairly hot water. Then add a few inches of water to the container, turn to the highest setting (the water will run through faster), and run all the water through the tip. That's all there is to it.

Water Irrigator Tips

When deciding which irrigating system to purchase, you should take into consideration the size of the tip. If possible buy the one that offers the smallest tip. If the diameter of the tip is small enough you'll actually be able to gently insert it into the pocket. The further the liquid reaches into the pocket the better the results will be. This is especially valuable if you have pockets deeper than 4 mm. Always use gentle pressure, and never force the irrigator tip beyond a comfortable location. You could injure the gum tissue by forcing the tip into the pocket. It may be easier to gain access to a diseased pocket because the gum does not hold so tightly to the tooth.

TOOTHPICKS

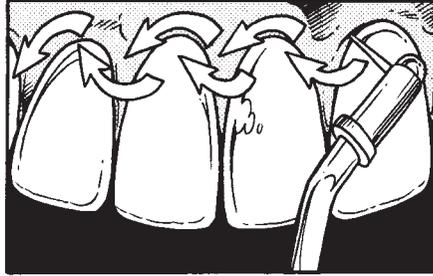
Picks are probably the easiest to use of all the dental tools, especially the picks that have handles. But like everything on this planet, they, too, can be misused. The purpose of any pick is to break up plaque formation on the teeth, remove food particles, and massage and stimulate the gums in the gingival crevice area. Think of the pick as a miniature toothbrush that specializes in cleaning and massaging the vulnerable space between the tooth and the gum and the areas in between the teeth. For hard-to-reach areas, like the insides of all the teeth and the outsides of the back teeth, the size of the fingers makes regular toothpicks difficult to use. Picks that have small handles are much easier to control and will give better results.

How to Use Them

Hold the pick at a forty-five-degree angle to the gum line and gently place it into the gingival crevices. Don't force it into the pocket; you might injure the tissue. Practice positioning the pick on the front

teeth and check yourself in the mirror. All you have to do is angle the pick as shown in the drawing.

Move around the crevice using the same pattern you use when you brush, beginning with the last tooth on the side you've chosen. When you've cleaned every area, rinse your mouth well with water. If you're at home it will be more effective to use an oral irrigator because it will really wash away all the plaque and food stirred up by the picking.



Pick Tips

- If you use a wooden toothpick, nibble on the point until you have blunted it and created a frayed, brush like end. This will keep you from accidentally penetrating the skin, and the frayed end acts like a miniature brush. If you use a plastic pick watch out. Some of them have sharp points. Lightly sand the tip with fine sandpaper until the point is no longer sharp.
- If you have periodontal disease you can soak the end of your frayed toothpick in mouthwash or hydrogen peroxide (a 3 percent solution). You will not only mechanically dislodge the plaque but also add chemical germ fighters.
- Get one of the handy toothpick holders and always keep it with you. Or else use regular toothpicks. But whatever your choice, if you can't brush or floss after eating, at least pick.

DISCLOSING AGENTS

Disclosing agents come with directions for their use, but I would like to add my own two-cents-worth. If you use them while you're in the process of learning your new hygiene techniques, it will be almost like having your hygienist come home with you to point out where you're cleaning well and where you're not.

If you use tablets let them dissolve in your mouth before you brush. If you use the liquid just swish it thoroughly around your teeth. Use your mouth mirror to check for the stains that indicate food and

plaque. Then go through your brushing pattern and take another look. Then floss and take another peek. Then use the water irrigator and take a final gander. You will see that each successive procedure has removed more of the stained food and plaque.

Using disclosing agents is one of the best ways to demonstrate the effects of proper oral hygiene techniques, especially to children. During the early stages of its formation, plaque is impossible to see with the unaided eye. This makes it difficult to conceptualize. That old but-if-I-can't-see-it-how-can-it-be-there attitude is not the right attitude to take. But once plaque is stained with a disclosing agent (and it stains very well), you have visual proof that it exists. Keep using disclosing agents periodically, say once a week, while establishing your hygiene program, until you see that you are no longer missing any areas. After that you can use it every few months as a monitor.

RINSING AND GARGLING

Rinsing and gargling are not the same. They are not performed the same way, and they do not produce the same results. Try a little experiment. I call it the rinse-versus-gargle experiment. Do it after you eat your most complete meal of the day. If you add beets to your meal the results will be even more spectacular. First, brush, floss, and irrigate your mouth as you normally would. Then, rinse with water, but don't gargle. You would think that after these procedures all food particles would be washed away. Well, I suggest that there is an area you've missed, and here's how to find out where that is.

Make sure the sink is clean, then stop it up. Next, take a small swig of water. Tilt your head back and gargle real well: deep, high, and long. (You might need to experiment with the amount of water needed to both gargle and avoid a gag reflex.) The head tilting is critical, as it allows the water to move farther back into the throat, which is what distinguishes gargling from rinsing. Experiment and work the water as far back in your throat as you can before doing the actual gargling. With practice you will reach areas in the back of your throat you never thought you could. Spit the gargled water into the sink and take a look at what you've found. What do you see? I thought so!

The back part of the mouth and the upper part of the throat act as a catchall for many of the foods we eat. The foods that are especially troublesome are mucous-forming foods, such as dairy products, flour

products, foods to which you may be allergic, and foods that contain sugar. It is possible that some of the food that sticks to the palate and upper throat will find its way back to the teeth and gums, perhaps when you clear your throat or cough. Why put in all that time on oral hygiene and then have food particles sneak in through the back door?

There are other reasons to gargle after brushing. One is that when food particles, particularly dairy products and foods containing sugar, start hanging out in the back of your throat, they provide a super breeding ground for all kinds of bacteria. Left there long enough, these toxic little germs will breed faster than the proverbial rabbit. In large numbers they can create enough irritation and infection to cause sore throats, and I believe they are a contributing cause of strep throat. I also think that this environment plays a role in the development of tonsillitis. The lymph system that protects the upper throat and back of the mouth can be overwhelmed and weakened from constantly fighting off these germs and the irritation and toxins they produce.

Another reason to gargle is to get rid of excess bacteria and food particles that could cause unwelcome bad breath. So do your immune system, your throat, your teeth and gums, and your friends' noses a favor: add both rinsing and gargling to your daily oral hygiene program.

Even if you can't brush or floss after eating, you should both rinse and gargle. When you rinse be sure to suck the water back and forth between the teeth, particularly if you have had bone loss. Wherever you have had bone loss and gum recession there will be gaps between the teeth where the gums once lived. Passive rinsing will not reach these areas as well as forceful sucking will. Boy, that old bone loss really comes back to haunt you.

CLEANING THE TONGUE

If you're like most people, you may not have been giving your tongue much attention, but the tongue needs to be cleaned as much as the teeth do. From the germ's point of view the tongue is the per, feet place to live. The taste buds are like trees that snag food and protect germs from brushing, flossing, and rinsing. You could be doing a super cleaning job on your teeth and still have a high oral germ count because the tongue is not being cleaned.

There are two ways of cleaning the tongue. The first is to clean it with the toothbrush. Rinse your brush with warm water, stick your tongue out as far as you can, put your brush as far back on the tongue as you can without going into the gag reflex, and brush it from back to front. I have found that using a 2" by 2", inch gauze strip to grasp the slippery tip of your tongue keeps it from slipping away. Brush with as much pressure as you can tolerate, but don't abuse it. There are thousands of sensitive taste buds residing there. Rinse the brush after each pass over the tongue.

The second way is to clean it with a teaspoon. I find it easier to use than the brush. First, rinse a clean spoon under warm water. When it has reached body temperature, open your mouth, stick out your tongue, and place the spoon, with the concave side down, as far back on the tongue as you can without gagging. Press the spoon against the tongue and drag it lightly toward the tip of the tongue. Check the contents of the spoon. How about that? Your tongue is one of the body's measuring sticks: the better your diet and the healthier you are, the cleaner the spoon will be.

You might try using both techniques: brush it first, and then finish cleaning your tongue with the spoon. Remember to be gentle, but clean as much of it as you can.

SPECIAL SITUATIONS

There are very few ideal mouths—mouths that contain perfectly straight teeth with no decay or periodontal disease. So since most of us have some sort of oral idiosyncrasy, I'll pass along a few tips for dealing with special problems that are often overlooked.

Misaligned Teeth

If you have overlapping teeth the areas where the teeth overlap will be more stained and junk-filled than areas where the teeth are straight. To verify this, look at your teeth after you have eaten some bread, seeds, or nuts. Note where the chewed food sticks and where it does not. Also, check those misaligned areas against your periodontal pocket depth chart. I bet you find that the gums here are not as healthy as the gums around the straight teeth.

Most brushing techniques are designed for straight teeth, and in order to compensate for overlapping teeth you must change the angle of the brush. You can't brush with the same up-and-down motion that you use in other areas. This is very important. If you don't compensate for the misalignment, you won't be able to effectively remove the food and plaque. Be creative with your brush and spend extra time in those areas. Flossing, water irrigating, and picking are also a must in these areas.

Missing Teeth

Missing teeth create unique brushing problems. You'll have to pay special attention not only to the teeth on either side of the space left by the lost tooth but also to the tooth above or below the space. Because the tooth directly above or below no longer has a partner, it is more vulnerable to decay and gum disease; the natural self-cleansing process that is a by-product of chewing no longer exists for that tooth. Until you get the missing tooth replaced, I recommend that you use either a small children's brush or one with a specialized head to clean around the teeth next to the empty space. And don't forget to floss and irrigate these areas.

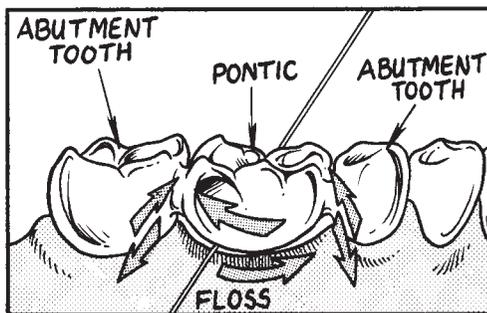
Margins

Margin is the dental term for the place where a filling meets the tooth. It may be easier for you to think of margins as joints or seams. Whatever you decide to call them, these areas are highly vulnerable to plaque formation and thus to decay, especially the margins of a filling found between the teeth. From a germ's perspective, a margin is as wide as the Grand Canyon. If germs can penetrate a healthy tooth, you know they sure as heck can weasel their way into the space between a filling and the tooth. And they can do it even more easily if the filling does not fit tightly or if it overhangs the place where it meets the tooth. Make sure you give special hygiene attention to every tooth that has a filling, especially crowns and composite restorations. The amalgam filling is more resistant to re-decay because germs don't like mercury but they still need attention.

Fixed Bridges

Everyone knows that artificial teeth do not decay, so you might be wondering why they have to be kept clean. Well, plaque and calculus

can form on all man-made materials placed in your mouth. Even well-constructed crowns and fixed bridges create food and plaque traps, and they aren't as easily cleaned by the chewing process as are your natural teeth. If they are not properly cared for, plaque can form rapidly, and calculus formation won't be far behind. It won't take long for the plaque to reach the gums around the false tooth (called a *pontic*), irritating them and causing inflammation. The plaque that forms on the bridge itself also acts as a breeding ground and food storage area for germs and can be a contributing cause of decay, gum disease, and bad breath. The brush will not reach all the areas of the bridge that need cleaning, so you must use a floss threader to get the floss between the pontic and the gum to clean every area you



can reach. Make sure you floss the sides of the natural teeth next to the pontic. The shaded areas in the drawing indicate where you need to floss, at least once a day. Use the water irrigator to rinse away the stuff you've loosened and to massage the gum underneath the pontic.

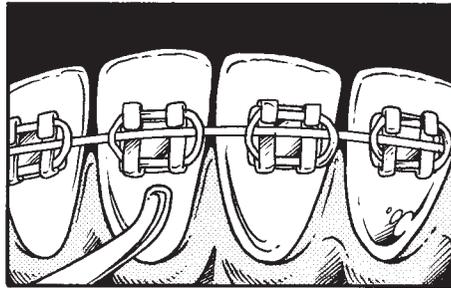
Removable Dental Appliances

These are commonly referred to as *partial dentures*. If you don't take care of them they can become just as dirty as uncared-for natural teeth. Special attention should be paid to the areas where the partial attaches to the natural teeth. The natural teeth that hold and support the partial, called abutments, undergo a great deal of stress. They are also major food and plaque traps. Because they are so important you should consciously zero in on them and give them as much care and time as it takes to keep them healthy. Always ask your RDH to give you a report on how well you are doing in those vulnerable areas. Without proper care you could lose an abutment tooth, and the partial could have to be remade. You may already know how expensive that is. *Full dentures*, or *plates*, also need regular care because they can become stained, and plaque and calculus can form on them.

Braces (Orthodontic Appliances)

Braces have come a long way since their introduction, but keeping them clean is just as important today as it was thirty years ago. For as much good as they do, they're also germ and plaque traps. Therefore you must spend extra time brushing around the areas where the braces are attached.

Always brush and irrigate both the top and bottom portions of the braces. Think of the braces as the gingival crevice and use the same circular shimmy motion and you'll do fine. Because you can't floss with braces, you'll have to make up for that loss with extra brushing and, especially, use of the water irrigator. Kids find this a fun thing to do . . . and when any task is fun it's performed more often. When using the irrigator, make sure that you direct the jet of water from the top down and from the bottom up. The electric toothbrush is great for cleaning braces.



IRRIGATOR TIP

Avoiding foods that germs love—substituting lots of raw vegetables and fruit in place of soft, processed, and refined foods, especially junk food—is especially important when braces are involved.

TIPS FOR THE DISABLED

If you have problems with or have lost the use of your hands, oral hygiene is not so easy. Hopefully, you have a friend or a loved one who can assist you with dental care. If you have artificial limbs the electric toothbrush, water irrigator, and floss holder will be invaluable. I strongly recommend that you pay strict attention to your diet: diet is the most natural of all the tools available. Avoid sugar, use a mouthwash, and top off your meals with carrots and apples. Have your teeth cleaned often—your dental hygienist will help you determine a cleaning schedule.



DR. TOM'S TIPS

I wasn't always a dentist. I was a patient first, and not a very good one, at that. By the time I was eighteen, I had chronic gingivitis around many teeth and the beginnings of periodontitis around a few others. My parents took me to the dentist every six months, and though it helped, I was still on my way to becoming a dental cripple. For me, getting back on track was a process of turning my bad dental habits (more like no dental habits) into teeth-saving ones. But I found that even after I learned all the haws and whys of dental prevention and oral hygiene, some of my old habits remained.

For those of you finding it difficult to change old and unproductive habits, I'd like to pass along a few of the things that helped me change. Over the years I developed several novel ways to make my oral hygiene more effective. So if you want to establish new hygiene habits I suggest you at least give them a try.

- When you're sure that you've mastered the basic techniques of oral hygiene, try adding some variety to your program. You would be surprised at how much exercise you can do while brushing your teeth and gums. I like to do stretching and toning exercises. The stretches I find easy and fun to do are side bends, leg raises, toe lifts, twists, squats, and other forms of isotonic exercise. Feel free to create your own exercises. This is a great way to get rid of decay and burn some calories at the same time. You can also think of it the other way around: while you're exercising throw in a little hygiene.



- Brush and floss in the shower. Why not clean your mouth and body at the same time? I don't use toothpaste when I brush in the shower, but there's no reason you can't. Rinsing after you brush is a breeze (no toothpaste on the shirt or blouse), and the shower head acts as an oral irrigator and helps to clean and massage the gums.
- If you like to read try it while cleaning your teeth and gums. Over a period of a year, those few minutes a day re, ally add up. I keep a book about music theory in my bath, room. A friend of mine uses that time every day to learn Spanish. But I should warn you now that trying to read while flossing does not work too well, unless you have a bookstand.

If you're worrying about whether you can brush too much, don't. I have yet to see a problem that has resulted from brushing or flossing too much, once patients have learned the right technique. But I have seen thousands of patients who have developed serious dental problems from not brushing enough. You can choose the side of the coin you prefer. When it comes to saving your teeth, any approach is worth a try. What have you got to lose? . . . except your teeth.

HYGIENE AWAY FROM HOME

Most people have what I call “neutral time” during the day. These are times when you are alone—thinking, walking, sitting, watching TV, driving. Taking advantage of these times to work on your oral hygiene not only saves time in the bathroom but makes it easier to keep your mouth in perfect health. I don't know about you, but the less time I have to spend in the bathroom taking care of my teeth, the happier I am. If you feel the same way, you may find these tips helpful.

Floss and Picks

Always carry floss and picks or have them handy. Floss and picks are the easiest of all the tools to carry and use. I have a container of floss

in my car, in the drawer in my office, and in my little day pack. After I developed the right habits, I found that a little floss alarm would go off in my brain at certain times of the day, after I ate, when I'd go for my walk, and while I was lying in bed. Besides flossing in the morning and at night before bed, make sure that you floss at least one other time—after lunch is ideal. Don't just think in terms of numbers, like twice a day—think in terms of opportunity. Floss whenever you can, and if it turns out to be four or five times a day, so much the better. When it's done correctly, you can never floss too much!

Automobile Hygiene

If you commute to work, either as a driver or a passenger, you can cut down on bathroom time by making the car a mobile hygiene center. Keep both floss and a pick holder in your car at all times. Get into the habit of flossing and using the pick every time you have to wait for a traffic light and whenever you're stuck in traffic. You may not finish a full cycle at each stop signal, so just remember where you left off and start from there at the next light. Don't snicker—some poor folks get stuck in commuter traffic as much as two hours a day, and this time can add up to hundreds of hours of positive hygiene. Listening to music may be good for the spirits, but it won't save a single tooth. So put on your favorite tape—and floss and pick away at every opportunity.

Finger Brushing

When nothing else is available you can use your index finger as a brush. Although your finger doesn't have bristles, massaging your gums this way is better than nothing.

SOMETHING TO THINK ABOUT

Taking care of your mouth should not be a struggle. After experimenting with my suggestions you'll find that the time you spend brushing seems to fly by, and you'll actually enjoy doing something that is good for you. Don't look at taking care of your mouth as something you have to do but rather as something that you get to do. After all, there are millions of people who wish they had some teeth to take care of. I hope you will never know how miserable it is not to have your own teeth.

Every time you brush, floss, irrigate, pick, and have your teeth cleaned, you increase the odds of keeping them. With the proper care, your teeth can accompany you on your journey from the cradle to the grave. Keeping them will be up to you, not just your dentist or your hygienist, so you might as well enjoy the oral hygiene process. Look at it this way: *You certainly do not have to take care of all of your teeth all of the time—only the ones you want to keep.*



YOUR HOME CARE CHECKLIST

- Establish your hygiene pattern.
- Brush after every meal if possible, but for sure in the morning and the evening.
- Floss after every brushing if possible, and whenever else you can, but always before you go to bed.
- Rinse and gargle after brushing and flossing, and after every meal, especially if you can't brush and floss.
- Chew sugarless gum if you can't brush after eating foods containing sugar.
- Irrigate after your last brushing and flossing of the day.
- Use picks anytime, but especially after eating if you can't brush.
- Clean your tongue daily or as often as you can.



Chapter 6

Working with the Dental Hygienist

Because this book's main focus is prevention, this chapter is devoted to the person who will, if you let her, play the most critical role in your overall preventive education program—the registered dental hygienist (RDH). (Many dentists perform hygiene therapy as well, so when I refer to the hygienist, I'm also including them.) You will discover what she does and why, as well as how to take full advantage of her knowledge and experience. Establishing a positive relationship with her will make all the difference between a successful and an unsuccessful hygiene program. And as with any harmonious relationship, both participants will benefit from it. So this chapter is also intended to help make your hygienist's work easier, and certainly more rewarding.

Your dental hygienist has undergone between two and four years of full-time, highly specialized training in order to provide you with her

healing service. She is not a dentist, but she can certainly be called a preventive dental specialist. Not only is she qualified to perform hygiene therapy and to be a great source of knowledge, but she's also your oral guide and support person. When all is said and done, her primary role is to help you save your teeth. And it doesn't take a rocket scientist to figure out that no matter how good your dentist is, he can't repair your teeth if you don't have them. Your RDH will be one of the best values you may ever get. Have you ever seen those commercials in which some dental product is touted as "the best" for removing plaque and controlling calculus? Well, they all pale compared to her. Nothing fights plaque and calculus the way she does. Batgirl can't hold a candle to Plaque Lady!



WHAT YOUR HYGIENE THERAPIST DOES FOR YOU

Hygiene therapy used to be known as "getting your teeth cleaned." Cleaning still applies, but for the vast majority of dental patients, it's just one of the many services performed by the RDH. Although some hygienists may do more, all hygienists should provide the big three: evaluation, education, and hygiene therapy.

Evaluation

The RDH will use the following means in order to evaluate the health of your mouth:

- An examination for signs and symptoms (such as abscesses, cysts, and signs of cancer) of diseases other than those of the gums and teeth. Your hygienist will do this at every recall appointment and will have the dentist confirm her findings.
- Measurement and charting of the gum pockets
- Checking teeth for mobility
- X rays, when necessary
- Updating your health history at each recall visit. This is important, especially if you are taking any medication that could affect the condition of your soft tissues.
- Assessment of your overall dental health

Education

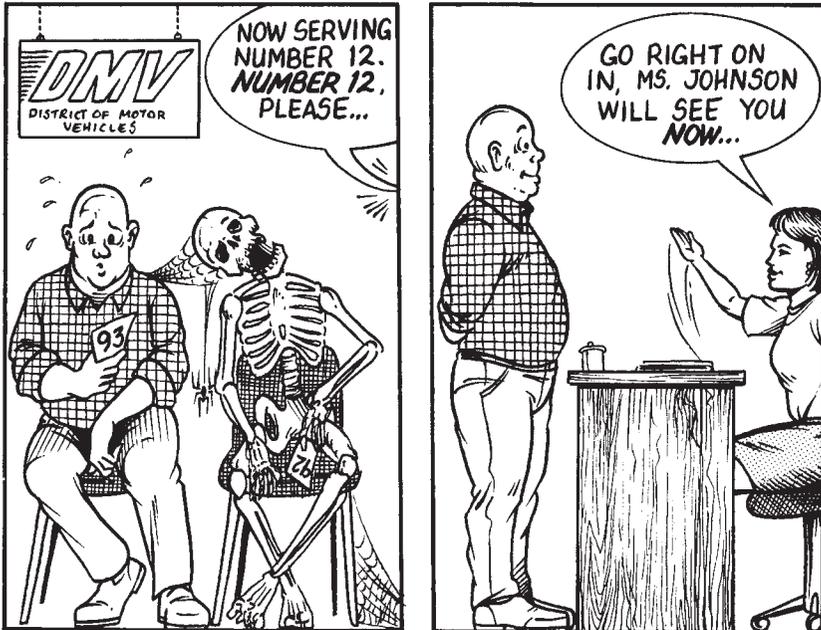
- The hygienist is a source of vital information concerning all areas of prevention. Not only will she support and guide you during your healing period, she'll also customize your oral hygiene program to suit your individual needs. She'll tell you about the kinds of tools you need, plus how, when, and where to use them.
- Some hygienists are very interested in the nutritional aspect of dental prevention and may provide valuable nutritional counseling. She isn't required to provide this service, but it's worth finding out if your hygienist does.
- Your hygienist will design your personalized recall program.

Hygiene Therapy

When the hygienist gets down to the business of hygiene therapy, the procedure will consist of most of the following steps:

- Plaque and calculus (tartar) removal
- Debridement (fancy name for removal) of infected gum tissue. (One day you should ask her if she's going to debride your diseased gums—then watch the look on her face.)
- Application of pit and fissure sealants
- Topical fluoride treatment
- Teeth desensitization before cleaning
- Cleaning and polishing

- ❑ Expanded periodontal therapy. Most advanced periodontal disease will require some treatment by the dentist or the periodontist, but hygienists are qualified to handle the disease until it reaches a certain severity. She'll tell you where that line is, and with her help you may not have to cross it.
- ❑ Monitoring your recall program



Her hygiene program will be designed with a holistic approach to your oral health. This means you should always be treated like a real, living person and not like just another mouth or a number. So if you were under the impression that all a hygienist does is clean and polish teeth, I can only ask you where you found cleaning and polishing on the previous three lists. Right, close to the bottom, after fourteen other things. In case you haven't already acknowledged it, your RDH is much more than a tooth cleaner.

YOUR ROLE

It will be almost impossible for your RDH to successfully perform her role unless you are willing to perform yours. She knows that there's

a vast difference in the oral health of those who get involved and those who don't. During her career, the typical RDH deals with thousands of different mouths, as well as the personalities and attitudes that go with them. Yet, as different as all her patients are, most have three things in common:

- They're not as well informed as you will be.
- They're not nearly as motivated as you will be.
- They don't fully appreciate or understand how to utilize her help and support—not the way you will.

The fact that you'll soon be well informed, motivated, and appreciative is good news for both you and your RDH. Although hygiene therapy consumes most of her time with you, she nevertheless does her best to give you as much preventive information as she can. But this already difficult task is made even more difficult if you lack a basic understanding of prevention and are not self-motivated. The bottom line is that the success of your oral hygiene program ultimately will depend on your desire, your knowledge and understanding, your commitment, your attitude, and your willingness to work with your RDH. Results are what you're looking for. If you do your part and let your hygienist do hers, you'll get those results. Remember, you have a responsibility here, and once you know the rules, you can no longer blame the hygienist or the dentist for what you don't do. Think about that for a few moments (you could probably use a little break from reading).



DR. TOM'S TIPS

Remember, your hygienist is the one who is actually treating you, so it's important to defer to the hygiene program she recommends, even if it varies from what I'm suggesting. Give her a chance to do her thing in the way she thinks is best.

The Importance of Asking Questions

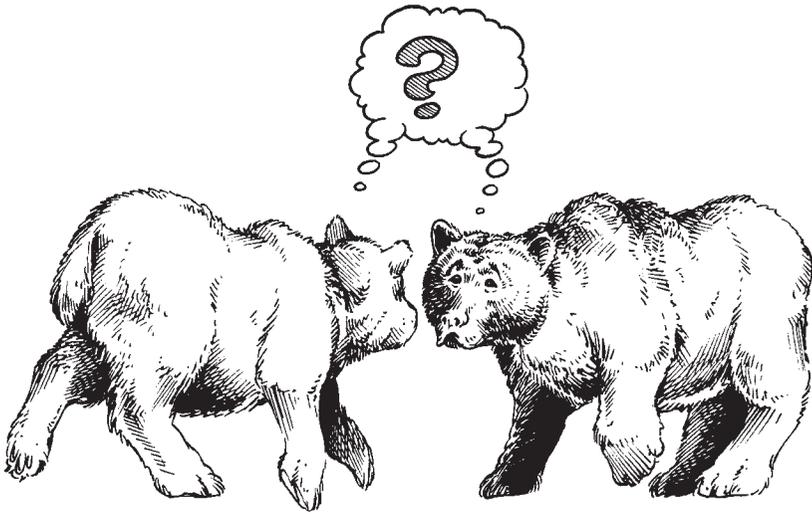
Among the many valuable services offered by the RDH, one of the most important is her ability to answer your questions. But she can't answer them if you don't ask them. So if you don't understand something, even the simplest thing, don't feel bad about asking for clarity. And don't just nod your head to indicate agreement when your brain really has not understood a word. I was a patient before I became a dentist and was as ignorant about prevention as they come. I know how tempting it is to act as if you understand everything that the hygienist is telling you just because you're too embarrassed to ask her to explain. *Believe me, few people actually know much about this subject, so you should never, ever feel that you're the only one who doesn't understand.*

Your RDH will be excited when she realizes that she actually has a patient who cares enough to learn. Wanna bet she'll love hearing and answering your questions? No? I wouldn't bet either, because I know she will. So please, don't let your ego or self-image get in the way of asking for help. And don't forget to jot down your questions before your appointment so that you won't forget them when you get there.

Secrets of a Great Relationship

If you want to get the best out of your experience with your hygienist, you might want to try these suggestions:

- Get to know her. Take a few moments to find out about the person who'll be treating you. If you already have an RDH you should have a pretty good idea who she is. But because you're now starting from scratch, with a whole new attitude, you might want to look again.
- Treat your hygienist the way you'd like to be treated if the roles were reversed. Be friendly and your good feeling will be returned in kind. To paraphrase an ancient saying: Your level of kindness will always attract the same level of kindness. I'll let you ponder that one for a while . . . Here's a hint. If you enter the office loaded for bear, what can you expect to be waiting for you? You got it—another bear.



- Show up on time and do your hygiene homework.
- Tell her you're ready to do what it takes to have the healthiest mouth possible. And that you want her help. Be sincere, be' cause she'll know exactly how much you care by the end of the second appointment. If you tell someone you're a duck and you want her to believe you are, you had better be able to quack, swim, waddle, and fly.
- Communicate to her any fears, anxieties, or difficulties you've had with previous hygiene visits or with your existing home care program. If she's the same hygienist you've been seeing and you've never confided in her before, now is the time to do so. This is your chance to start over—on the right foot.
- Make a real commitment to follow the hygiene program she customizes for you. This is important, because if you think that just by reading about prevention, going to the dentist, and periodically getting your teeth cleaned you're freeing yourself from responsibility, you'll have to think again. For example, if you never brushed or flossed you would need a professional cleaning *every few days* to keep your teeth out of serious trouble. *Your hygienist is going to care about your mouth only as much as you care about it yourself.* So tell her that you care, and show her with your *actions* that you are totally committed.



DR. TOM'S TIPS

Most RDHs become RDHs because they care and they believe they can make a difference. Your hygienist is as much of a health professional as is your dentist or physician. You may not have been conditioned to look at her in this way, but think about it: how different is her role from that of a medical doctor who would help you save any other part of your body, like your heart or liver? Your RDH can help you keep your gums healthy and save your teeth. That makes her a valuable asset to you, your mouth, and your health in general. Some health professionals, myself included, believe that *a person who keeps all of his teeth in a lifelong state of health could live five to ten years longer than a person who lives a lifetime with dental disease and eventually loses his teeth.*

This is not to say that the hygienist is more valuable to you than your general dentist. No matter how hard you may try to escape it, the necessary repair work must be done before you can ever consider your mouth restored to health. Your dentist will take care of the repair. But this book is about prevention, and in that regard, the hygienist plays the single most important role in your total preventive program.

Personalities

No one is perfect, neither you nor your hygienist. Legitimate, no-fault personality problems can and do arise. If you sense a problem don't wait for it to get worse. Try to communicate. Maybe it's a temporary problem. The patient before you could have been an insufferable jerk and you may be receiving the backlash from that difficult appointment. Or maybe your RDH is just having a bad day; we all have them. If communication doesn't clear the tension speak privately to your dentist about the problem.

If you have sincerely tried to get along with your hygienist and the relationship is still not working, even after speaking to the dentist about the situation, it may be time for a change. This could be the

best thing for both of you. If it isn't working for you it probably isn't working for her either. Simply tell your RDH how you feel and begin the process of finding a new hygienist. Because most dental offices have more than one hygienist on their staff, the chances are good that you'll be able to make an in-office switch. The biggest mistake you could make would be to judge all hygienists from one experience and assume they're all the same. That attitude could prevent you from finding and working with another one, which would be disastrous to your oral hygiene program.

GETTING DOWN TO BUSINESS

Your RDH, as captain of the good ship *SS Hygiene*, has her own individual way of charting your course to oral health. Other hygienists might take a somewhat different course. But though there are variations on the theme, all approaches will have certain things in common. What I'm presenting here is the basic framework for an oral hygiene program, which your own hygienist will modify to fit your needs.



The First Appointment

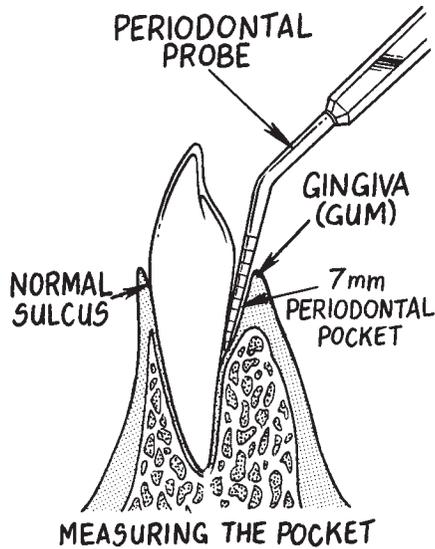
The first visit with your hygienist is an important one because it will set the tone for those to come. During this appointment she'll discover what you know about dental disease and what you know about prevention. If you tell her you've read *Healthy Teeth*, she probably won't need to spend a lot of time teaching you the fundamentals, because you should score pretty high on both subjects. But it will be to your advantage to let her decide how well you score.

She'll also check your health history, examine the condition of your gums and soft tissues, record obvious decay, and pass on her evaluation to the dentist for final diagnosis. This is also the visit during which she'll chart your periodontal pockets. Because most patients know so little about this important procedure I want to tell you what it entails.

Charting the Pockets

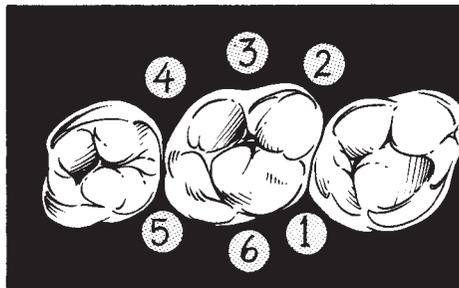
Charting pockets is the dental term for the procedure used to measure the depth of the gingival sulcus, or gum pocket. It's a standard procedure that is accepted and used by all dentists and hygienists. Although additional methods are also used to evaluate the condition of your gums, charting the pockets is a great way for you to get a clear picture of the extent of your periodontal disease.

To measure the pocket depth, your hygienist uses a special probe that is nothing more than a round, thin, tapered ruler with a handle. Instead of inches, it is marked in millimeters (mm). She inserts the probe into the pocket between the gum and the tooth (the instrument is smooth and the probing is painless) until the tip of the probe reaches the place where the ligament attaches to the tooth or, if the ligament has



detached, until it contacts the bone. Otherwise known as the bottom of the pocket. She reads the millimeter mark at the gum line. This tells her how deep the pocket is. She continues in this way, probing the pocket in up to six places around each tooth and recording the measurements on the periodontal chart. Some hygienists are now using an electronic pocket probe that automatically reads and records the pocket depth. (Nice touch.)

Have your RDH show you the chart she uses, and ask her to explain it to you. Ask her also to make a copy of your chart so you can take it home with you.



Keep it with your dental records, and use it to compare with your next reading.

What the measurements mean If your gums are healthy, a reading of 0 to 3 mm can be considered a healthy pocket depth. But you can have the beginnings of gingivitis (inflammation and infection of the gums) without it affecting the pockets. If the pocket depth is over 3 mm, however, you probably have not only gingivitis but also the beginnings of ligament damage and bone loss, i.e., periodontitis. Once you hit the 4 mm mark, the chances are you have full-blown periodontitis with bone loss. These readings are like a golf score: a 2 or a 3 is a lot better than a 5 or a 6. And as the readings go higher, your hygiene program becomes more and more critical and takes more effort.

When the hygienist finishes her exam, she'll know everything she needs to know to design your oral hygiene program and direct your energy to the right areas. And if you have periodontitis, by having your pockets charted at each visit you'll have an objective method of evaluating the progress of your program. By taking copies of your charts home, you'll be able to look at the numbers, compare your most recent readings to previous ones, and quickly see how well you're doing. You also won't have to rely on your memory to know which areas need the most care. Make a serious commitment to your oral hygiene program, and as your pocket depths decrease you'll know your efforts have been rewarded. That will be a good feeling.

Why they are so important These readings are invaluable in assessing how far periodontitis and its associated bone loss have progressed within the pocket. Therefore, for the vast majority of patients, and especially for those with periodontitis, charting the depth of the pockets must be included as part of the hygiene examination. Although I've heard that they exist, I personally don't know of any hygienists, or dentists, who don't measure pocket depth.

Pocket depth can't be determined by what the gums look like from the outside, nor can they be evaluated properly with X rays. If my hygienist were unwilling to chart my pockets, and if she didn't have an outstanding reason for not doing it (for example, in those rare cases when the gums are obviously in perfect health), I would certainly

find a hygienist who would. It doesn't matter if she has been treating you for years and thinks you don't have any problem pockets—ask her to chart them anyway to ascertain that all is well. If she's been on top of it, you'll probably find that she was right, but the procedure doesn't take long, and you never know. After all, it's your mouth and your money, and you two are supposed to be working together. Charting your pockets is like checking the oil in your car. If you don't do it, it could cost you an engine—or in this case, a tooth.

Along with the pocket readings, your hygienist will also use other methods to make her final evaluation. She'll assess whatever symptoms you may have described as well as the firmness and color of your gums and whether or not there is pain, swelling, pus, tooth mobility, or bleeding. The combined results of these findings will be passed on to your dentist, and they will help him determine the severity of your periodontal disease and whether there is any permanent damage to the surrounding bone and ligaments. All these findings will determine the treatment needed and influence your hygiene program.

How Many Therapy Appointments Will You Need?

At some point, your hygienist will decide how many therapy visits your personal situation requires. She'll probably have a good idea about this after the first examination. If your teeth and gums are in good shape most hygiene therapists will examine your mouth and clean your teeth at the same appointment. But if you have periodontitis with bone loss, lots of calculus, deep pockets, and an infection, you'll require more appointments. I speak from experience when I say that with advanced gum disease, trying to get your hygiene therapy done in one, two, or even three appointments will probably not be the best way to go . . . unless you're a masochist. Let your hygienist be the guide on this. She may need to do what is called *root planing* and *curettage*. Which means, in lay terms, that she'll have to use special tools to clean and polish the root surfaces that are now exposed. This will take more effort on her part than just cleaning and polishing the enamel. You should be prepared for, and be willing to accept, the extra time and cost this will involve. Taking a few more trips to the office and spending a few more dollars will ultimately be in your mouth's (and your pocketbook's) best interest.

If this is your situation, the time between the first and second cleanings will provide you with a great opportunity to see how much healing you can do on your own. If you diligently perform your hygiene homework, you'll soon see what a difference your efforts make. When it comes time for your second cleaning procedure, you'll find it a lot less traumatic for your gums, your hygienist, and yourself.

The Second Appointment

Your second hygiene visit could also be called the moment-of-truth appointment. Now the hygienist will know if you meant what you said about caring and making a commitment, if you've had difficulties following her hygiene instructions, or if you're an astrological Gemini and like talking better than doing.

Usually, after you've had a chance to visit and ask her any of the questions you came up with since the first visit, she'll reexamine you, rechart your pocket depths, and finish cleaning your teeth if she needs to. The new pocket readings will allow both of you to assess your progress. This is of special importance if you had pockets over 3 mm at your first appointment. You may not be able to actually see inside your pockets, but you sure can compare the two pocket charts. You could call them dental treasure maps because these charts will give you a wealth of information and guidance that will help you save your teeth.

With each succeeding appointment, your hygienist will continue to fine-tune your individual program. She'll point out the areas where you have produced great results, as well as areas where you haven't done so well. She'll show you where you may need to redirect your efforts.

Here's a quick quiz for you: What should you do at every visit to your hygienist? Answer: Write down your RDH's comments and instructions.

If the Results Are Not Up to Snuff

If your hygiene program doesn't produce the results you're seeking right away, don't be discouraged. Your RDH won't be judgmental or critical as long as she knows you are sincere and are making an effort to change. She knows that you've had a lot of time in the past to form bad hygiene habits and that it sometimes takes a while to break them

and form new ones. There could be a number of reasons why your efforts have not yet succeeded.

- It could be that you didn't understand some of the things she told you.
- Maybe you really haven't been doing your job. If not, cop to it. Talk to her about it.
- Maybe you're having a problem with dexterity and find that the brush and floss don't go where your brain tells them to go.
- Perhaps you're still having trouble establishing your new hygiene habits.
- It's also possible that you have a genetic problem or an illness that is inhibiting your body's ability to resist infection and to heal properly. (This is a very good reason to fill out your health history accurately and for the hygienist and dentist to do a thorough examination. Some health-history forms are more extensive than others. If yours doesn't list an illness or condition that you know you have, or think you may have, make sure you write it in. This isn't the time or place to hold back.)

Promise me that you'll never give up! I know if you persevere you'll soon get it all together and be able to cure this disease and stop it from ever coming back. Plus, I know that as long as you're willing to keep trying, your RDH will hang in there with you.

Additional Visits

You may require more than two visits. If so, continue getting charted and comparing the results. Remember, your efforts will succeed if you don't get discouraged. And you won't be alone. Your hygienist will continue to work with you until every last pocket of resistance has been eliminated!

If your hygiene therapy requires more than three appointments, you should have an additional follow-up evaluation two to three weeks after your final appointment. This is especially important if this was your first hygiene therapy in a while, if you haven't yet established your hygiene program, or if you have advanced periodontal disease. I suggest this follow-up visit so that your hygienist can let you know

how well you're doing your job. I see no reason to wait until your first recall appointment to fine-tune your hygiene program. Not all hygienists routinely schedule this type of follow-up, so you may have to request it and pay the additional fee. But in the long run, it will be well worth the time and money.

IF YOU REQUIRE PERIODONTAL SURGERY

If your dental disease is more advanced than you and your hygienist can handle, you'll need to have periodontal surgery. This means you'll require the services of your dentist or, if it's beyond his training, the periodontist (a dentist who specializes in the treatment of advanced periodontal disease).

If you're a potential candidate for minor periodontal surgery, your hygiene efforts, along with treatment by your RDH, could very well eliminate the need. However, if you do end up needing surgery, your hygiene therapy program could make the surgery easier and less extensive. Because you will have already done a great deal of healing on your own, less surgery will be required. The surgery will therefore take less time. The less time it takes, the less expensive it will be. And what's more, since less diseased tissue will be involved, you'll heal faster. All these great benefits because you took responsibility for your dental health before you were sent to the periodontist.

Another bonus is that you'll already have an established oral hygiene program to fall back on after your surgery. You'll need that preventive knowledge more than ever because you'll never again have the same margin for error as someone who hasn't had periodontitis and the accompanying bone loss. When the gums heal after surgery you'll have spaces between your teeth where there were none before. That means food and plaque will have even better access to your teeth than before. *Give this a lot of thought.* You already know how difficult it is to keep your gums healthy. You've had irrefutable proof that what you tried in the past didn't work. So what do you think will happen if you don't change your previously unsuccessful hygiene program? Right . . . disaster!

If anyone, dentist or hygienist, wants to rush you to the periodontist for gum surgery before you've had a chance to at least reduce the impact of the surgery, I'd insist they provide you with a darn good

reason. Legitimate emergency treatment is always the exception to this rule. I'm not suggesting that home care will always eliminate the need for periodontal surgery. But no matter how you slice it, periodontal surgery is not a barrel of fun, and you will be wise to do all you can to make it unnecessary.

THE RECALL PROGRAM

Whether it takes two visits or six to get your gums to a state of health, you will eventually get to the end of your hygiene therapy for now. At this point your hygienist will establish your personalized recall program, a schedule of hygiene appointments. This is another moment when your good work habits payoff for you in time and money. Your hygienist will decide how much time you can go between hygiene recalls based on a number of factors:

- Amount of gum recession and bone loss. If you have pockets over 3 mm and a lot of bone loss, it means you'll have to work harder to keep your mouth healthy, and you'll also need more recall visits. Take her advice on this, even if it means ten hygiene appointments a year.
- Diet. Yep, what you eat will have a lot to do with how many recalls you'll need. Most hygienists will ask you about your diet, but if yours doesn't you can try this on for size. Given the same home care and recall program, you'll need fewer cleanings the more raw and natural foods your diet contains. You will need more cleanings if your diet mainly consists of refined, soft, processed, and overcooked foods.
- Your overall attitude. She'll evaluate your stick-to-it-iveness and your willingness to stay involved with your oral hygiene program. The bottom line: the more you do, the less your RDH will have to do and the longer you can go between recall appointments.

In addition, she may take into account her own evaluation of you and your life-style. She might consider things like your personality type, your profession, your age, and certain habits that could ultimately affect the success of her treatment, such as whether you smoke, drink, or grind your teeth. Even little things, like how much you travel, can affect your recall program because taking care of your mouth when you

travel is more difficult. You can be very helpful by telling her about any habit that you think is adversely affecting your oral health. She doesn't want to know in order to criticize you (what you do is up to you), but in order to help. However, she isn't Sherlock Holmes, and if you don't communicate with her you can't fault her for not figuring it out.

Farther Down the Recall Road

Over time you'll discover that the recall schedule is a living, fluid thing that is ultimately determined by you. At every recall you will be reevaluated, and one of three things could happen:

1. Your RDH will decide to schedule more therapy appointments. Now why would she do that? Maybe you've had so much bone loss that even your most heroic efforts at home are not enough. Or maybe you haven't gotten your hygiene program under control yet and can't go six months between hygiene therapies.

2. She'll keep you on the same schedule. This is a good sign. It means that there are some areas needing work, but not that many. You could be doing better, but you're still doing pretty well. Keep it up, because if you can maintain this level you can keep your teeth as long as you want. That is real empowerment.

3. She'll let you go longer between cleanings. This is really great, and I personally salute you. It's the equivalent of getting an A in advanced intergalactic travel from Mr. Spock. You have won a battle that far too many people have lost. Your hygienist may now have you back every twelve months, instead of four or six. Be proud. What you've accomplished is yours and belongs to you alone. Remember, no one followed you home. No one camped out in your bathroom and brushed your teeth for you, or flossed them, or irrigated them. No one called you to remind you to brush after every meal or before you went to bed. So please don't forget to remember to feel very good about what you have achieved. And don't forget to thank your hygienist for her support.

Another Reason for Regular Recalls

Eventually, you could go a year or more before you really need a cleaning. This will be up to you. But even after you've won your personal war against gum disease and tooth decay, there's another

reason to continue regular dental visits, though it's not commonly known. Every six months you should get a soft tissue examination, both inside the mouth and in the head and neck area. This visit is especially critical if you don't regularly examine these areas yourself (see Chapter 3), or if you or anyone else in your family has a history of any of the diseases listed on page 67. As you've discovered, there are diseases other than tooth decay and gum disease that can show up in the mouth, and the few dollars and the few minutes it will take to verify freedom from them will be worthwhile both to your body and to your peace of mind. It's possible that your RDH may not feel comfortable about doing the head and neck exam. If that's the case ask your dentist to do the exam for you at each checkup.

THE COST OF HYGIENE THERAPY

The cost of routine hygiene therapy (also called prophylaxis) will depend on the condition of your teeth and gums, who performs the therapy, and in what part of the country you live. It's usually more expensive in cities than in rural areas. If the hygienist or the dentist has to perform root planing and curettage the cost will go up. But regardless of the cost, an ounce of prevention is always worth a pound of cure.

GRADUATION

Well, you've made it through the book. I congratulate you because you've just received your bachelor's degree in preventive dental education. Remember, graduation is both an ending and a beginning—in this case the ending of dental disease in your life and the beginning of oral health. It means you've been empowered. It means you'll now have control over the health of your mouth. It means you can decide whether or not you want to keep it healthy.

I want to thank you for sharing this journey with me, for letting me talk to you throughout these pages about a subject close to my heart. It's been fun and I wish you well.

In health,

Tom

Glossary

- abrasion.** The mechanical wearing away of tooth structure.
- abscess.** The formation of pus in bone or soft tissue. Usually due to an infection.
- acid.** A substance whose pH ranges between 0 and 6.9. Dentally speaking, acid can refer to acidic food or drink or to the chemical that results when bacteria breaks down sugar in the mouth.
- amalgam.** A dental filling material, composed of mercury, copper, tin, silver, and zinc, that is used to fill decayed teeth. The term also refers to the filling itself and is sometimes called a silver or silver-mercury filling.
- anesthetic.** A class of drugs that eliminates or reduces pain.
- antibiotic.** A type of drug designed to fight bacterial infections.
- ANUG.** The acronym for acute necrotizing ulcerative gingivostomatitis. Otherwise known as a very serious form of gum disease.
- apex.** The tip of the tooth's root, where blood and nerves enter the root.
- bacteria (plural of bacterium).** A type of microscopic organism that is found in soil, water, plants, and animals. Important in human beings because of their chemical and disease-causing effects. In other words, germs or bugs.
- bicuspid.** A two-cusped tooth found between the molar and the cuspid.
- bite.** The act of bringing the upper and lower teeth together. See occlusion.
- bleaching.** The technique of applying a chemical agent, usually hydrogen peroxide, to the teeth in order to whiten them.
- bleeding gums.** One of the most obvious indicators of gum disease.
- bone.** In dentistry, the upper and lower jawbone.
- bone loss.** The breakdown and assimilation of the bone that supports the teeth, usually caused by infection or long-term occlusal stress.
- bridge.** A nonremovable restoration that is used to replace lost teeth.
- bruxism.** The grinding, clenching, or gnashing of teeth.
- calcification.** The hardening of bone or teeth caused by the deposition of minerals (mineralization), mostly calcium and phosphorous.
- calculus.** The mineralized material that forms within plaque. Also called tartar.
- carbohydrate.** One of the three major food classes, along with protein and fat. The refined sugars that cause tooth decay are "simple" carbohydrates.
- cap.** Another term for crown; usually referring to a crown for a front tooth. cavity. A layman's term for tooth decay. Also, the dental term for the hole that is left after decay has been removed.
- CEJ.** The cemento-enamel junction. The place where the enamel and cementum meet.
- cementum.** The very thin, bonelike structure that covers the root of the tooth. It begins where the enamel ends. In a healthy mouth it is where the periodontal ligament is attached.

clenching. The forceful holding together of the upper and lower teeth, which places stress on the ligaments that hold the teeth to the jawbone and the lower jaw to the skull.

composite. A tooth-colored filling made of plastic resin or porcelain.

contact point. The place where two teeth touch.

cosmetic dentistry. Any dental treatment or repair that improves the appearance of the teeth or mouth.

crown. The portion of a tooth that is covered by enamel. Also, a dental restoration that covers the entire tooth and restores it to its original shape.

curettage. The deep scaling of the portion of the tooth found below the gum line. Its purpose is to remove calculus and infected gum tissue.

cuspid. The second tooth from the big front tooth (eye tooth or canine).

cusps. The protruding portions of a tooth's chewing surface.

decay. Progressive breakdown or dissolving of tooth structure, caused by the acid produced when bacteria digest sugars; also called caries.

dental floss. A thin string, made primarily of nylon, waxed or unwaxed, that can be inserted between the teeth to remove food particles.

dental hygienist. The most important person in your battle against dental disease. The hygienist cleans teeth, removes plaque, calculus, and diseased gum tissue, and acts as the patient's guide and support person in establishing his or her oral hygiene program. Also known as the RDH (registered dental hygienist) or oral hygiene therapist.

dentifrice. Paste, gel, or powder used to clean teeth.

dentin. One of the two interior portions of the tooth (the other is the pulp), covered by enamel on the crown and by cementum on the root.

denture. A removable appliance used to replace all the upper teeth, all the lower teeth, or both.

dry mouth. The condition that exists when the flow of saliva is stopped.

enamel. The calcified (mineralized) portion of the tooth. It covers the crown of the tooth and is the hardest substance in the body.

erosion. The wearing away or dissolving of any part of the tooth due to chemicals (e.g., acids).

explorer. A sharply pointed instrument used to detect decay, pits, calculus, or poor margins between a filling and the tooth.

filling. Material used to fill a cavity or replace part of a tooth.

fissure. See groove.

floss. See dental floss.

flossing. Using dental floss to remove food particles from the teeth and to massage the gums.

fluoride. A chemical compound used in the fluoridation of water systems and in topical applications to the teeth, in order to reduce dental decay.

gingiva. See gum.

gingival crevice. The tiny V-like space formed at the gum line where the gum meets the tooth. The gingival crevice is the entrance to the gingival sulcus, or pocket.

gingival sulcus. The space between the crown and/or root of the tooth and the gum tissue that surrounds the tooth. Also commonly called the pocket, or gum pocket.

gingivitis. An inflammation or infection of the gum tissue.

groove. A cleft-like indentation on the chewing surface of the back teeth that develops when the enamel is being formed. Also called a fissure.

gum. The epithelial tissue that covers the jawbone that supports the teeth.

gum disease. See periodontal disease.

gum line. The place on the tooth where the edge of the gum meets the tooth, used as a reference point to measure the depth of the pocket.

hydrogen peroxide. A chemical used as an antiseptic to treat gum infection and also to bleach teeth.

impacted tooth. A tooth that does not erupt properly but instead remains partially or wholly within the bone or gum tissue.

infection. An invasion of a disease-producing agent, such as bacteria, viruses, yeasts, or parasites. Also, the result of this invasion or contamination, such as gingivitis.

interproximal. The area between two adjacent teeth.

irrigator. See water irrigator.

ligament. A fibrous, elastic connective tissue that joins bone to bone. See periodontal ligament.

malocclusion. A condition where the upper and lower teeth do not meet in the proper way, a “bad bite.”

mandible. The lower jaw.

mastication. The act of chewing.

maxilla. The upper jaw.

mobility. How much a tooth can be moved.

molar. The broad, multicusped back teeth, the largest in the mouth. In adults there are a total of twelve molars (including the four wisdom teeth, or third molars), three on each side of the upper and lower jaws.

nerve. The specialized tissue that connects the nervous system to the other organs and conveys impulses, both sensory (like smell and taste) and motor, to and from the brain and the rest of the body.

occlusal surface. The chewing surface of the back teeth.

occlusion. The coming together of the upper and lower teeth. Also, the relation of the upper and lower teeth; the “bite.”

oral surgery. The removal of teeth and the repair and treatment of other oral problems, such as tumors and fractures.

overbite. A condition in which the upper teeth excessively overlap the lower teeth when the jaw is closed.

periodontal. Relating to the tissue and bone that supports the tooth (from peri, meaning “around,” and odont, “tooth”).

periodontal disease. Inflammation and infection of gums, ligaments, bones, and other tissues surrounding the teeth. Gingivitis and periodontitis are the two main forms of periodontal disease. Also called gum disease and pyorrhea.

periodontal ligament. The fibrous, elastic tissue that attaches the tooth to the jawbone.

periodontal pocket. An abnormal deepening of the gingival crevice. It is caused when disease and infection destroy the ligament that attaches the gum to the tooth and the underlying bone.

periodontal surgery. A surgical procedure involving the gums and jawbone.

periodontitis. Inflammation of the supporting structures of the tooth, including the gum, the periodontal ligament, and the jawbone.

pit. A recessed area found on the surface of a tooth, usually where the grooves of the tooth meet. Also, a defect in the enamel of a tooth.

plaque. A film of sticky material containing saliva, food particles, and bacteria that attaches to the tooth surface both above and below the gum line. When left on the tooth it can promote gum disease and tooth decay.

pocket. See gingival sulcus.

ponctic. An artificial tooth used in a bridge to replace a missing tooth.

premolar. Another name for bicuspid.

preventive dentistry. Education and treatment devoted to and concerned with preventing the development of dental disease.

pulp. The hollow chamber inside the crown of the tooth that contains its nerves and blood vessels and leads to the root canal.

RDH. Registered Dental Hygienist. See dental hygienist.

receded gums. A condition characterized by the abnormal loss of gum tissue due to infection or bone loss.

resorption. See bone loss.

restoration. Any material or device used to replace lost tooth structure (filling, crown) or to replace a lost tooth or teeth (bridge, partial, denture).

root. The part of the tooth below the crown, normally encased in the jawbone. It is made up of dentin, includes the root canal, and is covered by cementum.

root canal. The hollow part of the tooth’s root. It runs from the tip of the root into the pulp. Also used to refer to root canal therapy, the process of treating disease or inflammation of the pulp or root canal. This involves removing the pulp and root nerve and filling the canal(s) with an appropriate material to permanently seal it.

root planing. The process of scaling and planing exposed root surfaces to remove all calculus, plaque, and infected tissue.

saliva. A clear, watery fluid that is secreted by the mouth's salivary glands.

scaling. A procedure used to clean the teeth.

sealant. A composite material used to seal the decay-prone pits, fissures, and grooves of both children's and adult's teeth against decay.

six-year molar. The first permanent tooth to erupt, usually between the ages of five and six.

stain. Any discoloration of the tooth.

subgingival scaling. The removal of calculus and plaque found below the gum line on the enamel or root.

sulcus. See gingival sulcus.

supragingival scaling. The removal of calculus and plaque found on the tooth above the gum line.

systemic. Relating to the whole body.

tartar. See calculus.

temporomandibular joint (TMJ). Where the lower jaw attaches to the skull.

third molar. The last of the three molar teeth, also called wisdom teeth.

tissue. In dentistry, this term usually refers to the gums, as in "gum tissue." Also refers to soft tissues of the mouth, e.g., inside of the cheeks and floor of the mouth.

TMJ syndrome. An abnormal condition of the jaw joints that usually involves pain or discomfort in the joints and ligaments that attach the lower jaw to the skull or in the muscles of mastication.

tooth. One of the hard bony appendages that are borne on the jaws and are used in the biting and mastication of food. Humans normally have two sets: twenty baby teeth, followed by thirty-two permanent teeth.

toothache. Pain resulting from an irritated or infected nerve in the tooth.

treatment. Any action by the dentist, the dental hygienist, or the office staff that helps to remedy a particular disease or dysfunction.

treatment, preventive. Any action taken by the patient, assisted by the dentist, hygienist, and the office staff that serves to prevent dental or other disease.

trench mouth. See ANUG.

Vincent's infection. See ANUG.

water irrigator. Any machine that uses a stream of water to remove food particles from the mouth and to stimulate and massage the gums.

wisdom teeth. See third molar.

X ray. A photograph that results from shooting a controlled beam of electrons onto a sensitized film. Used as an aid in diagnosing disease.

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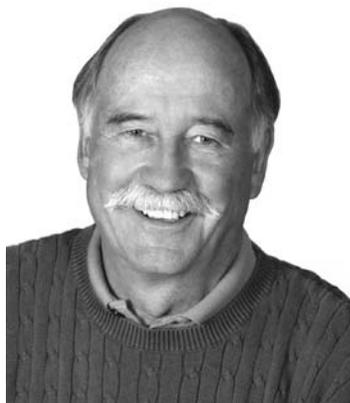
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Dr. Tom's books are written for the layperson and have been published in Great Britain, Canada, and the Netherlands. He has appeared on national television, and has been featured in many popular magazines, including *Newsweek*, *Time*, *Esquire*, *Reader's Digest*, *The Christian Science Monitor*, and *Prevention Magazine*. He resides in northern California with his wife Zoe.

Dr. Tom invites you to visit his acclaimed and informative website at www.dentalwellness4u.com. This website contains over 350 pages of valuable information for the layperson, including numerous oral health issues that can negatively affect your overall health and what you can do about them. His website also offers:

- Preventive Dental Products
- Nutritional Supplements
- Books on Oral Health, Amalgam Fillings, and Mercury Detoxification
- One of the Largest Listings of Mercury Free and Mercury Safe Dentists
- Links and Resources to Websites Supporting Oral and Overall Health

Dr. McGuire is also available for consultations regarding all aspects of oral health. For additional information please call toll free: 800-335-7755.

*Remember, you don't have to take care of all of your teeth—
just the ones you want to keep!*