Athlete and (a type of supplement)

Introduction The uses of ergogenic aids (supplements) are common in athletes. A variety of such supplements like whey protein, creatine, branch-chain amino acids etc., are available. However, some companies make tall claims, and it is not always known if a supplement is genuinely helpful to an athlete. The aim of this essay is to assess one such ergogenic aid, whey protein, and determine if it is genuinely helpful to the athlete.

Cribb et al. 2006 used a double-blind study on 13 male, recreational bodybuilders who supplemented their normal diet with either hydrolyzed whey isolate (WI) or casein. The study aimed to asses the effect of these on strength, body composition, and plasma glutamine levels during a 10 week, supervised resistance training program. The results revealed that there was no change in plasma glutamine levels in either group. The group, which received whey isolate, showed a significantly greater gain in lean mass, change in fat mass and improvements in strength, when compared to the group, which received casein.

Burke et al., 2001, assessed the muscular adaptations, which occurred in 36 males randomly assigned to supplementation with whey protein alone, whey protein and creatine monohydrate, or placebo. The results indicated that the group, which supplemented with whey protein, had greater improvement in knee extension peak torque and lean tissue mass than those who trained with placebo. Those who supplemented with a combination of whey protein and creatine had greater increases in lean tissue mass and bench press than those who supplemented with only whey protein or placebo.

However, it was noted that not all strength measures were improved with supplementation; the group who supplemented with creatine and/or whey protein and the placebo group had similar increases in squat strength and

knee flexion peak torque.

Cribb et al., 2007, aimed to examine the effects of whey protein (WP) and creatine monohydrate (CrM) (both separately and in combination), on body composition, muscle strength, fiber-specific hypertrophy (i. e., type I, IIa, IIx), and contractile protein accrual during a 11-week structured, supervised RE program. This was a double-blind randomized study involving resistance-trained males placed into one of the four groups: creatine/carbohydrate (CrCHO), creatine/whey protein (CrWP), whey protein (WP) only, or carbohydrate only (CHO). Assessments (completed the week before and after the RE program) included strength (1RM, three exercises), body composition (DEXA), and vastus lateralis muscle biopsies for determination of muscle fiber type (I, IIa, IIx), cross-sectional area (CSA), contractile protein, and creatine (Cr) content.

The results indicated that a significantly greater 1RM strength improvements and muscle hypertrophy was present in the CrCHO, WP, and CrWP group than the CHO group. However, there was a variation in the hypertrophy responses (changes in lean mass, fiber-specific hypertrophy, and contractile protein content) in these groups. The authors concluded that although whey protein and/or creatine monohydrate promoted greater strength gains and muscle morphology, there was a variation in the hypertrophy responses, which requires further studies.

Conclusion

An analysis of these studies show that whey protein is helpful in achieving a greater gain in lean mass, and improvements in strength, especially when combined with creatine. However, not all strength measures were improved, and there is a variation in the hypertrophy responses. It can be concluded

that whey protein is a genuine ergogenic aid.

References

Burke DG, Chilibeck PD, Davidson KS, Candow DG, Farthing J, Smith-Palmer T (2001). The effect of whey protein supplementation with and without creatine monohydrate combined with resistance training on lean tissue mass and muscle strength. Int J Sport Nutr Exerc Metab. 11(3): 349-64.

Cribb PJ, Williams AD, Carey MF, Hayes A (2006). The effect of whey isolate and resistance training on strength, body composition, and plasma glutamine. Int J Sport Nutr Exerc Metab. 16(5): 494-509.

Cribb PJ, Williams AD, Stathis CG, Carey MF, Hayes A (2007). Effects of whey isolate, creatine, and resistance training on muscle hypertrophy. Med Sci Sports Exerc. 39(2): 298-307.