



# Exercise is Anti-Inflammatory

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## Conditioning

Regular exercise improves almost every aspect of life, including sleep. Activities can involve aerobics, resistance training, or both. However, per the sleep hygiene principles, intense exercise should not be performed in the evening. If you must exercise late in the day, keep it light and relaxing; otherwise you will trigger an adrenaline response, which greatly disturbs sleep.

The key to incorporating exercise into your care is to select an activity you enjoy from the start. Exercise is a long-term commitment and it is important to have fun while you do it. It's easy to look at your exercise equipment at home and feel bad that you aren't using it more than you should; but those thoughts are counter-productive to your healing. That's why I strongly encourage my patients to exercise outside their homes. If you reframe exercise as a reward comprised of leaving the house and moving your body, you're more apt to keep it up.



Invite a friend to join you, take a neighbor's dog for a walk, accompany a grandchild to the park, join a local team—all of these activities allow you to connect not only with your body, but also with your community. The experience of connection in itself promotes a feeling of safety and lowers inflammatory markers.

## The weight room

Strength training is a significant factor in reducing pain and improving your sense of well-being. This would be expected to elevate your levels of Anti-I cytokines. I think there are several reasons. First, there is the obvious benefit of having more strength, so a smaller percentage of your energy is spent on daily activities. You are able to stay well away from the pain threshold.

Second, you have more capacity to engage in vigorous physical activities that are enjoyable and relaxing. Actively placing your attention on these neurological circuits stimulates neuroplasticity in a desirable direction. Many of these activities can be shared with other people. Social isolation is over 50% in the US (Cigna) and spending quality time with others is part of staying healthy.

Third, although it's not going to be at the level of the long-distance runner, there is some degree of endorphin response with strength training. (**Endorphins** and **enkephalins** are the body's natural pain killers.)

Finally, I feel the most important contribution that strength training adds is a reprogramming function. You are now sending a different set of signals from the body parts that are normally firing pain impulses to the brain. As you are voluntarily stressing a given muscle group, you have control as to the intensity of the signals. Somehow the combination of control and different inputs has a significant impact on pain.

I recommend that all my patients (and their spouses) work out with weights in the gym three to five hours per week, indefinitely. Many people roll their eyes. You can choose not to work out but know that it will be difficult if not impossible to recover from your pain if you're out of shape.



## The weight room is part of aging

It's been shown that people over forty-five receive a tremendous benefit from weight training. We all lose a certain percentage of muscle mass every year (estimated to be about one to two percent), so resistance training becomes more important as we age. With weight training, you not only prevent the loss, you can also

significantly improve your strength. This is the reason I ask the whole family to participate in the resistance training. Since lifespans are more than thirty years longer in the twentieth century than in earlier eras, it means each of us will lose 30 to 50 percent more of our strength (CDC). This is preventable with consistent training.