

PeptoPro® reduces post-exercise muscle damage and muscle soreness (Study 1)

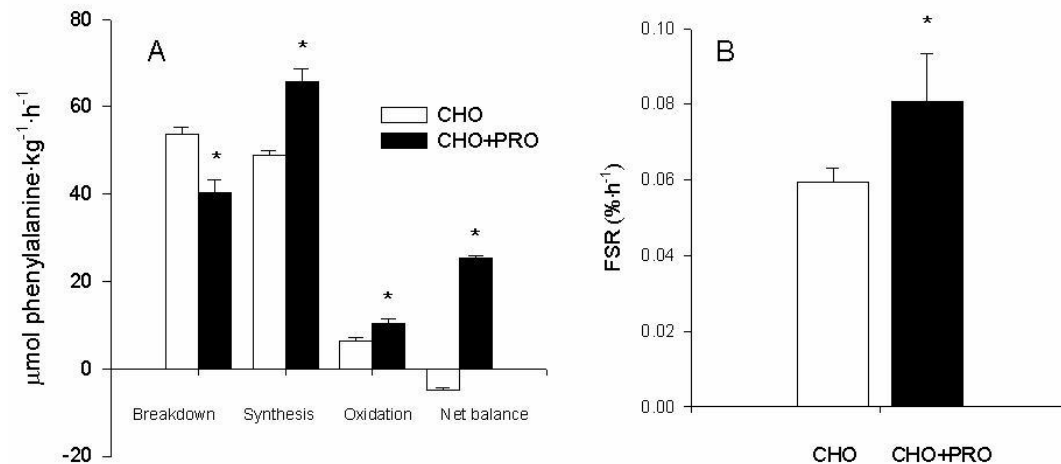
Protein ingested with a sports drink provides building blocks for muscular protein (re-)synthesis. Normally during exercise, muscle protein breakdown is larger than synthesis thus muscles are in a negative protein balance. The provision of amino acids may reduce breakdown and promote synthesis. This was investigated through an experiment conducted at Maastricht University, the Netherlands.

Procedure

Ten healthy, young male volunteers performed two tests, separated by at least two weeks. After a day in which they consumed food, they came to the laboratory in the evening. Subjects were, thus, not in a fasted state. An infusion of stable isotope-labelled amino acids was applied and after 1 hour volunteers performed resistance-type exercise for ~2 hours. Blood samples and muscle biopsies were taken. The biopsies were taken just prior to and after the 2 hour bout of exercise from the *vastus lateralis*, permitting the measurement of enrichment in muscle protein and calculation of muscle protein synthesis. Whole body protein metabolism was calculated from the blood samples. Every 15 minutes during exercise, subjects received a test drink (1.5 ml.kg⁻¹). The drinks contained carbohydrates only (CHO), or CHO + PeptoPro®, and provided 0.15 g CHO and 0 or 0.15 g protein.kg⁻¹.h⁻¹. To stimulate gastric emptying, the first bolus of drink provided was larger (4.5 ml.kg⁻¹) then those during exercise.

Results

Results for whole body protein metabolism and muscle protein synthesis are presented in the figure below.



Addition of PeptoPro® to the carbohydrate drink reduced whole body protein breakdown and increased protein synthesis. Despite a significant increased oxidation, the result was that during exercise net protein balance was positive when co-ingesting PeptoPro® with carbohydrates, while it was negative when consuming carbohydrates alone.

A similar effect was observed in the muscle: protein synthesis was significantly increased by the PeptoPro® treatment.

Conclusion

During exercise, individuals are usually in a negative protein balance. This means that protein breakdown is larger than protein synthesis. Consuming a drink which includes PeptoPro® reverses the protein balance in favour of protein building, even during exercise. Protein synthesis was found to increase in the muscles.

PeptoPro® reduces post-exercise muscle damage and muscle soreness (Study 2)

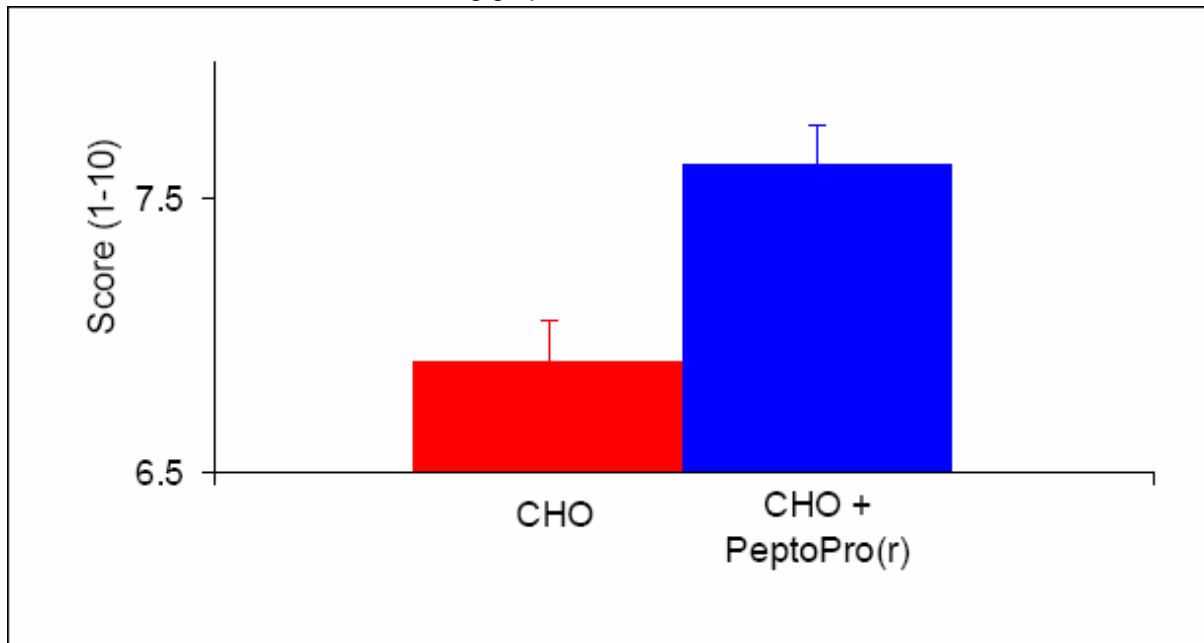
Improved protein balance results in protection or a faster repair of muscle tissue. This may result in a decrease in muscle damage and, subsequently, in less post-exercise muscle damage. This was investigated in different experiments. Results of an experiment performed at Olympia Stützpunkt Rhein-Ruhr in Essen, Germany, are reported here.

Procedure

The procedure is as shown in the example on post-exercise recovery. Muscle soreness was tested in the same experiment. Directly after the second bout of exercise, athletes filled out a questionnaire. One of the questions asked was: "Do you feel muscle pain?" Answers were given on a 10-point scale with 1 = bad feeling, serious muscular pain, and 10 = feeling very well, no muscle pain at all.

Results

The results are indicated in the following graph.



Conclusion

After drinking a sports drink containing PeptoPro®, muscle pain is significantly lower compared to consuming a drink containing only carbohydrates.