

Preclinical studies on innovative clinical nutrition

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VitalNext Life Science Innovation

Objective

To determine whether **Vital01**, a novel, proprietary clinical nutrition has health benefits over existing oral nutritional supplements (ONS), for treating malnourished patients.

Vital01

an innovative food for special medical purposes to drastically improve the treatment of malnourished elderly patients:

- Optimized protein composition
- High levels of branched chain amino acids
- High concentration of Vitamin D
- Ursolic acid; a triterpenoid found in peels of apples
- Powder based formula



Methods

- Healthy adult mice were calory restricted until they lost 25% of body weight.
- Next, these mice were fed regular animal feed (RAF) or animal feed supplemented with standard oral nutritional supplement (ONS) or Vital01.
- Treatments were normalized on protein content.



Conclusion

Vital01 rapidly restored body weight and improved gain of muscle mass in a more efficient manner than a currently available ONS. Inhibitory effects on muscle degradation could be attributed to the presence of ursolic acid.

Additionally, Vital01 activated pathways involved in immune surveillance and inflammatory responses, potentially leading to a protective health effect.

Next steps: A comparable clinical trial in elderly malnourished patients has started in July 2016 in collaboration with Wageningen University.

Results

Body weight increases more rapidly during refeeding with Vital01

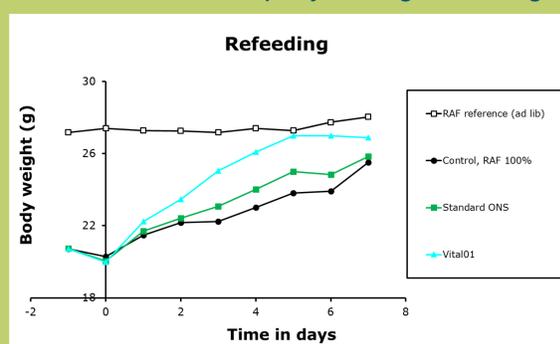


Figure 1. Refeeding with Vital01 resulted in a statistically significant faster weight gain compared to standard ONS or RAF.

Lean mass increases more rapidly during refeeding with Vital01

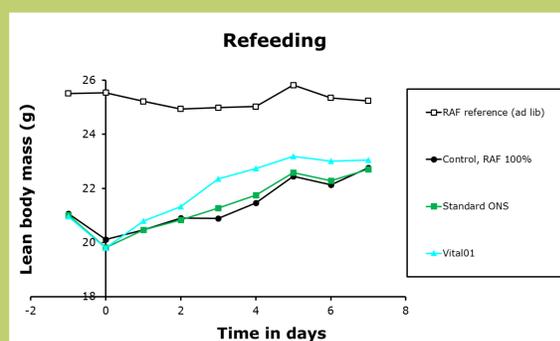


Figure 2. Lean body mass (indicative for muscle mass) also increased faster in Vital01-fed animals than in RAF or standard ONS-fed animals (supported by analysis of isolated muscle tissue).

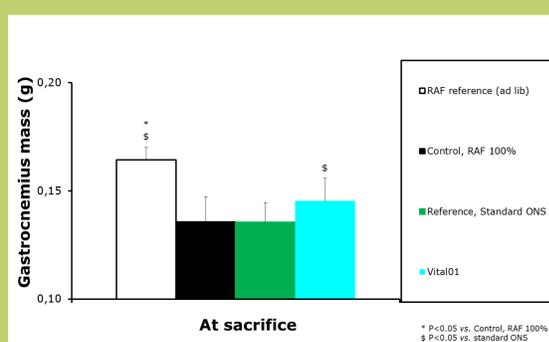


Figure 3. Gastrocnemius mass also increased faster in Vital01-fed animals than in RAF or standard ONS-fed animals.

Effects on pathways involved in muscle growth and degradation

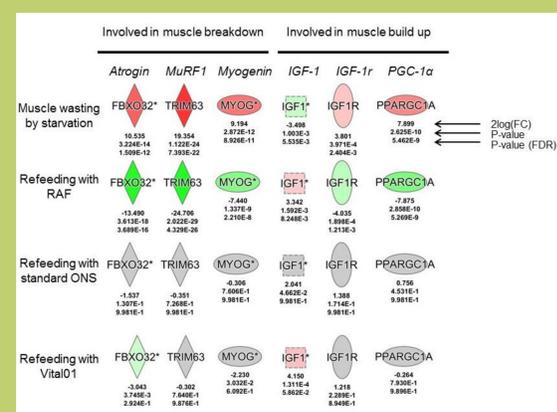


Figure 4. Transcriptome analysis of muscle tissue showed that Vital01, in comparison to RAF and ONS enhanced the IGF-pathway (involved in muscle growth) and reduced Atrogin1-expression (involved in muscle degradation).



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