
BENEFITS OF PROTEIN SUPPLEMENTATION PRIOR SLEEPING

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One of the dreams of each person is to work out without doing any exercise, for example while I am watching tv series or during sleeping. Unlucky this situation is not possible, without a continuous training most of the people cannot reach the *fitness desired*, in this case the speech "No pain, no gain" is true. On the other hand, the resting period, in particular the sleeping time, plays an important role as much the work out. Having an adequate sleeping time is important, even more for athletes: indeed, a sleep deprivation may negatively influence the physical performances and increase risk of injuries. Moreover, an alteration of satiety and hunger hormones, which causes an increase of body mass index, is related to a lack of sleep. However, during sleeping our body mass loses a small amount of proteins from our muscles (the proteins synthetize by the body is lower than the proteins we breakdown). This situation is due to the long fasting period we have in the evening: for example, if we have dinner at 8pm and we have breakfast the day after at 7am, we have about 11 hours of fasting that cause a decrease of anabolic reactions (thus protein synthesis). The ideal situations should to reduce this fasting time with another protein rich meal before going bed. However, this possibility is not so practicable for many reasons: as the digestion of solid foods that could compromise the sleep (it is not easy fall sleep after eating a steak), the lower amount of protein adsorbed and the presence of other nutrients as carbohydrate and fats that can cause a synthesis of adipose tissues. A protein supplementation before sleeping could be a better substitute, of a solid meal, as it is easier to digest, and a protein powder does not contain, or contains in smaller amount, other macronutrients. A study conducted by the Maastricht University demonstrated protein supplement administration 30 minutes before sleeping stimulates muscle protein synthesis and improves whole-body protein balance during post exercise overnight recovery. the participants of the study effectively

digested and absorbed the protein supplementation, without any side effects, and leaded net protein balance positive (protein synthetized – protein breakdown). A similar study conducted by Delft University, where anthropometric and strength test were performed, confirmed the benefits of a protein supplement administration; in this study two groups had the same training schedule but one them received a protein supplementation prior sleep while the second received a placebo. The group assigned to the supplementation had a higher increase in muscle mass and strength gains during resistance exercise training measures, compared to the placebo group. and in this case casein protein powder was used but also whey protein or combination or amino acid (a BCAA, L-Arginine, L-Glutamine and L-Lysine) have the same effect. In conclusion, protein ingestion before sleep represents an effective dietary strategy for all people want to increase the muscle mass and strength.