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# Advances in the Treatment of Dry Mouth

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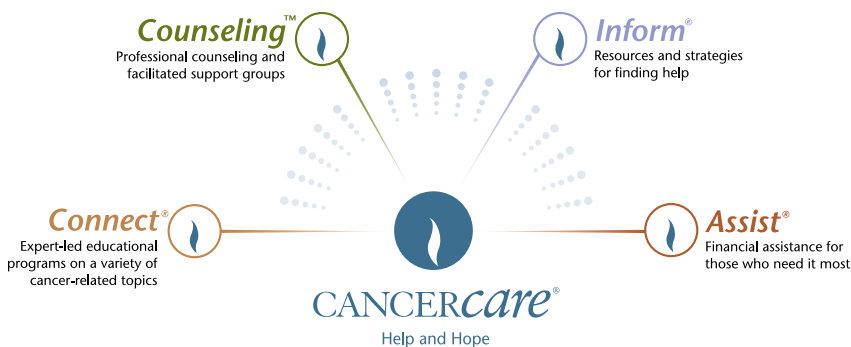
- What causes dry mouth
- Treatments for dry mouth
- Tips for easier eating and swallowing
- Working with your health care team



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# Advances in the Treatment of Dry Mouth

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# Dry mouth is common among people being treated for cancer, but there are many ways to manage it.

**D**ry mouth affects many people who are being treated for cancer. Although this condition is usually temporary, it can sometimes last beyond the end of treatment.

The medical term for dry mouth is **xerostomia** (ZEER-oh-STO-mee-ah), from the Greek words “xeros” (dry) and “stoma” (mouth). As the name suggests, dry mouth occurs when mouth tissues dry out due to a lack of saliva. Saliva is necessary because it performs many important functions, including:

- reducing the level of germs in the mouth,
- helping to cleanse the mouth,
- removing food debris that can lead to cavities, and
- maintaining the health of tissues lining the mouth.

When dry mouth becomes severe, people can develop problems chewing, swallowing, tasting, and talking. For these reasons, doctors take dry mouth seriously. Fortunately, there are many ways to get relief.

For the best possible management of dry mouth, it's important to consult with a team of specialists who can help you care for your mouth before, during, and after cancer treatment. Your doctor can recommend these specialists; we'll talk more about them later in this booklet.

## Causes of Dry Mouth

Dry mouth is most common and more severe in people who have been treated with radiation for **head and neck cancer**. That's because radiation to the head and neck can directly affect the **salivary glands**—the glands in the mouth that produce and release saliva. If you have head and neck cancer, chances are you will receive radiation. The amount of change in saliva production you'll experience depends directly on where and how the radiation is aimed. For example, radiation given only on one side of the head and neck generally poses a lower risk for dry mouth than radiation given on both sides.

## Symptoms of Dry Mouth

**W**hen there is too little saliva in the mouth, tissues can dry out, leading to:

- **Mouth sores** These appear as white or red patches on the tongue or other areas inside the mouth.
- **Increased sensitivity in the mouth** Food in the mouth, or even air passing over the tongue, may feel bothersome.
- **Changes in the gums** Some people experience soreness in their gums or even gum disease. People who wear dentures may find that they no longer fit properly.
- **Tooth decay and bad breath** Normal amounts of saliva help prevent these conditions, so it's important to use medications that can make up for the lost saliva.
- **A change in taste** Some people experience a “funny taste” in their mouth.
- **Difficulty swallowing** Dry or crumbly foods, especially, pose a problem.



Dry mouth can also result from a number of other causes related to cancer treatment. Chemotherapy can lead to **dehydration**—a potentially dangerous lack of water in the body—which causes dry mouth. In some people being treated for cancer, other medications, such as the drugs used to control nausea and vomiting, may also lead to dry mouth. Fever or infections resulting from chemotherapy can also cause dry mouth.

## Managing Dry Mouth

Coping with dry mouth means taking steps to prevent and reduce this side effect as much as possible. A team of specialists who treat people with dry mouth can help you choose the best course. Often, one doctor—usually your medical oncologist—will coordinate this team effort. Other key members of the team include:

- Dentist, dental hygienist, **periodontist**, and/or **prosthodontist**, who can help you maintain good oral health, including healthy gums. You should visit your dentist before, during, and after cancer treatment. Your doctor may recommend that you see your dentist as often as every three months on a permanent basis, especially if dry mouth is long term. It's very important to work with your dental and medical teams to reduce any mouth problems over time. If you wear dentures, a prosthodontist can make sure that they fit you properly.
- Radiation oncologist, if you require radiation treatment for head and neck cancer
- Speech pathologist, to help you improve your ability to talk and swallow, if these functions are affected



## Questions to Ask Your Doctor About Dry Mouth

Here are some questions about dry mouth to ask your doctor before you begin cancer treatment:

- What can I expect to happen in my mouth?
- Can I expect dry mouth either during or following my cancer treatment?
- Can I expect difficulty in swallowing, speaking, or chewing?
- Will I need anti-nausea drugs that could lead to dry mouth?
- If I am receiving radiation or surgery in the head and neck, how will this treatment affect my salivary glands?
- How can we prevent or reduce these side effects?



- **Dietitian**, to make sure you eat foods that can be more easily swallowed and that maintain your strength
- Psychologist, psychiatrist, and/or oncology social worker, to help you cope with the emotional and practical concerns related to cancer and managing treatment side effects

### PRACTICAL TIPS FOR MANAGING DRY MOUTH

Here are some practical things you can do to lessen dry mouth and the problems it can cause:

- **Before your cancer treatment begins, have your dentist apply a fluoride treatment to your teeth** to help avoid cavities. See your dentist regularly during and after treatment, too.

- **Avoid tobacco, alcohol, and any products containing alcohol**, such as mouth rinses or mouthwash.
- **Use the softest bristle toothbrush available.** Rinsing the bristles under hot water can make them even softer. You can also use an oral sponge. Dentists recommend that you get a new toothbrush every three months.
- **Floss gently, no more than once a day.** It's OK to temporarily skip any areas that feel too tender. But if the soreness in those areas lasts more than a few days, have your dentist examine them.
- **Drink plenty of fluids—at least 8 to 12 cups a day.** Water is best. Avoid sodas (even diet sodas) and too much fruit juice, because they can lead to cavities. If you are not used to drinking 8 to 12 cups a day, try sipping cups of water throughout the day. You can also use a spray bottle filled with water and a few drops of glycerin, available over the counter in a pharmacy. Glycerin helps moisten and lubricate the tissues. Be sure to shake the bottle before you drink. Another technique: suck on popsicles or ice chips.



- **During treatment for your cancer, rinse your mouth several times a day** with one-quarter teaspoon of baking soda and one-eighth teaspoon of salt dissolved in one cup of warm water. This helps keep the mouth clean.
- **Avoid “mouth breathing.”** This tends to dry out the mouth, so breathe through your nose if you are able.
- **Talk to your doctor about using zinc tablets.** Some people who experience a funny taste in their mouth are helped by this vitamin supplement. But be sure to ask your

health care team whether zinc will interfere with your cancer treatment. It's a good idea to have your doctor measure the level of zinc in your blood; if it's below the recommended level, he or she may suggest you take a zinc supplement.

## Treatments for Dry Mouth

There are several ways to either prevent or treat dry mouth:

**Guaifenesin** (gwye-FEN-eh-sin) helps the body produce more saliva. Available without a prescription in pill form and as a syrup, this medication is often combined with other ingredients for relieving a dry cough. Ask your pharmacist to recommend a product that contains guaifenesin only, such as Humibid, Mucinex, or Robitussin. Some over-the-counter medications containing guaifenesin also include antihistamines or decongestants, which can make dry mouth worse. Be sure to check the ingredient label.

**Amifostine** (Ethyol) reduces moderate to severe dry mouth in people receiving radiation treatment for head and neck cancer after surgery. In 1999, the U.S. Food and Drug Administration approved this medication for preventing dry mouth. It is used to protect the salivary glands from the harmful effects of radiation. Amifostine is given by injection.

**Pilocarpine** (Salagen and others) is a prescription medicine that stimulates saliva-producing glands. Also used in eye drops for glaucoma, pilocarpine is available in liquid form.

**Cevimeline** (Evoxac) is similar to pilocarpine in that it also stimulates production of saliva. Like pilocarpine, it is available only with a prescription. Cevimeline is taken as a pill, one to three times a day.

**Artificial saliva sprays** do not require a prescription. There are a number of different brands. Ask your pharmacist which ones he or she recommends.

**Gelclair** is a mouth gel available by prescription. It forms a

# The Importance of Clinical Trials

**T**here's no question that clinical trials have led to advances in cancer treatment, creating a brighter future for all people with cancer. Clinical trials are the standard by which we measure the worth of new treatments and quality of life as patients go through those treatments. For this reason, doctors and scientists urge patients to take part.

Your doctor can guide you in making a decision about whether a clinical trial is right for you. Here are a few things you should know:

- Often, patients who take part in clinical trials gain access to and benefit from new treatments.
- Before you participate in a trial, you will be fully informed as to the risks and benefits of the trial.
- No patient receives a placebo or “dummy pill” if there is a standard treatment available for the disease. Most trials are designed to test a new treatment against a standard treatment to find out whether the new treatment has any benefit.
- You can stop taking part in a clinical trial at any time for any reason.



barrier to protect sensitive nerve endings in the mouth and throat, relieving pain and irritation in these areas.

**Acupuncture**, now being studied in clinical trials as a remedy for dry mouth that persists over the long term. It may be possible that acupuncture needles can stimulate saliva flow. More research is needed.

**Improved radiation treatments** Doctors can now shield healthy tissues to reduce side effects. A new technique called **intensity-modulated radiation therapy** has been designed to offer highly effective treatment while protecting as much healthy tissue as possible.

## Eating Well to Feel Well

Because dry mouth changes the taste of food and affects swallowing, it can make eating less enjoyable or even difficult. But maintaining proper nutrition is important for people going through cancer treatment. A poor diet can make you more susceptible to infections and delay healing. It can also interfere with your treatment plan.

If you have dry mouth, it's helpful to adapt your diet to make foods easier to eat. Here are some practical eating tips that you can use:

- **Choose foods that are soft and moist.** For breakfast, you might choose oatmeal or Cream of Wheat instead of toast or dry cereal. For lunch, you might try soup or tuna or egg salad. For a snack, make a smoothie with yogurt or milk for protein and fresh or frozen fruit. For dinner, you might try a casserole.
- **Avoid dry, crumbly foods, such as crackers and chips.** Moisten dry foods with sauces or dips that are not spicy.
- **Avoid foods that are made up of small particles.** They can cause gagging or choking. Rather than rice, for example, choose a starch such as mashed potatoes instead.
- **Avoid salty or spicy foods.** They make you thirsty and could irritate the tissues in your mouth.
- **Eat canned or fresh fruits** with a lot of moisture in them, such as oranges, grapes, or peaches.

# Coping With Swallowing Difficulties

**T**here are things you can do on your own to cope with swallowing problems.

**Between meals, chew sugar-free gum** sweetened with xylitol or suck on sugar-free candies. These tips can help keep the mouth moist and in some cases stimulate the production of saliva.

**Follow the diet choices** listed under “Eating Well to Feel Well.” If necessary, puree your foods in a blender. As it becomes easier to swallow, slowly work your way back to foods with more texture.

For additional help with managing swallowing difficulties, talk with your doctor about seeing a speech pathologist—a professional who specializes in speech and swallowing. Your doctor can perform tests such as x-rays to find the source of the problem, and the speech pathologist can work with you to strengthen muscles needed for swallowing. He or she can also show you techniques to make swallowing easier.



- **Steam vegetables until they are soft.** Raw vegetables might be more difficult to eat. Pouring a sauce over steamed vegetables can make them taste better.
- **For dessert,** try pudding, yogurt, sherbet, or flavored gelatin. If you prefer cookies, dip them in milk or decaffeinated coffee to moisten them.
- **Consider using meal replacement beverages** as whole meals or a snack. Examples include Boost, Ensure, or Carnation Instant Breakfast.

- **If dry mouth becomes severe**, use a blender to give food a smooth consistency. A registered dietitian can help you design an eating plan that meets your needs and preferences. He or she can suggest ways to modify your favorite recipes.

## Working With Your Support Team

If you are coping with dry mouth, you know it is a side effect that presents many challenges. Not only does it cause difficulties with eating and speaking, it can also interfere with your life in other ways. For example, special occasions such as family gatherings and other social activities often revolve around food and conversation.

Dry mouth can affect your ability to take part in and fully enjoy these events. It's perfectly normal to feel sad, angry, afraid, or frustrated about this. But help is available.

Your most important resources are your health care team, family members, and friends.

It's essential to develop good communication with them. In addition to your health care team and loved ones, you can turn to these resources:

**Oncology social workers and nurse practitioners** are specially trained to help you get the best care possible. Often, when people are coping with the side effects of cancer, they need someone to talk with who can help them and their families sort through the complex emotions and issues that arise. These health care professionals can provide emotional support, help you cope with treatment and its side effects, and guide you to resources. CancerCare® offers free counseling from professional oncology social workers on staff.



**Support groups** Many support groups are available for people with cancer. Support groups can reduce the feeling that you are going through cancer alone. These groups provide reassurance, suggestions, insight—a safe haven where you can share similar concerns with your peers in a supportive environment. At CancerCare®, people with cancer and their loved ones and caregivers can take part in support groups in person, online, or on the telephone.

**Financial help** is offered by a number of organizations, including CancerCare, to help cover the cost of some medications and treatment-related needs such as transportation, child care, and home care. CancerCare can also refer you to other resources in your community that can provide assistance.

**To learn more about how CancerCare helps, call us at 1-800-813-HOPE (4673) or visit us online at [www.cancercare.org](http://www.cancercare.org).**

# Frequently Asked Questions

**Q I have had dry mouth for quite a while, and sometimes the inner lining of my mouth and gums seems to kind of shed. Is this normal?**

**A** There could be a few reasons why this happens. Without normal amounts of saliva, the inner lining of the mouth or the tongue may be dry or irritated and can shed. Another possible cause is a mild yeast infection. Talk to your doctor about your symptoms. Because there are several possible causes, it's important to get the right diagnosis and treatment.

**Q My dry mouth seems to bother me more when I go into a doctor's office or when I exercise. How can I manage these situations?**

**A** Experiencing dry mouth at the doctor's office is probably due to nervousness. But whatever the cause, drinking plenty of fluids is the most important thing you can do to prevent it, especially during exercise, when you are losing fluids by sweating.

Many people—even those without dry mouth—have already developed the habit of carrying a water bottle with them wherever they go. It's a good strategy.

**Q I'm a long-term survivor of squamous cell cancer of the mouth. I still notice that whenever I start eating, I have to stop and blow my nose. What causes this, and is there some way I can control it?**

**A** When we're about to eat, we have what's called a "**gustatory reflex**" that promotes, among other things, increased production of saliva. In this case, your body is probably trying to compensate for not having enough saliva by increasing mucus. If the excess mucus is bothersome, there are medications available to thin it out or get rid of it. Talk to your doctor about using guaifenesin, a medication found in over-the-counter pills or cough syrups such as Robitussin. Check the label to make sure it contains no sugar or alcohol. You can also try Mucinex, available without a prescription. It's best to use the regular Mucinex, not Mucinex D or DM; they can be very drying. Ask your pharmacist to recommend a product containing only guaifenesin.

Spicy foods may also cause the nose to run. It's generally recommended that patients with dry mouth avoid highly seasoned foods.

**Q A friend told me that there is a clinical trial under way to get damaged salivary glands working again. How is this being done?**

**A** At the National Institutes of Health, researchers are working on implanting a gene into the salivary glands that would get them working again. The technique was successful in laboratory studies, and now people are taking part in clinical trials. The gene can actually create openings in the salivary tissue that allow for more saliva to flow. This is an exciting technology, but more research is needed.

# Glossary

**dehydration** A potentially dangerous lack of water in the body.

**dietitian** A health professional with special training in nutrition, such as a registered dietitian, or RD.

**gustatory reflex** The production of secretions such as increased saliva when chewing food.

**head and neck cancer** Cancer that arises in the head or neck region—nasal cavity, sinuses, lips, mouth, salivary glands, throat, or larynx (voice box).

**intensity-modulated radiation therapy** This fairly recent advance in radiation treatment allows doctors to adjust the radiation dose more precisely to the tumor. In some cases it may spare normal tissues, including the salivary glands.

**periodontist** A dentist who specializes in diagnosing, preventing, and treating gum disease.

**prosthodontist** A dentist who specializes in replacing missing teeth or other structures of the mouth to restore a person's appearance, comfort, or health. Among the care these professionals deliver is the proper fitting of dentures.

**salivary glands** These glands in the oral cavity make saliva and release it into the mouth. The largest salivary gland is called the parotid gland. There are two parotid glands, one in front of and just below each ear. Most salivary gland tumors begin in parotid glands.

**xerostomia** (ZEER-oh-STO-mee-ah) Another word for dry mouth. It is from the Greek words "xeros" (dry) and "stoma" (mouth).

# Resources

## **CancerCare**

1-800-813-HOPE (4673)

[www.cancer.org](http://www.cancer.org)

## **American Cancer Society**

1-800-227-2345

[www.cancer.org](http://www.cancer.org)

## **Cancer.Net**

(Patient website of the American Society of Clinical Oncology)

[www.cancer.net](http://www.cancer.net)

## **National Cancer Institute**

1-800-422-6237

[www.cancer.gov](http://www.cancer.gov)

## **National Coalition for Cancer Survivorship**

1-888-650-9127

[www.canceradvocacy.org](http://www.canceradvocacy.org)

## **Support for People with Oral Head and Neck Cancer**

1-800-377-0928

[www.spohnc.org](http://www.spohnc.org)

## **The Wellness Community**

1-888-793-9355

[www.thewellnesscommunity.org](http://www.thewellnesscommunity.org)

## **To find out about clinical trials:**

Coalition of Cancer Cooperative Groups

[www.CancerTrialsHelp.org](http://www.CancerTrialsHelp.org)

National Cancer Institute

[www.cancer.gov/clinicaltrials](http://www.cancer.gov/clinicaltrials)



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