

## PROs and CONs of pre-workout supplements

### Preview

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We all look forward to training harder, lifting heavier weights and getting stronger. So it is absolutely no wonder that many athletes use pre-workout supplements, which promise miraculous physical efficiency, in their effort to push themselves to the limit.

To estimate the degree of efficiency that pre-workout supplements have to offer, and, which is not less important – their safety, I suggest that we explore the summary of the scientific data from the Journal of the International Society of Sports Nutrition.

### So what's in there?

Pre-workout supplements are the blend of various ingredients. Most often it is caffeine, nitric oxide (L-arginine, L-citrulline),  $\beta$ -alanine, creatine, BCAA, separate amino acids (taurine, in most cases) and others. These supplements are able to give a significant boost to your physical efficiency on your today's training as well as, in a matter of long-term usage, to improve your adaptive changes.

It's rather interesting that caffeine accounts for the major part of physical uplifting effect. 3-6 mg/kg body mass caffeine dose rapidly absorbs into the bloodstream, reaches peak levels within 60 minutes after the consumption and provides a fair ergogenic effect. 1 serving of pre-workout supplements usually contains about 300mg of caffeine, which is sufficient to reach such condition.

In a nutshell here I will explain the purpose of other ingredients that are included into pre-workout supplements:

- Taurine amino acid and/or BCAA. Consumption of 1,5 g taurine as a part of the pre-workout complex has shown the increment in strength endurance indices. BCAA are added to increase the synthesis and to decrease muscle protein breakdown, as well as to lower the damage done to muscle fibers. However, the considerable effect of BCAA intake on the athlete workability or muscle growth has not been proved yet.
- Nitric oxide (through L-arginine and L-citrulline amino acids) increases blood flow to the muscles involved in active work, which theoretically can influence positively the physical efficiency. L-arginine amino acid has direct impact on nitric oxide level, L-citrulline in turn converts into L-arginine and has vasodilatory effect. Yet, their dosage in pre-workout supplements is too low to provide such an effect.
- Creatine enhances the phosphocreatine storages in skeletal muscles and serves as a primary energy source during intensive speed-strength workout. At least 3 g creatine intake as a part of pre-workout complex increases your physical efficiency and adaptation to systematic strength trainings, if it is taken on regular basis for a long-term period.
- Beta-alanine helps you to do some extra reps. 4-6 g of this amino acid per day will improve your physical workability during high intense trainings. But you should take into account that the full advantage of beta-alanine will reveal itself during moderate or high-rep exercises (approx. 8 and higher). So most likely beta-alanine won't provide any bonuses to weightlifters that usually work within 1-4 reps range.