



## Strengthening During and After Cancer

**Disclaimer: You should discuss your health risks with your provider before starting any exercise program.**

Strength or resistance training has a lot of benefits including:

- Strengthening your bone density.
- Maintains or increases your muscle mass.
- Helps to prevent falls.
- Reducing levels of cancer-related fatigue.
- Improving mood.
- Improving overall quality of life.

Your muscle strength and bone density may decrease during and after cancer treatments which can impact your ability to walk safely, to walk confidently, and to walk fast enough to go out into the community (think about speed to cross the street).

Some things that can lower your strength or bone density during the cancer experience are:

- Being less active: Lower amounts of your regular activity or your regular exercise will cause your muscles to lose strength and endurance.
- Cancer treatments: Some of the very important and necessary treatments for cancer also have side effects that impact your muscles and bones. Some chemotherapy agents affect your muscles, contributing to weakness. Steroids, especially if given in high doses or for long periods of time cause muscle weakness and lower the strength of your bones.
- Changes in diet or nutrition: During treatment, you may experience changes in your diet or nutrition due to altered taste, nausea, or diarrhea. Your muscles may get weaker if they aren't given adequate nutrition to keep their strength.

There will be days when you should not do strength-training exercises.

- Strength training should not be done when your platelet count is below 50,000 due to the risk of bleeding.
- Strength training should not be done if you feel off balance or dizzy.
- If you have metastases (cancer that has spread) to your bones or a primary bone cancer, you should discuss the safety of strength training with your oncologist before beginning any program.

## How INTENSE should this strength-training workout be?

In order for you to increase your muscle strength, you need to OVERLOAD the muscles. This means using a weight that makes the exercise difficult, but not impossible!

On a scale from 0-10, 0 indicates "no effort at all" and 10 indicates "maximum effort, I can't do one more repetition."

Aim for a 3-4/10 or moderate effort when you are performing these exercises. The last repetition of each exercise should be difficult, and your muscles should feel tired.

Thanks to oncology rehabilitation researchers and guidelines from the **American College of Sports Medicine**, we now know more precise strength training amounts that you should perform to alleviate some common things that people with cancer experience. **Visit these guidelines [here](#).**

### **To improve energy levels and reduce cancer-related fatigue:**

- Strength train 2 times per week.
- Perform 2 sets (repeat the exercises 2 times).
- In each set, lift the weight 12-15 times (repetitions or reps).
- Perform strength training at a moderate intensity.

### **To improve health-related quality of life:**

- Strength train 2 times per week.
- Perform 2 sets.
- In each set, lift the weight 8-15 times (reps).
- Perform strength training at a moderate to vigorous intensity.

### **To improve physical function:**

- Strength train 2-3 times per week.
- Perform 2 sets.
- In each set, lift the weight 8-12 times (reps).
- Perform strength training at a moderate to vigorous intensity.

The following exercises can be modified to adjust for any muscle or bone issues that you may have (i.e., low back pain, osteoarthritis, etc.). They can also be modified to increase the difficulty should you need more challenge. If you need assistance with exercises or guidance, seek out a physical therapist who specializes in cancer rehabilitation. Find a PT here: <https://aptaapps.apta.org/APTAPTDirectory/FindAPTDirectory.aspx>

## Exercises

Click on each exercise to learn how to do it and precautions to take.

[Straight Leg Raise - Quadriceps \(thigh muscles\)](#)

[Standing Hip Flexion – Quadriceps and Iliopsoas \(thigh muscles\)](#)

[Standing Hip Extension – Gluteus Musculature \(buttocks\)](#)

[Standing Hip Abduction – Gluteus Medius](#)

[Wall Slides & Standing Squats](#)

[Heel Lifts – Gastrocnemius and Soleus \(calf muscles\)](#)

[Lunges: Quadriceps, Hamstrings, Gluteus Maximus](#)

[Standing, Sitting, or Lying Alternating Elbow-to-Knee: Abdominals](#)

[Step Ups: Hip Flexors, Quadriceps, Hamstrings, Gluteus Maximus](#)

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