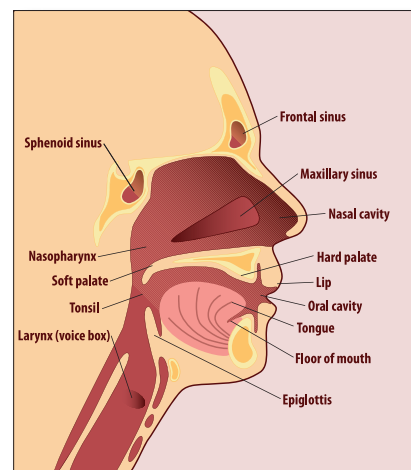




## TREATING HEAD AND NECK CANCER

Treatment for head and neck cancers depends on several factors. These include the type of cancer, tumor size and stage, tumor location and the patient's general health. Effective treatment for head and neck cancers requires a team approach. The team includes a surgeon, a radiation oncologist and a medical oncologist. Surgery and/or radiation therapy are the best options for cancer found in its early stages. For more advanced tumors, combination therapy including surgery, radiation therapy and/or chemotherapy may yield the best results.



### Head and neck cancer treatment options include:

#### Radiation Therapy

Radiation therapy is one of the best treatments available for head and neck cancer. It involves a radiation oncologist delivering focused radiation to kill cancer cells. Surrounding healthy tissue may also be affected. However, healthy normal cells are better able to heal from radiation injury. For head and neck cancer, new technologies in radiation treatment allow for preservation of important organs. These new techniques can give patients equal cure rates with better swallowing and/or voice function when compared to surgically removing a tumor. In some cases, radiation will be combined with surgery, chemotherapy or both.

#### Surgery

Surgery is another important approach to head and neck cancer treatment. From biopsy to evaluating the nose, mouth and throat with a flexible endoscopic camera, your surgeon can determine whether the tumor has spread. If surgery will be part of your treatment, your surgeon will aim to remove the tumor along with some surrounding healthy tissue. Depending on the tumor location and size, the surgeon may also remove lymph nodes in the neck. The lymph nodes

are part of the normal immune system. Lymph nodes are a common path for spread in some tumors. Ask your doctors whether you need treatment for the lymph nodes in the neck.

In some cases, surgery is combined with radiation therapy. If radiation therapy is the main treatment, some surgery may be helpful afterwards. This is determined on a case-by-case basis. If surgery is the main treatment, radiation therapy may be helpful after surgery if more advanced disease is found.

#### Medical Therapy

Surgery and radiation therapy focus directly on treating the tumor. Medication is often recommended to improve cure rates. A medical oncologist will evaluate you and determine what medications may be most helpful.

There are two main categories of systemic therapy (treatment that is injected into the blood stream).

**Chemotherapy** has the ability to destroy cancer cells by different methods. Often, one to three different types of drugs may be combined to get the best outcome. The dose and schedule for treatment varies. In some cases, chemotherapy may be helpful before radiation treatment. This type of treatment is called induction chemotherapy.

**Targeted therapy** involves focusing anti-cancer treatment on certain molecules. An example is the epidermal growth factor receptor (EGFR). Targeted therapy can be used with radiation therapy as well.

Ask your medical oncologist whether these drugs may be helpful for you.

#### DENTAL CARE

Dental care is an essential part of preparing for radiation treatment. Before you begin head and neck radiation therapy, you may need to be examined by a dentist or oral surgeon. Your mouth may become dry during and following the treatments. This puts you at increased risk for cavities. Your dentist may make fluoride carriers for your teeth to improve dental health.

If the dentist determines that you need any dental work like having bad teeth removed, this must be done before beginning treatment. After radiation treatment your jaw bone may not heal as well. Dental work may delay starting radiation treatment for up to two weeks to allow time for healing. Ask your doctor whether you need to see your dentist before starting treatment.

#### EXTERNAL BEAM RADIATION THERAPY

External beam radiation therapy involves a series of painless sessions. Treatments are usually scheduled daily, Monday through Friday, for five to seven weeks. In some cases, your radiation oncologist may schedule your radiation treatments to be twice a day.

Before beginning treatment, you will be scheduled for a planning session. Your radiation oncologist will map where to treat. This procedure, called simulation, involves having X-rays and/or a **CT scan**.

To help you stay in position during treatment, your doctor may use a plastic mask over your head and shoulders. You can see and breathe through this form-fitting mask. It is made to comfortably minimize movement during treatment. Other devices may be used to ensure that radiation to normal parts of the mouth are avoided. You may also receive tiny marks on your skin, like a permanent tattoo, to help precisely position you for daily treatment. Sometimes, these marks can be made on the plastic mask so there are no permanent marks on your skin.

Different techniques can be used to give radiation for head and neck cancer:

- **Three-dimensional conformal radiotherapy (3-D CRT)** combines multiple radiation treatment fields to deliver precise doses of radiation to the affected area.
- **Intensity modulated radiation therapy (IMRT)** is a specialized form of 3-D CRT that varies the intensity of each radiation beam. IMRT can help lower the chance of having a dry mouth or other side effects.

## INTERNAL RADIATION THERAPY

Internal radiation therapy is also called brachytherapy. This treatment involves inserting radioactive material into a tumor or surrounding tissue to give a more focused dose of radiation. For head and neck cancers, brachytherapy is often used with external beam radiation therapy. It may also be used alone or after surgery. During brachytherapy, your radiation oncologist places thin, hollow, plastic tubes into the tumor and surrounding tissue. These tubes are loaded with tiny radioactive seeds that remain in place for a short time to kill the cancer. The seeds and the tubes are then removed. With **low-dose-rate brachytherapy**, the seeds will be left in place for one to three days. For **high-dose-rate brachytherapy**, a single radioactive seed stops at various positions along the tubes for short intervals to deliver the dose. It is usually administered in a few sessions over two or more days.

#### CARING FOR YOURSELF DURING TREATMENT

Cancer treatment can be difficult. You have many issues to cope with. Your oncology team, along with family and friends, are available to help.

- Get plenty of rest during treatment.
- Follow your doctor's orders. Ask if you are unsure about anything.
- Tell your doctor about any medications, vitamins or supplements you are taking to make sure they are safe to use during radiation therapy.
- Eat a balanced diet. If food tastes funny or if you're having trouble eating, tell your doctor, nurse or dietitian.
- Treat the skin exposed to radiation with special care. Stay out of the sun. Avoid hot or cold packs. Only use lotions and ointments after checking with your doctor or nurse. Clean the area with warm water and mild soap.
- Good dental care can lessen the risk of mouth infections and tooth decay. Use fluoride toothpaste without abrasives. Floss gently between your teeth daily using a waxed, non-shredding dental floss. If needed, it may help to rinse daily with a salt and baking soda solution.

## Possible Side Effects

### OF RADIATION FOR HEAD AND NECK CANCERS

External beam radiation therapy is not invasive, so it is rare for side effects to show up immediately. Side effects are different for each patient. In some cases, side effects lessen within several weeks, but with more intensive treatment the time for improvement takes longer.

- **Mild tiredness** may develop. However, fatigue from radiation therapy should improve within a few weeks after radiation treatment ends.
- **Skin irritation** may occur including redness, peeling or blistering and some swelling or tenderness and pain.
- **Difficulty or pain when swallowing** is common as well as **dry mouth or thick phlegm**.
- **Change in voice** may occur along with swelling of the voice box and hoarseness.
- **Hair loss** on the head, neck and face may be experienced.
- **Irritation of the mouth and throat** often occurs, causing pain, as well as **change in taste**.
- **Weight loss** is likely due to the possible side effects.

The way that food tastes and the amount of saliva you produce should improve after treatment ends and pain should start to resolve.

*Some side effects can be controlled with medications and changes to your diet. Ask your doctor or nurse whether you should make changes to your diet. Tell them if you experience any discomfort so they can help you feel better.*

Visit  
[www.rtanswers.org](http://www.rtanswers.org)  
to download a complete  
chart of side effects.

Organ System	Side effects Head and Neck Cancer Radiation Treatment	
	Early Complications (Days-Months After Treatment)	Late Complications (Months-Years After Treatment)
General	<ul style="list-style-type: none"> <li>• Acute fatigue</li> <li>• Weight loss</li> </ul>	<ul style="list-style-type: none"> <li>• Chronic fatigue (tiredness)</li> <li>• Second cancer (rare, but increased risk with continued smoking)</li> </ul>
Skin	<ul style="list-style-type: none"> <li>• Redness</li> <li>• Peeling and/or blistering</li> <li>• Swelling</li> <li>• Tenderness or pain</li> </ul>	<ul style="list-style-type: none"> <li>• Tissue scarring, thickening, firmness (fibrosis)</li> <li>• Coloration changes (lighter or darker)</li> <li>• Tissue thinning</li> </ul>
Salivary	<ul style="list-style-type: none"> <li>• Dry mouth</li> <li>• Thick secretions</li> </ul>	<ul style="list-style-type: none"> <li>• Dry mouth</li> </ul>
Taste	<ul style="list-style-type: none"> <li>• Decreased or altered taste</li> </ul>	<ul style="list-style-type: none"> <li>• Dry mouth</li> </ul>
Throat	<ul style="list-style-type: none"> <li>• Pain with swallowing</li> <li>• Difficulty swallowing</li> <li>• Need for a feeding tube</li> </ul>	<ul style="list-style-type: none"> <li>• Decreased or altered taste</li> <li>• Difficulty swallowing</li> <li>• Need for a feeding tube</li> </ul>
Mouth	<ul style="list-style-type: none"> <li>• Pain</li> <li>• Ulcerations</li> <li>• Difficulty opening mouth</li> </ul>	<ul style="list-style-type: none"> <li>• Difficulty opening mouth</li> <li>• Radiation necrosis of jaw</li> <li>• Dental problems</li> </ul>
Eyes	<ul style="list-style-type: none"> <li>• Swelling</li> <li>• Tightening of muscles</li> <li>• Changes in voice</li> <li>• Hoarseness</li> <li>• Swelling of voice box</li> </ul>	<ul style="list-style-type: none"> <li>• Tightening of muscles</li> <li>• Changes in voice</li> <li>• Hoarseness</li> <li>• Swelling of voice box</li> <li>• Decrease in thyroid function</li> </ul>
Ears	<ul style="list-style-type: none"> <li>• Increased tearing</li> <li>• Irritation</li> <li>• Dry eye</li> </ul>	<ul style="list-style-type: none"> <li>• Increased tearing</li> <li>• Dry eye</li> <li>• Vision changes (rare)</li> <li>• Cataract</li> </ul>
Hair	<ul style="list-style-type: none"> <li>• Feeling of fullness</li> <li>• Irritation</li> </ul>	<ul style="list-style-type: none"> <li>• Decreased hearing</li> </ul>
Nose	<ul style="list-style-type: none"> <li>• Facial hair loss or thinning</li> </ul>	<ul style="list-style-type: none"> <li>• Facial hair loss or thinning</li> </ul>
Lungs	<ul style="list-style-type: none"> <li>• Irritation</li> <li>• Increased discharge</li> <li>• Dryness</li> </ul>	<ul style="list-style-type: none"> <li>• Dryness</li> </ul>
Arm	<ul style="list-style-type: none"> <li>• Inflammation</li> <li>• Shortness of breath</li> <li>• Cough</li> </ul>	<ul style="list-style-type: none"> <li>• Scarring</li> <li>• Shortness of breath</li> <li>• Cough</li> <li>• Nerve dysfunction (rare)</li> </ul>

### HELPFUL WEBSITES ON HEAD AND NECK CANCERS

National Institute of Dental and Craniofacial Research

[www.nidcr.nih.gov](http://www.nidcr.nih.gov)

Oral Cancer Foundation

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

Support for People with Oral and Head and Neck Cancer

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

### LEARNING ABOUT CLINICAL TRIALS

The radiation oncology treatment team is always exploring new ways to improve treatments through studies called clinical trials. Today's treatments are a result of trials completed years ago, proving that radiation therapy safely and effectively kills cancer cells and is a safe long-term treatment. For more information on clinical trials, visit:

National Cancer Institute

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

Radiation Therapy Answers

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

Radiation Therapy Oncology Group

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



### ABOUT THE RADIATION ONCOLOGY TEAM

Radiation oncologists are cancer doctors who also oversee the care of each patient undergoing radiation treatment. Other members of the radiation oncology team include radiation therapists, radiation oncology nurses, medical physicists, dosimetrists, social workers and nutritionists. To locate a radiation oncologist in your area, visit [www.rtanswers.org](http://www.rtanswers.org).

### ABOUT ASTRO

The American Society for Radiation Oncology is the premier radiation oncology society in the world with more than 10,500 members who specialize in treating cancer with radiation therapies. ASTRO is dedicated to improving patient care through education, clinical practice, advancement of science and advocacy.

### AMERICAN SOCIETY FOR RADIATION ONCOLOGY

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# Radiation Therapy for Head and Neck Cancers



In 2018, The American Cancer Society estimates that in the United States, approximately 3-5 percent of all cancers will be in the head and neck region. This year, an estimated 64,690 people (47,650 men and 17,040 women) will develop head and neck cancer. 13,740 deaths (10,250 men and 3,490 women) will occur this year as a result of this cancer diagnosis.

