

Exercise Considerations Across Different Spectrums of Sleep

Sleep Deprivation

Sleep Deprivation can be defined as the average adult sleeping seven or less hours of sleep per night. Studies have shown that an individual who is in a calorie deficit will lose the same weight whether they sleep 5.5 hours vs 8 hours of sleep in a night, however 25% of that weight loss will be fat loss during the shorter duration of sleep while 50% of weight loss can be attributed to fat loss in the longer duration of sleep. Therefore, it can be said that sleep deprivation causes the body to favor muscle loss due to the lack of Stage 3 sleep also known as deep sleep where the body performs a significant amount of restorative work. Deep sleep is the stage of sleep where the body releases human growth hormones to repair muscle damage caused by resistance exercise or other daily stresses, and without this recovery phase, muscle protein synthesis is highly reduced.

The primary symptoms of sleep deprivation in correlation to high-intensity strength training have proven to be mostly psychological. It's no surprise that sleep deprivation causes a rise in rate of perceived exertion (RPE) and decreases in time to exhaustion especially with sub-maximal load. When applying these factors to super slow-motion strength training specifically, the best course of action may be to alter the intended workout in order to generate a manageable rate of perceived exertion. However, coping strategies for a one-time or temporary sleep disruption may include consuming stimulants such as caffeine, taking a nap to resolve sleep debt and of course, a challenging bout of exercise!

Optimal Sleep

Optimal sleep can be defined as an average adult sleeping 8 or more hours per night. Individual needs can be tracked by creating a sleep diary or using an accurate heart rate variability monitoring device. Outside of a purposeful training and a solid eating regimen, optimal sleep allows an individual to maximize their strength gains by promoting a healthy body weight, protein synthesis and reduced stress. Optimal sleep is part of the linear progression model, which gives an individual who is new to training the ability to rapidly increase both muscular size and strength within the first few months of training. An individual can still create significant strength increases without optimal sleep, however the length of time they can stay in the linear progression model will be shorter until they can alter their lifestyle to meet the recovery demands of training hard.

Linear progression in a novice client can vary from several weeks and up to about 5 or 6 months depending on their ability to control stress, sleep and diet. It's important to discuss this window of time with novice clients who have strength goals or are looking to reverse loss of bone and muscle mass.

Citations

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