



Health and Wellness:

What you can do while receiving radiation treatment for prostate cancer

UCSF



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Our team at UCSF studies the role of diet and exercise in cancer survival.

We work to:

- Understand what lifestyle behaviors increase risk of worse cancer outcomes
- Develop and test diet and exercise programs using rigorous science
- Create guidelines and resources for cancer patients and survivors

For information about our studies, please see <https://urology.ucsf.edu/lifestyle> for urology studies.

RADIATION TREATMENT / HORMONE THERAPY

RADIATION TREATMENT

Radiation therapy is an integral part of primary treatment for prostate cancer and may be used as a means to cure your disease. While the goal with radiation as primary therapy is to cure or slow down the growth of your cancer, there are side effects associated with this treatment.

The National Cancer Institute defines radiation therapy as use of high-energy radiation to kill cancer cells or shrink tumors.

Radiation may lead to uncomfortable symptoms, such as worsening fatigue, urinary symptoms (e.g., an increase in the frequency of urination, weak urinary stream, burning with urination), and bowel symptoms (e.g., occasional diarrhea, softer and small volume bowel movements, increased frequency of bowel movements). Most of these symptoms are short-term and go away after the radiation therapy ends. The time for full recovery depends on you (the patient), the radiation protocol, the type and severity of urinary or bowel symptoms, and whether you had any symptoms before treatment. Erectile dysfunction is a common late side effect and has been reported in up to 50% of patients at 5 years after radiation.

Men with prostate cancer often, but not always, receive hormone therapy while receiving radiation therapy. The duration of hormone therapy varies depending on the stage and grade of the prostate cancer.

HORMONE THERAPY



Hormone therapy in prostate cancer management aims to decrease testosterone levels in the blood. While this is helpful for preventing progression of prostate cancer, it does have side effects. Lower levels of testosterone can lead to fatigue, hot flashes, loss of sexual function, mood changes, increased risk of insulin resistance, increased body fat, and decreased muscle mass. Long-term, these changes increase the risk for developing:

- Higher cholesterol levels
- Diabetes or high blood sugar levels
- Heart disease
- Osteopenia (bone loss) or osteoporosis (bone disease), which increases the risk of bone fractures
- Gynecomastia (enlarged breast tissue)

WHAT YOU CAN DO ON A DAILY BASIS

Radiation therapy often involves daily visits to clinic and can cause uncomfortable symptoms including worsening fatigue.

This practical guide aims to:

- Help you address signs and symptoms of treatment that can be managed with diet or exercise.
- Help you adopt and maintain healthy behaviors during treatment that you can continue after radiation therapy is completed.

Below are some approaches to decrease the possible health effects of hormone therapy.



DO NOT SMOKE

Smoking is toxic to the heart and lungs. Studies have also found that heavy smoking thins your bones and increases risk of fractures. Current smoking has been associated with shorter survival in men with prostate cancer.

It is NEVER too late to quit, and even if you relapse, quitting again still helps. Take advantage of the resources to help you quit today.

- American Cancer Society guide for information and resources to help you quit smoking: <https://www.cancer.org/healthy/stay-away-from-tobacco.html>
- **Quitlines:** 1-800-QUIT-NOW (1-800-784-8669) and 877-44U-QUIT (877-448-7848). These are free services to help people quit tobacco use, sponsored by the state of California and the U.S. Department of Health and Human Services. These quitlines are staffed with trained experts in smoking cessation. You can also receive information and advice through real-time text messaging.



WHAT YOU CAN DO ON A DAILY BASIS

EAT AND DRINK WELL

A healthy diet may prevent or delay prostate cancer progression and reduce the risk of developing other major chronic diseases, such as diabetes, hypertension, obesity, and heart disease.

- Decrease intake of highly refined or processed foods (e.g. white bread, white rice, pasta, salami, hot dogs, etc.).
- Increase fiber (e.g., vegetables, fruits, whole grains, beans) and healthy fats (extra-virgin olive oil, avocados, nuts, fatty fish).
- Eat a variety of fruits and vegetables.
- Limit foods containing saturated fat, including red meat and whole fat dairy.
- Drink plenty of water.
- Limit sugar-sweetened beverages, like soda, fruit punch, lemonade, sports drinks, and fruit juices.
- Limit alcohol. If you drink alcohol, do so in moderation (2 or fewer drinks per day).



Water is calorie-free. It keeps you from overheating, lubricates the joints and tissues, maintains healthy skin, and is necessary for proper digestion. The National Academy of Medicine suggests daily fluids of 13 cups (104 oz) and 9 cups (72 oz) for healthy men and women as a general guide.

Tips:

- Try drinking a glass of water before meals to help you feel more full.
- Try infused water: water flavored with fresh fruit or other herbs, such as strawberry, blueberry, raspberry, lemon, lime, orange, rosemary, thyme, cucumber, mint, and/or fresh ginger
- Make your own low-calorie sparkling beverage: add a splash of juice (1-2 ounces) to a tall glass (12 ounces) of sparkling water

WHAT YOU CAN DO ON A DAILY BASIS

BE ACTIVE

Exercise (physical activity) may reduce side effects of therapy, improve quality of life, and increase longevity for men with prostate cancer. The 2018 Physical Activity Guidelines for Americans recommends that those living with prostate cancer engage in regular exercise to reduce the risk of dying from prostate cancer.

- Move as much as you can throughout the day.
- To keep things interesting, alternate between activities you already enjoy and new activities you want to try.
- Be active with friends or family to stay motivated.
- Plan exercise. People who plan for exercise are more likely to do it. Set goals for the week, determine when you will exercise, and re-evaluate how you did at the end of each week. Think about strategies to help you overcome any challenges.



SIMPLE WAYS TO BE MORE ACTIVE

At home

- Walk your dog.
- Physical work in or around the home such as car washing, vacuuming, and raking leaves.
- March in place, walk around the room, or do flexibility or balance exercises while watching TV or waiting for the kettle to boil.

When you are out

- Park farther away from your destination.
- Take the stairs.
- Use hiking trails or walking paths in your area or go to a local park to walk.



EXERCISE DURING AND AFTER TREATMENT

It may not be possible for you to exercise, especially at a vigorous level, during or immediately after treatment. Exercise can come in a variety of forms from very low to low intensity, such as stretching, slow walking, or yoga, to moderate to high-intensity, like brisk walking, biking (outside or stationary) or jogging. It is important to practice activities that are within your range of abilities. Gradually build up the time and intensity of these activities as your body adjusts.



Your doctor will help you determine what level of exercise is appropriate for you. They may also recommend someone who specializes in creating exercise plans for individuals with cancer or survivors of cancer.

When discussing exercise with your doctor or health care team:

- Talk about how to incorporate exercise into your day during radiation treatment.
- Talk about any exercises you plan to do and ask about any possible limitations.
- Make sure you have your doctor's approval to continue (or start).

TIPS TO STAY SAFE WHILE BEING ACTIVE

- Drink plenty of water before, during, and after exercise.
- Engage in short, light sessions at first to get your body used to exercise.
- For resistance exercise (strength training, lifting weights), separate sessions by at least 24 hours to allow your muscles time to fully recover.
- Try non-weight bearing, low-impact, aerobic activities such as swimming, biking, or rowing if you have muscle or joint problems or injuries that prohibit you from walking, running, or jogging.
- Be sure to maintain good posture and form throughout all exercises.
- Wear comfortable and supportive shoes that are safe and appropriate for your activity.
- Always wear a helmet when cycling outside.
- Wear sunscreen and a hat when exercising outdoors during the day.
- At night, wear reflective clothing and bring a flashlight or other light (such as a bike light) so cars and bicyclists can see you.

EXERCISE DURING AND AFTER TREATMENT

- Some forms of radiation treatment may decrease your red and white blood cells necessary for fighting infection. If using a gym or other public facilities, be sure to wash your hands thoroughly after touching any shared exercise equipment (dumbbells, treadmill, elliptical, etc.).
- Above all, listen to your body. While exercise involves exertion and will feel challenging, you should never feel acute pain or overwhelming tiredness.
- If you have any shortness of breath, pain, or tightness in your chest, stop exercising immediately and contact your doctor or call 911 (depending on the severity of your symptoms).



EXERCISE / NUTRITION AND FATIGUE

Fatigue or feeling tired is a common side effect of prostate cancer treatment. Exercise has been shown to reduce fatigue in research studies. Eating a nutrient dense, well-balanced diet is another approach for increasing energy and combating fatigue. While there is no “magic bullet” for fatigue, exercise and a healthy diet can help promote better energy levels.

Save energy for exercise. Exercise is the most effective strategy for managing fatigue but often the least used!

Exercise decreases cancer-related fatigue by:

- Increasing blood flow
- Improving mood
- Limiting stiffness
- Maintaining muscle and strength
- Improving sleep duration and quality



EXERCISE AND FATIGUE

EXERCISE STRATEGIES TO OPTIMIZE ENERGY



Try low-intensity workouts, which can provide an immediate energy boost. For example:

- Walking at a casual pace
- Light jogging
- Tai chi
- Slowly lifting weights
- Using an elliptical machine
- Rowing at a steady pace
- Cycling at a casual pace
- Dancing as a social activity and exercise!

Add in a yoga session to boost mood and energy while reducing stress and fatigue. You will be forced to slow down and focus on your breathing and stretching.

Include brisk walks outdoors, in a park or nature area if possible. Just being outside and surrounded by nature can improve energy, mood, and reduce tiredness. If you don't have safe places near you to walk outside, identify indoor spaces to walk where you feel safe, such as a mall or retail store.

Stand up and walk around frequently. Even just a few minutes of standing and stretching is enough to jump start your heart and muscles.

Breathe deeply. Learning how to inhale and exhale completely can energize you. Focus your attention on your breath and try this exercise. Slowly inhale to a count of 6. Hold your breath for a count of 3. Then, exhale for a count of 6, completely releasing all of your breath and relaxing your muscles as you do so. Repeat 4 additional times.



DAILY ENERGY ASSESSMENT

How is your energy level?

Low



- Some light exercise can help you feel better. Walking or yoga are good options – try to do just 10 minutes at an easy and comfortable pace and see if it helps.



Medium



- Try to get at least 30 minutes of moderate aerobic exercise. The exercise doesn't have to be intense – just move your body and you might feel more energized afterward.
- Alternatively, try resistance training with bands (long, wide rubber bands or tubing) – this focuses the work on specific muscles rather than the whole body, so you can choose!



High



- Try to put your energy to good use by getting at least 30 minutes of aerobic exercise. Exercise at a level that increases your heart rate and breathing and causes you to break a sweat. You are exercising at the right level when you can talk in short sentences, but not sing.

OR

- Perform a resistance exercise workout. Choose 8-10 different exercises that work all major muscle groups (legs, hips/glutes, back, chest, arms, abs). Strive to do 2-3 sets of 8-12 repetitions for each exercise.

NUTRITION AND FATIGUE

EATING STRATEGIES TO OPTIMIZE ENERGY

Drink plenty of water; aim for at least eight cups of water daily. Mild dehydration can contribute to fatigue.

Include plenty of vegetables and fruits such as broccoli, kale, spinach, winter squash, berries, sweet potatoes, and carrots. Plan to fill at least half your plate with vegetables at two or more meals each day.

Limit added sugars and refined, processed foods. Sugary, processed foods such as sweets, muffins, and sugary drinks often make you feel more tired after the quick “sugar boost” wears off.

Replace processed foods with whole grains and beans/legumes. Because these foods contain nutrients and fiber, they provide a more sustainable energy source.

- Whole grains include oats, barley, millet, quinoa, amaranth, brown or wild rice, bulgur, buckwheat, kamut, rye, spelt, teff, whole wheat and more...
- Check that the first ingredient of bread or grain products contains the word “whole” or “sprouted”.

Include protein in every meal and snack. Protein helps maintain steady blood sugar and energy levels. Healthy protein rich foods include:

- Beans and legumes (including soy)
- Fish
- Chicken or turkey without the skin
- Egg whites
- Nuts and seeds
- Plain, low-fat yogurt (especially Greek yogurt)



NUTRITION AND FATIGUE

Like protein, eating small amounts of healthy fats will prevent blood sugar and energy levels from dropping between meals.

Healthy fats are those found in nuts and seeds, fatty fish like salmon or sardines, avocados, and extra-virgin olive oil.

Fatigue and muscle weakness can be worse if vitamin D levels are low. Ask your doctor to check your vitamin D level and discuss whether a vitamin D supplement may be appropriate for you. Sources of Vitamin D include sunlight, supplements, fish, and fortified foods. Patients on hormone therapy are typically asked to take vitamin D and calcium pills daily.

Avoid nutrition “energy busters” including:

- Skipping meals, especially breakfast
- Large meals, especially the evening meal
- Empty calories from processed snacks and sugary drinks
- Too much caffeine and/or alcohol

Make a plan to eat well even when you are tired:

- When cooking, prepare extra and freeze individual portions for later.
- Stock up when shopping and use grocery delivery if available.
- Keep it simple by using healthy convenience foods such as canned tuna, sardines, beans, pre-cooked whole grains, frozen vegetables or fruits, and low sodium vegetable soups.
- Conserve energy when cooking by using a stool to sit during food prep, if needed.
- Use time saving appliances such as a food processor, crock pot, rice cooker, or pressure cooker.
- Let family and friends help with cooking, shopping, and errands. Provide them with recipes or grocery lists to make it easier for them to help you get what you need.

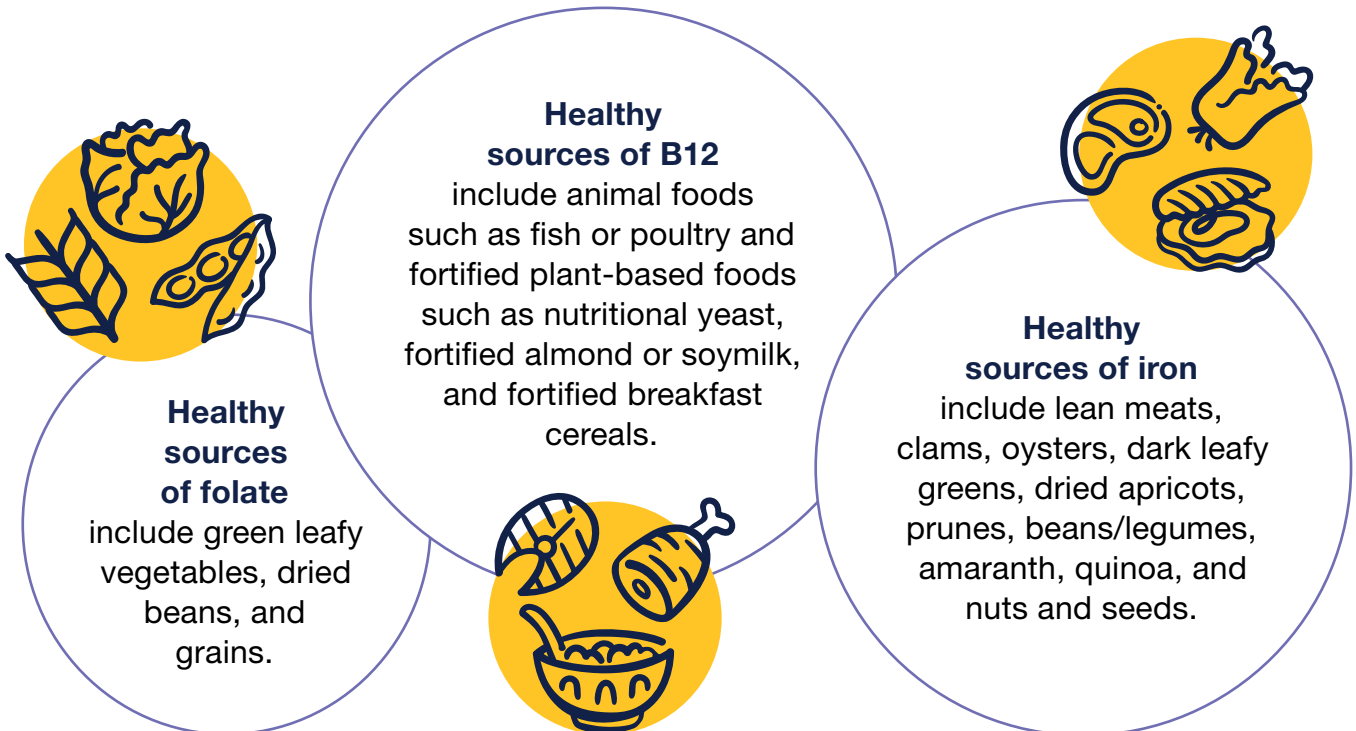


NUTRITION AND ANEMIA



Cancer and cancer treatments (including some forms of radiotherapy and chemotherapy) can cause anemia, a condition where there are not enough healthy red blood cells to deliver adequate oxygen to the tissues throughout the body. Anemia causes fatigue.

The body requires nutrients such as folate, vitamin B12, and iron in order to make red blood cells. It is important to improve food sources of these nutrients rather than taking supplements. However, vegetarians and vegans may be low in vitamin B12 and/or iron. Talk to your doctor about whether supplementation is right for you, before taking any supplements.



MEAL & SNACK IDEAS TO OPTIMIZE ENERGY

MEALS

| Meal Idea | Protein | Carbohydrate | Vegetables/ Fruits | Healthy Fat |
|--|--|--|--|---|
| Hot cereal w/soy milk, nuts and fruit | 1 cup unsweetened soy milk | 1 cup cooked hot cereal (oatmeal, kasha, quinoa or millet) | 1/2 cup fresh or frozen berries | 2 tablespoons chopped nuts or ground flax seed |
| Turkey and avocado or hummus sandwich and fruit | 2 oz fresh roasted turkey (not deli or processed meat) | 2 slices whole grain bread | Lettuce, tomato, peppers Small piece of fruit | 2 tablespoons of avocado or hummus |
| Large salad | 1/2 cup lentils or 3 oz salmon or chicken breast | 1/2 cup cooked barley or farro | 1 - 2 cups salad greens + 1 cup vegetables of choice Squeeze of lemon | 2 tablespoons oil-based vinaigrette dressing + 5 olives |
| Stir fry | 3 oz of cooked chicken, fish, tofu or tempeh | 1/2 - 2/3 cup cooked brown rice, quinoa or barley | 1 cup fresh or frozen vegetables such as broccoli or cauliflower | 2 teaspoons avocado oil for stir-frying |

SNACKS

| Snack Ideas | Protein & Healthy Fat | Carbohydrate |
|--------------------------------------|--|---|
| Crackers/toast and nut butter | 2 tablespoons almond or natural peanut butter | 2 - 4 whole grain crackers or 1 slice whole grain toast |
| Hummus and vegetables | 1/4 cup hummus | 1 cup raw vegetables such as carrots, radishes, broccoli |
| Fruit and nuts | 1/4 cup raw or dry roasted nuts or seeds | 1 small piece of fruit such as an orange, apple, or pear |
| Homemade trail mix | 2 tablespoons nuts/seeds such as almonds or walnuts | 1/4 whole grain cereal + 1 tablespoon dried fruit |
| Blended fruit smoothie | 1 cup unsweetened soymilk or 1 cup unsweetened almond or rice milk with 1 scoop protein powder | 1 cup fruit (fresh or frozen berries or other seasonal fruit) + 1 cup leafy greens such as baby kale or spinach |

LIFESTYLE TIPS TO COMBAT SIDE EFFECTS

RADIATION TREATMENT AND BOWEL HABITS

Radiation therapy to the prostate may cause changes to bowel habits including increased frequency or urgency of bowel movements, flatulence, loose stool, thinner stool, and diarrhea. These symptoms usually occur after the second or third week of treatment in the longer radiation protocols and earlier when radiation is delivered in shorter protocols. Symptoms may peak after radiation ends but will resolve within a few weeks after treatment.

- Try to avoid or reduce fried foods, greasy foods, and highly spiced foods.
- Reduce foods with insoluble fiber, such as lettuce and raw vegetables, and increase soluble-fiber foods, such as bananas, applesauce, oatmeal, peeled and cooked fruits and vegetables.
- Maintain your intake of lean protein, such as turkey, chicken and fish.
- Increase your fluid intake to avoid dehydration.
- Ask your doctor about using Imodium® (loperamide), an over-the-counter medication, if you develop diarrhea.



RADIATION TREATMENT AND LYMPHEDEMA

Radiation therapy may damage the lymphatic system and lymph nodes and result in a small increased risk of lymphedema (swelling). Patients who had prior surgery and radiation are at the highest risk of lymphedema, but the risk is still low. When it happens, the symptoms are usually mild. The most common places for lymphedema to occur after prostate cancer radiation treatment are the leg, pelvic area, and genitals. Managing lymphedema is very important. Lymphedema tends to be easier to treat when diagnosed early – not only for general comfort and ease of movement, but also because trapped fluid can make it easier to develop a serious infection and destruction of the skin.

Practical steps to prevent and control lymphedema:

- Monitor yourself for signs of infection including pain, redness, heat, fever, and red streaks under the skin.
- Avoid having an injection or needle stick in the affected area, and protect the skin while gardening, cooking, or performing any other activity that could lead to cuts, bruises, scrapes, and insect bites.

LIFESTYLE TIPS TO COMBAT SIDE EFFECTS

- If you notice you have a concerning cut, bruise, or any signs of infection, contact your doctor immediately.
- Wear sunscreen and bug spray when outside, and practice hygienic behaviors when shaving and using razors.
- Practice gentle exercise (pre-approved by your doctor) to prevent and manage lymphedema.
- Avoid crossing your legs, sitting, or standing in one position for more than 30 minutes.
- Getting up to walk around frequently can be a simple, yet efficient, way to reduce swelling.
- Avoid tight clothing and extreme temperatures (both very hot and very cold) to reduce lymphedema and increase fluid movement and drainage.
- Treatment options can involve raising the legs, massage designed to help drain fluid, skin care, wearing custom fitted compression socks, or devices to help the flow of lymph fluid and prevent future swelling.
- Ask your doctor about pain medications, pain-relieving relaxation techniques, referral to physical therapy, or other medication to reduce inflammation, treat infections, and prevent blood clots.



Source: Lymphedema (PDQ)—Patient Version. National Institute of Health: National Cancer Institute. <https://www.cancer.gov/about-cancer/treatment/side-effects/lymphedema/lymphedema-pdq>. Updated Sept 19, 2019. Accessed February 2, 2021.

RESOURCES

Our team aims to improve patient care through lifestyle studies and publications. Access our freely available materials at <https://urology.ucsf.edu/lifestyle/resources>

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