Radiation Therapy for **Skin Cancer**

The skin is the body's largest organ. Its job is to protect internal organs against damage, heat and infection. The skin is also the most exposed organ to sunlight and other forms of harmful ultraviolet rays. The majority of skin cancers are caused by exposure to ultraviolet (UV) radiation from the sun. According to the American Cancer Society, more than five million cases of basal and squamous cell skin cancers will be diagnosed in the United States this year. These cancers can usually be cured. In addition, an estimated 196,000 cases of melanoma will be diagnosed. At least one in five Americans will develop skin cancer by the age of 70. Skin cancer is 10 times more common among Caucasians than African-Americans.

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TYPES OF SKIN CANCER

Basal cell carcinoma

The most common form of skin cancer and very curable. This cancer begins in the outer layer of skin (epidermis). Basal cell cancer rarely spreads to other parts of the body but can cause significant local destruction and disfigurement if left untreated. Radiation therapy is very effective for treating basal cell cancers that have not spread elsewhere, especially when used to treat areas where surgery may cause an undesired cosmetic outcome such as on the face. Other common treatments include surgery, topical chemotherapy/immunotherapy and cryotherapy.

Squamous cell carcinoma

The second most common type of skin cancer. This cancer also begins in the epidermis. Like basal cell carcinoma, squamous cell carcinoma can cause local destruction if left untreated, however, is very curable with treatment. Radiation therapy can be used to treat squamous cell cancers that start on the skin and sometimes nearby lymph nodes with or without surgery. Other common treatments include surgery, chemotherapy and cryotherapy.

Melanoma

The most serious skin cancer; it begins in skin cells called melanocytes that produce skin color (melanin). Radiation therapy is used mostly for melanomas that started in another part of the body (metastases). It is used to treat areas where doctors think the disease may spread, such as the lymph nodes. Melanoma is usually treated first with surgery and may be followed by chemotherapy, radiation therapy and biologic therapy.

Merkel cell carcinoma

A rare, aggressive skin cancer that develops between the dermis and epidermis. This cancer often requires treatment with a combination of surgery, chemotherapy and radiation.

TREATING SKIN CANCER

The treatment you receive depends on several factors, including your overall health, the stage of the disease and whether the cancer has spread to other parts of your body. Doctors may check to see if the cancer has spread to the lymph nodes in patients with some types of skin cancer. Treatments can be used on their own (radiation alone or surgery alone) or they can be combined.

- **Radiation therapy:** The radiation oncologist uses various forms of radiation to treat cancer and other diseases.
- **Brachytherapy:** A special form of radiation that places the radiation source very close to the tumor. This form of radiation tends to be shorter in duration than regular radiation therapy.
- **Surgery:** The cancer cells are cut out and removed.
- **Moh's surgery:** A form of surgery where the tumor is removed one layer at a time. This technique may allow a dermatologist to preserve more healthy tissue.
- **Cryosurgery:** The cancer is frozen and removed.
- **Laser surgery:** Cancer cells are killed by laser beams.
- **Electrodessication:** The cancer is dried with an electric current and removed.
- **Photodynamic therapy:** The cancer is treated with a drug that is very sensitive to a special kind of light. When exposed to that special light, the drug produces a chemical reaction that kills nearby cells.
- **Chemotherapy:** The cancer cells are attacked by a drug that is either taken internally or applied on the skin.
- **Biologic therapy:** Medication given to help your immune system fight the cancer better.

UNDERSTANDING RADIATION THERAPY

Radiation therapy is the careful use of radiation to treat many different kinds of cancer including skin cancers. Radiation oncologists use radiation therapy to try to cure cancer, to control cancer growth or to relieve symptoms such as pain.

Radiation therapy works within cancer cells by damaging their ability to multiply. When these cells die, the body naturally eliminates them. Healthy cells that grow and divide quickly are also harmed by radiation, but they are able to repair themselves in a way that cancer cells cannot.

Most radiation is given with an external beam, but treatment can be given with a radioactive source close to the skin with a treatment called brachytherapy.

EXTERNAL BEAM RADIATION THERAPY

External beam radiation therapy may be used to treat skin cancer itself or to relieve pain from cancer that has spread.

Radiation oncologists (physicians who specialize in treating cancer with radiation) deliver external beam radiation therapy to the cancer from a machine outside your body. Radiation beams are targeted at your tumor, giving more radiation to the skin cancer while keeping it away from sensitive parts of the body underneath the skin cancer. Radiation can be given as the sole treatment or may be used after surgery for cases that are at high risk of the cancer coming back.

Skin cancer is often treated with superficial forms of radiation. That means the radiation penetrates only a short distance below the surface. Radiation treatments are usually scheduled every day, Monday through Friday, for several weeks to effectively deliver radiation to the cancer. Your treatment schedule will depend on your cancer.

Radiation therapy can be given on its own or may also be given in addition to surgery, chemotherapy or biologic therapy.

BRACHYTHERAPY

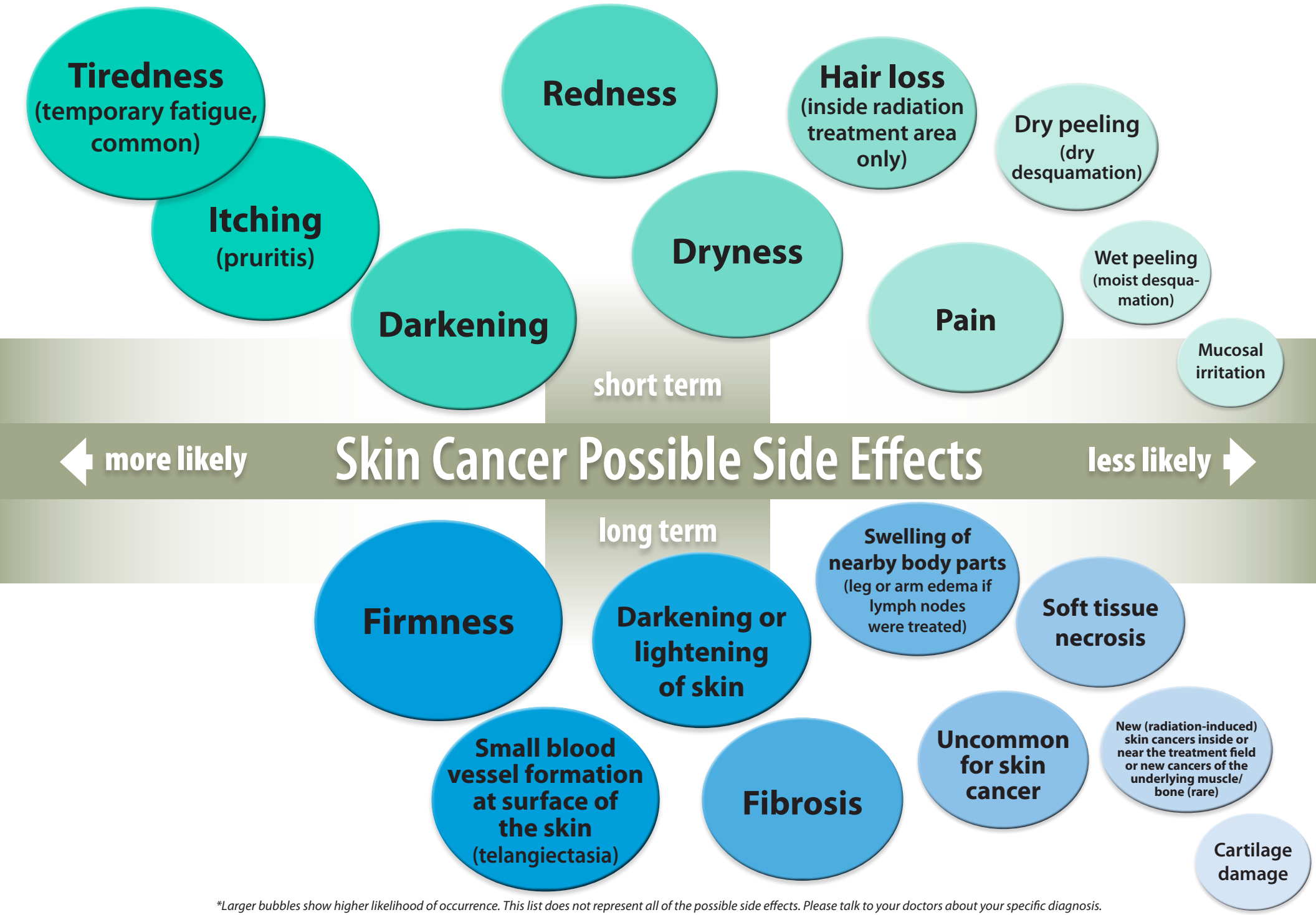
Brachytherapy is a form of radiation where the radiation source is placed very close to the skin cancer. This form of radiation can be applied to the tumor using

metal applicators, a series of tubes or a flap of beads that conforms to the skin (Freiburg flap). When high-dose-rate (HDR) treatments are given, treatments are usually scheduled two days per week instead of each day. Long-term studies following patients who have received brachytherapy show that this form of radiation is very effective in treating skin cancer and the vast majority continue to remain cancer free many years after treatment. In general, the cosmetic outcome with HDR brachytherapy is excellent and recovery time is minimal.

CARING FOR YOURSELF DURING TREATMENT

Battling cancer is tough. You may have a lot to cope with. Ask your treatment team, family or friends for help.

- Get plenty of rest during treatment. For most patients, it is acceptable to be active during treatment, including routine exercise.
- Follow your doctor's orders. Ask your doctor, nurse or other member of your treatment team if you are unsure about anything or if you have questions about your treatments and side effects.
- 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 you're having trouble eating, tell your doctor or dietician. They will work with you to help you make changes in your diet.
- Drink plenty of fluids. Keep very well hydrated by drinking eight, 8 oz. glasses of fluid daily. Jell-O, broth and sherbet, are all considered to be part of your fluid intake.
- Treat the skin exposed to radiation with special care. Stay out of the sun and avoid hot or cold packs. Use lotions and ointments only after checking with your doctor or nurse. When cleaning the area, use only water and a mild soap.



**Larger bubbles show higher likelihood of occurrence. This list does not represent all of the possible side effects. Please talk to your doctors about your specific diagnosis.*

ABOUT THE RADIATION ONCOLOGY TEAM

Radiation oncologists are the doctors who oversee the care of each person undergoing radiation treatment. Other members of the treatment team include radiation therapists, radiation oncology nurses, medical physicists, dosimetrists, social workers and nutritionists. For information on what each of these professionals does or to locate a radiation oncologist near you, visit **www.rtanswers.org**.

ABOUT ASTRO

The American Society for Radiation Oncology is the largest radiation oncology society in the world with 10,000 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. Visit **www.astro.org** for more information.

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