

# LOST TEMPLE FITNESS

## RADIATION

Information and pictures from *National Cancer Institute* unless otherwise specified

### Quick Summary of Section

#### What is Radiation

- Radiation therapy (also called radiotherapy) is a cancer treatment that uses high doses of radiation to kill cancer cells and shrink tumors.

#### How Radiation Works against Cancer

- At high doses, radiation therapy kills cancer cells or slows their growth by damaging their DNA.

#### Types of Radiation Therapy

- There are two main types of radiation therapy, external beam and internal.

#### How often will I have external beam radiation therapy?

- Most people have external beam radiation therapy once a day, five days a week, Monday through Friday. Treatment lasts anywhere from 2 to 10 weeks, depending on the type of cancer you have and the goal of your treatment.

#### Positioning for Breast Cancer

- Must have adequate shoulder range of motion lying on your back
- Pillows and supports are used to keep your arm out of the treatment field.

#### Side Effects

(also see *Side Effects*)

- Fatigue
- Hair loss in the radiation field
- Swelling / Edema (also see lymphedema)
- Tenderness
- Skin changes

#### Late Effects

- Late Effects are not common, but may include: Inflammation in the lung, lymphedema or cancer in the opposite breast.

#### What is Radiation


Radiation therapy (also called radiotherapy) is a cancer treatment that uses high doses of radiation to kill cancer cells and shrink tumors. At low doses, radiation is used in x-rays to see inside your body, as with x-rays of your teeth or broken bones.

*NIH NCI (15)*

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<p><b>How Radiation Works against Cancer</b></p>	<ul style="list-style-type: none"> <li>• At high doses, radiation therapy kills cancer cells or slows their growth by damaging their DNA.</li> <li>• Cancer cells whose DNA is damaged beyond repair stop dividing or die. When the damaged cells die, they are broken down and removed by the body.</li> <li>• Radiation therapy does not kill cancer cells right away. It takes days or weeks of treatment before DNA is damaged enough for cancer cells to die. Then, cancer cells keep dying for weeks or months after radiation therapy ends.</li> </ul> <p><i>NIH NCI (15)</i></p>
<p><b>Types of Radiation Therapy</b></p>	<p>There are two main types of radiation therapy, external beam and internal.</p> <p><b>External Beam Radiation Therapy</b></p> <ul style="list-style-type: none"> <li>• External beam radiation therapy comes from a machine that aims radiation at your cancer. The machine is large and may be noisy. It does not touch you, but can move around you, sending radiation to a part of your body from many directions.</li> <li>• External beam radiation therapy is a local treatment, which means it treats a specific part of your body. For example, if you have cancer in your breast, you will have radiation only to your chest/breast, not to your whole body.</li> </ul> <p><b>Internal Radiation Therapy</b></p> <ul style="list-style-type: none"> <li>• Internal radiation therapy is a treatment in which a source of radiation is put inside your body. The radiation source can be solid or liquid.</li> <li>• Internal radiation therapy with a solid source is called brachytherapy.</li> <li>• In this type of treatment, seeds, ribbons, or capsules that contain a radiation source are placed in your body, in or near the tumor.</li> <li>• Like external beam radiation therapy, brachytherapy is a local treatment and treats only a specific part of your body.</li> <li>• With brachytherapy, the radiation source in your body will give off radiation for a while.</li> </ul> <p><i>NIH NCI (15)</i></p>
<p><b>How often will I have external beam radiation therapy?</b></p>	<ul style="list-style-type: none"> <li>• Most people have external beam radiation therapy once a day, five days a week, Monday through Friday.</li> <li>• Treatment lasts anywhere from 2 to 10 weeks, depending on the type of cancer you have and the goal of your treatment.</li> <li>• This span of time is called a course of treatment.</li> </ul> <p>Radiation therapy may also be given on other schedules. These schedules include:</p> <ul style="list-style-type: none"> <li>• Accelerated fractionation, which is treatment given in larger daily or weekly doses to reduce the number of weeks of treatment</li> <li>• Hyperfractionation, which is smaller doses of radiation given more than once a day</li> <li>• Hypofractionation, which is larger doses given once a day (or less often) to reduce the number of treatments</li> </ul> <p>Your doctor may prescribe one of these treatment schedules if he or she feels that it will work better for you.</p> <p><i>NIH NCI (16)</i></p>

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<b>Positioning</b> (Breast Cancer)	<ul style="list-style-type: none"> <li>• Must have adequate shoulder range of motion lying on your back</li> <li>• Pillows and supports are used to keep your arm out of the treatment field.</li> </ul>
	
<b>Side Effects</b>  (Also see <i>Side Effects</i> and <i>Late Side Effects</i> )	<ul style="list-style-type: none"> <li>• Fatigue</li> <li>• Hair loss in the radiation field</li> <li>• Swelling / Edema (also see lymphedema)</li> <li>• Tenderness</li> <li>• Skin changes (<i>see below</i>)</li> </ul>
<b>Skin Changes</b>	<p>Radiation therapy can cause skin changes in your treatment area. Here are some common skin changes:</p> <ul style="list-style-type: none"> <li>• Redness. Your skin in the treatment area may look as if you have a mild to severe sunburn or tan.</li> <li>• Severe itching. The skin in your treatment area may itch very badly. It is important to avoid scratching, which can cause skin breakdown and infection. Skin breakdown is a problem that happens when the skin in the treatment area peels off faster than it can grow back.</li> <li>• Dry and peeling skin. The skin in your treatment area can get very dry. It may get so dry that it starts to peel, as if you have had a bad sunburn. If it peels off faster than it can grow back, you may develop sores or ulcers.</li> <li>• Moist reaction. The skin in your treatment area can become wet, sore, and infected. This problem is more common where you have skin folds, such as your buttocks, behind your ears, and under your breasts. It may also occur where your skin is very thin, such as your neck.</li> <li>• Swollen skin. The skin in your treatment area may be swollen and puffy.</li> </ul> <p><b>Why they occur:</b> Radiation kills healthy skin cells in the treatment area. When people get radiation therapy almost every day, their skin cells do not have enough time to grow back between treatments. Skin changes can happen anywhere on the body that gets radiation.</p> <p><b>How long they last:</b></p> <ul style="list-style-type: none"> <li>• Skin changes may start a few weeks after you begin radiation therapy. Many of these changes go away a few weeks after treatment is over. But even after radiation therapy ends, some skin changes may remain.</li> <li>• Skin in the treatment area may always look darker and blotchy.</li> <li>• It may feel very dry or thicker than before.</li> <li>• You will always burn quickly and be sensitive to the sun.</li> </ul>

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<p><b>Skin Changes</b> <i>Continued</i></p>	<p><b>Ways to manage</b></p> <ul style="list-style-type: none"> <li>• Skin care. Take extra good care of your skin during radiation therapy. Be gentle and do not rub, scrub, or scratch in the treatment area. Use creams that your doctor or nurse suggests.</li> <li>• Do not put anything on your skin that is very hot or cold. Do not use heating pads, ice packs, or other hot or cold items on the treatment area.</li> <li>• Be gentle when you shower or take a bath. You can take a lukewarm shower every day. If you prefer to take a lukewarm bath, do so only every other day and don't soak for too long. Whether you take a shower or bath, make sure to use a mild soap. Dry yourself with a soft towel by patting, not rubbing, your skin. Be careful not to wash off the ink markings that you need for radiation therapy.</li> <li>• Use only those lotions and skin products that your doctor or nurse suggests. If you are using a prescribed cream for a skin problem or acne, tell your doctor or nurse before you begin radiation treatment.</li> <li>• Check with your doctor or nurse before using any of the following skin products: * Bubble bath * Cornstarch * Cream * Deodorant * Hair removers * Makeup * Oil * Ointment * Perfume * Powder * Soap * Sunscreen</li> <li>• Cool, humid places. Your skin may feel much better when you are in cool, humid places. You can make rooms more humid by putting a bowl of water on the radiator or using a humidifier. If you use a humidifier, be sure to follow the directions about cleaning it to prevent bacteria.</li> <li>• Soft fabrics. Wear clothes and use bed sheets that are made of very soft fabrics.</li> <li>• Do not wear clothes in your treatment area that are tight and do not breathe, such as girdles, body shapers, and pantyhose.</li> <li>• Protect your skin from the sun every day. The sun can burn you even on cloudy days or when you are outside for just a few minutes.             <ul style="list-style-type: none"> <li>○ Do not go to the beach or sunbathe.</li> <li>○ Wear a broad-brimmed hat, long-sleeved shirt, and long pants when you are outside.</li> <li>○ Talk with your doctor or nurse about sunscreen lotions. He or she may suggest that you use a sunscreen with an SPF of 30 or higher. You will need to protect your skin from the sun even after radiation therapy is over. Do not use tanning beds. Tanning beds expose you to the same harmful effects as the sun.</li> </ul> </li> <li>• Adhesive tape. Do not put adhesive bandages or other types of sticky tape on your skin in the treatment area. Talk with your doctor or nurse about ways to bandage without tape.</li> <li>• Shaving. Ask your doctor or nurse if you can shave the treatment area. If you can shave use an electric razor, but do not use a pre-shave liquid.</li> <li>• Talk with your doctor or nurse. Some skin changes can be very serious. Your treatment team will check for skin changes each time you have radiation therapy. Make sure to report any skin changes that you notice.</li> <li>• Medicine. Medicines can help with some skin changes. These include lotions for dry or itchy skin, antibiotics to treat infection, and drugs to reduce swelling or itching. <i>NIH NCI (16)</i></li> </ul>
<p><b>Late Effects</b> <i>(Also see Side Effects and Late Side Effects)</i></p>	<p>Late Effects are not common, but may include:</p> <ul style="list-style-type: none"> <li>• Inflammation of the lung after radiation therapy to the breast, especially when chemotherapy is given at the same time.</li> <li>• Arm lymphedema, especially when radiation therapy is given after lymph node dissection.</li> <li>• In women younger than 45 years who receive radiation therapy to the chest wall after mastectomy, there may be a higher risk of developing breast cancer in the other breast.</li> </ul> <p><i>NIH NCI (15)</i></p>
<p><b>References</b></p>	<p>NIH NCI (15) Radiation <a href="https://www.cancer.gov/about-cancer/treatment/types/radiation-therapy">https://www.cancer.gov/about-cancer/treatment/types/radiation-therapy</a></p> <p>NIH NCI (16) Radiation Therapy and You. <a href="https://www.cancer.gov/publications/patient-education/radiationtherapy.pdf">https://www.cancer.gov/publications/patient-education/radiationtherapy.pdf</a></p>