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Impact of a supplementation with NUTRALYS® pea protein or whey proteins on muscle mass and muscular strength in trained volunteers

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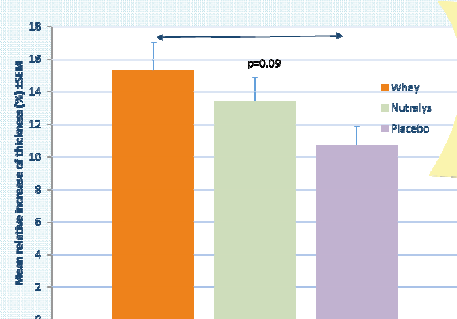
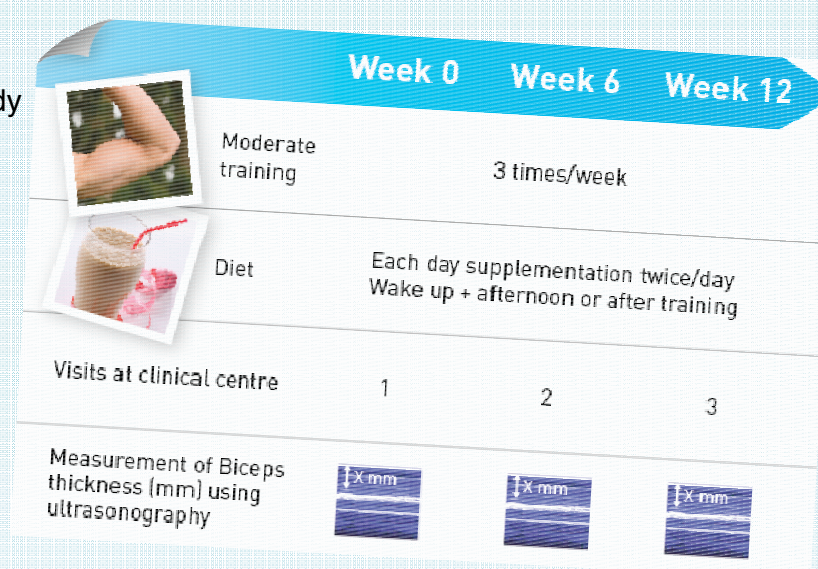
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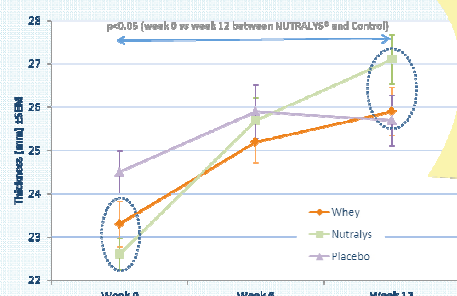
Protein supplementation in sport nutrition is of common use. Today, alternatives to animal protein are a matter of concern from sustainable, ethical, and nutritional perspectives. The vegetable pea protein NUTRALYS® displays a very good digestibility of 97% and a high PDCAAS of 93%⁽¹⁾ and therefore can be a good candidate for nutrition supplementation in sport. The current study aims at comparing the respective impacts of supplementations either with NUTRALYS® pea protein or with whey proteins on muscles.

- Randomized, double-blind, placebo-controlled, parallel study
- n=52 or 54 /group - 18 to 35 years - occasional or moderate sports activity
- 12 weeks supplementation
- Moderate training 3 times/week
- Isocaloric beverages - twice a day:
 - Control group: no protein (maltodextrin)
 - NUTRALYS® group: 50g pea protein/day
 - Whey group: 50g whey proteins/day
- Measurements at each visit (W0 - W6 - W12):
 - Muscular mass: biceps brachii thickness using ultrasonography (Esaote Biomedica)
 - Muscular strength: isokinetic ergometer (Biodex)



- All groups similar at baseline
- Relative increase of the absolute muscle thickness in all groups
- Tendency in increase of the relative muscle thickness between groups in the global population from week 0 to week 12 (ANOVA: p=0.09)

Figure 1: relative increase in percent of the initial thickness of the biceps brachii over the study in the global population



- Significant relative increase of the muscle thickness in the NUTRALYS® group vs placebo (Scheffé's test) - not observed in the whey group; results observed in a selected sub population with less muscular strength at baseline (1-RM<25 kg)
- Muscular strength was not increased by any type of supplementation

Figure 2: evolution of the thickness of the biceps brachii over the study. Statistical analysis in the population with a moderate muscular strength (1-RM<25kg)

Thanks to a Scheffé's test performed in a sub-population with moderate muscular strength, we were able to discriminate between diets which one was responsible for the significant increase observed in the "protein supplemented group" (NUTRALYS® & Whey).

In addition to an expected growth of muscle mass linked to the training, NUTRALYS® pea protein had a stronger impact on muscle mass in people with a higher potential of muscular growth.

The very good digestibility of NUTRALYS® pea protein⁽¹⁾ but also its richness in arginine⁽²⁾ as well as its intermediate fast kinetic of digestion⁽³⁾ might explain these very promising results in sports nutrition.

- The current study was the first to show a beneficial impact of pea proteins on muscle mass gain in a supplementation trial for sport nutrition
- According to these results and combining them with its good digestibility, NUTRALYS® pea protein seems to be a good candidate in the context of combining sustainable vegetable proteins and animal proteins in sport nutrition

Pea proteins, muscle, sport nutrition

⁽¹⁾ Yang et al., Evaluation of Nutritional Quality of a Novel Pea Protein, *Agro Food Industry High Tech*, 2012, 23(6): 8-10.

⁽²⁾ Miller et al., Benefits of vegetable proteins in athletes and physically active adults: emphasis on Nutralys® pea protein isolate. www.nutraingredients.com [online], October 29, 2010

⁽³⁾ Roquette Frères communication