



**ELITE**  
PERSONAL TRAINING & FITNESS SOLUTIONS

# HEALTH TOPIC OF THE WEEK

## 1/22 - Muscle Soreness: Everything You Need to Know

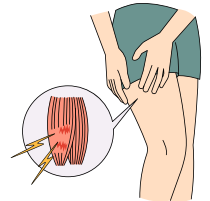
### Introduction

If you want to build muscle, gain strength and improve body composition, muscle soreness is inevitable. Yet everywhere you look, someone is promoting the latest and greatest hack for relieving sore muscles.



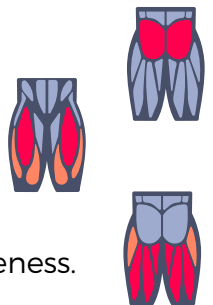
### What causes muscle soreness?

- During exercise, your muscle fibers get micro-tears. To repair damaged muscles, your body responds with acute inflammation to absorb the damaged cells and get rid of them. This breakdown and repair process is how you gradually get stronger, fitter, and grow muscle.
- You do not need to experience muscle soreness for there to be improvement. Muscle soreness typically happens when you try a new exercise or increase your training intensity.
- Appropriate muscle soreness is unpleasant but manageable. Note that this is different from significant pain due to an injury.



### Which exercises contribute the most to muscle soreness?

- Every time you exercise, you create some muscle damage, but that doesn't mean you'll be sore after every workout. Bigger muscle groups like your quadriceps, hamstrings, and glutes might be more prone to soreness. Likewise, certain types of exercise may create more damage and, by extension, more soreness.
- Eccentric movements, focusing on the "negative" or the lowering aspect of the exercise, tend to create more micro damage and therefore a higher level of soreness. So, walking or running down a hill [more eccentric exercise] would create more delayed onset muscle soreness than walking or running uphill.



Elite Personal Training and Fitness Solutions does not provide medical treatment or intervention. We acknowledge scientific evidence that appropriately intensive exercise and sustainable nutritional intervention can have significant impact on chronic health disorders and obesity, dramatically improving symptoms when recommendations are followed. Please visit us at [Eliteptf.com](http://Eliteptf.com) for more information and to schedule your evaluation.

## What are the best ways to ease muscle soreness?

### Use a percussive therapy device.

There is compelling evidence that using tools like massage guns or percussion and vibration devices can reduce pain and soreness.



### Refuel with anti-inflammatory foods and supplements.

Because muscle soreness is caused by acute inflammation, a diet rich in anti-inflammatory foods and low in pro-inflammatory foods will help combat soreness and improve recovery between exercise training sessions.



### Consume a post-workout supplement or meal that is high in protein.

A ratio of 4:1 protein to carbohydrates is ideal.



### Drink plenty of water.

Adequate water consumption helps maintain hydration, which is beneficial for decreasing inflammation.

### Cold versus Hot

Cold is clearly the modality of choice when there is injury and significant inflammation. However, there is a long-standing debate in the sports medicine and fitness space whether to use ice or heat to relieve muscle soreness from exercise. The research doesn't point to one clear winner.



### Cryotherapy

This refers to the application of cold or ice in various forms. Ice baths, cold showers and ice packs are all effective ways to reduce muscle soreness. Don't overdo it, though. Ice baths can impair muscle growth, and ice packs can be left on too long. Ice baths may be more appropriate for athletes who need short-term recovery. Ice packs should only be used for approximately 10 minutes.



### Turn up the heat.

Heat therapy includes using a heating pad or a moist hot pack, enjoying a warm soak in the tub or sitting in a Jacuzzi. Heat increases circulation, which removes lactic acid and relieves tight and sore muscles.

If you're going to enjoy a warm soak, make sure you add Epsom salt. Epsom salts are crystals of hydrated magnesium sulfate that are absorbed through the skin. They reduce muscle soreness and promote overall relaxation.



Tip of the week (1/22), page 2

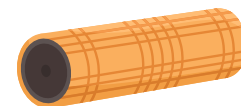
At the end of the day, hot and cold therapies are safe for most adults who are using them appropriately, so it basically comes down to personal preference. You may even consider combining them into a hot-cold routine.

There are a few contraindications, though. Given the vascular implications in the temperature extremes, those with uncontrolled heart and blood pressure conditions should avoid using hot and cold therapies.

## Popular, but not significantly effective strategies, to reduce muscle soreness:

### Foam Rolling

Self-myofascial release [SMR] is a popular intervention that uses tools like foam rollers, lacrosse balls or massage sticks to help relieve tension muscles, improve muscular performance and alleviate muscle soreness.



However, the effect of foam rolling on muscle soreness is negligible and is better used as a warm-up activity.

### Stretching

Stretching is another topic of considerable debate in the fitness world. There are significant benefits for warm-up, injury prevention and improved athletic performance.



However, studies show that there is no significant reduction in delayed onset muscle soreness in healthy adults from stretching alone.

### Taking NSAIDs

When you're sore, you might be tempted to take an over-the-counter anti-inflammatory pain reliever like ibuprofen or Aleve.



However, EPT does not recommend doing this with any regularity. Although nonsteroidal anti-inflammatory drugs may quickly relieve the pain associated with muscle soreness, suppressing inflammation during this recovery process can actually slow recovery in the long-term and negatively impact muscle growth. Remember, that acute inflammation is a necessary part of the recovery and muscle-building process. Taking drugs to prevent this process is seldom a good idea.



## How to Prevent Unnecessary Muscle Soreness:

Muscle soreness, while totally normal and not completely avoidable, can be an unpleasant and frustrating side effect of new or more intense exercise. Here are a few strategies to minimize unnecessary soreness in the first place:

SCAN ME

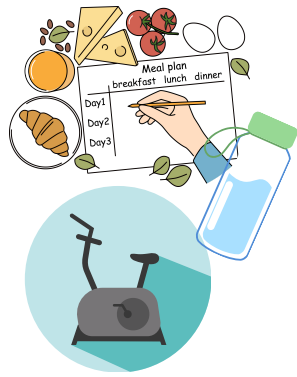


Tip of the week (1/22), page 3



## Pre-workout

- Have a pre-workout meal approximately 30 – 40 minutes before training session. This typically would be low-protein and higher complex carbohydrate to fuel your training session.
- Maintain hydration.
- Warm up with dynamic exercises like biking, jumping rope, lifting lighter weights and dynamic stretches.



## During Your Workout

- Follow a prescribed exercise program so that you are performing the correct exercises with proper form and intensity.
- Stay hydrated.



## Post-workout

Consume a post-workout meal or snack ideally within 45 minutes of your training session.

The priorities are:

- Repair with protein
- Refuel with carbohydrates
- Rehydrate



There are many post-workout commercial beverages available. Please consult with EPT before wasting unnecessary money. Some of these are excellent and others are awful.

One of my favorite post-workout snacks is a smoothie with tart cherry juice, one scoop of vanilla whey protein and handful of mixed berries. This smoothie recipe helps replenish hydration, fight inflammation and soreness and re-build and refuel your muscles.

## Muscle soreness summary

Sore muscles, though uncomfortable, come with the territory of getting stronger. That said, there are some things you can do before, during, and after exercising to bring the pain down. There's some compelling research on the benefits of percussion therapy, ice baths, and hot therapy for easing muscle soreness and assisting with recovery.

If you have access to a massage gun or a sauna after exercising, take advantage of them. However, the best way to tend to your muscles is to eat a healthy diet, stay hydrated, and ensure you're resting enough. Prioritize anti-inflammatory foods before and after training, drink plenty of water, and of course try to get a solid night's sleep every night to help your body bounce back after the work you put it through.

Muscle soreness is just one of the many complexities of exercise. Let EPT guide you through the process to maximize results and minimize injury, setbacks and muscle soreness.



Tip of the week (1/22), page 4



This article was contributed by Dave Trumbore PT, DPT, CSCI, CWT, CPI, CFNP. For his bio, please see <https://www.eliteptf.com/david-trumbore>

## References

<https://pubmed.ncbi.nlm.nih.gov/12617692/>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3939523/>  
<https://pubmed.ncbi.nlm.nih.gov/33212797/>  
<https://pubmed.ncbi.nlm.nih.gov/34030963/>  
<https://pubmed.ncbi.nlm.nih.gov/35584623/>  
<https://pubmed.ncbi.nlm.nih.gov/36399666/>  
<https://pubmed.ncbi.nlm.nih.gov/33493991/>  
<https://pubmed.ncbi.nlm.nih.gov/31788800/>  
<https://link.springer.com/article/10.1007/s40279-020-01362-0>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5285720/>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7492448/>  
<https://pubmed.ncbi.nlm.nih.gov/27454218/>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9778753/>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5579607/>  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6465761/>  
<https://pubmed.ncbi.nlm.nih.gov/21735398/>  
<https://pubmed.ncbi.nlm.nih.gov/34025459/>  
<https://pubmed.ncbi.nlm.nih.gov/23013520/>  
<https://pubmed.ncbi.nlm.nih.gov/17535144/>

SCAN ME



Tip of the week (1/22), page 5

