

# Targeted Medical Nutrition in Pre-Cachectic Patients with Non-Small-Cell Lung Cancer

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## Targeted Medical Nutrition in Pre-Cachectic Patients with Non-Small-Cell Lung Cancer: A Subgroup Analysis

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Nutritional support is recommended for malnourished patients receiving anticancer treatment. In a recently executed pilot, double-blind, comparator-controlled trial evaluating the safety, and tolerability of an oral targeted medical nutrition (TMN) supplement -containing n-3 polyunsaturated fatty acids (PUFAs), vitamin D3, and whey protein - in patients with non-small-cell lung cancer (NSCLC), a post-hoc analysis showed that patients with pre-cachexia, i.e., subjects having early signs of cachexia, had less side effects and an improved survival vs. the comparator group that did not receive TMN (1).

Based on this potentially important observation we have looked in more detail at the subgroup of pre-cachectic individuals that had received oral TMN. No significant differences were observed between pre-cachectic on control ( $n=14$ ) and pre-cachectic on TMN ( $n=14$ ) in adverse event profile, body composition and metabolic parameters. However, the pre-cachectic subjects on TMN were functionally improved vs. the control group in terms of grip strength (dominant arm,  $p=0.0415$ , non-dominant arm,  $p=0.0146$ ) (Figure 1). This functional effect of TMN may strengthen the clinical relevance of the survival benefit previously reported (1), since grip strength has been shown to predict survival of lung cancer patients with good performance status (2).

Also, post-walk fatigue was significantly improved after 6 weeks in the TMN group ( $p=0.044$ ) but the difference between groups did not reach significance after 12 weeks.

In summary, early TMN with a specific oral nutritional supplement in pre-cachectic patients may have a positive effect on both functional parameters, i.e., grip strength, and disease survival. These data should be strengthened by adequately powered trials, yet they strongly suggest the use of nutritional support for malnourished pre-cachectic patients receiving anti-cancer treatment.

### Authors' Contribution

All authors contributed to study design, interpretation of data and drafting of the manuscript. F. Lonnqvist and D. Mozghan contributed to data acquisition and analysis. All authors approved the final version of the article for publication.

### Disclosure Statement

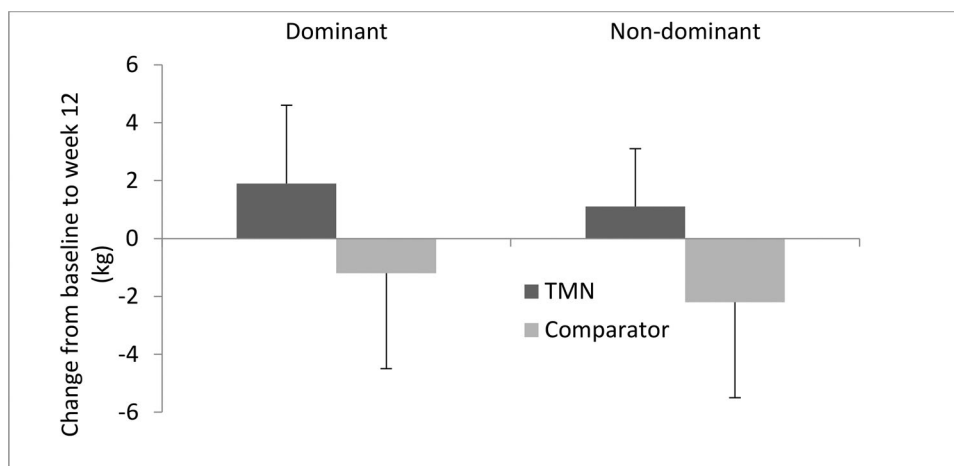
A. Laviano, P.C. Calder, A. Schols, M. Muscaritoli are consultants for Smartfish AS.

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### References

1. Laviano A, Calder PC, Schols A, Lonnqvist F, Bech M, Muscaritoli M. Safety and tolerability of targeted medical nutrition for cachexia in non-small-cell lung cancer: a randomized, double-blind, controlled pilot



**Figure 1.** Change from baseline to week 12 in grip strength in the pre-cachectic population.

trial. *Nutr Cancer*. 2020;72(3):439–50. doi:10.1080/01635581.2019.1634746

- Burtin C, Bezuidenhout J, Sanders KJC, Dingemans AMC, Schols A, Peeters STH, Spruit MA, De Ruyscher

D. Handgrip weakness, low fat-free mass, and overall survival in non-small cell lung cancer treated with curative-intent radiotherapy. *J Cachexia Sarcopenia Muscle*. 2020;11:424–431. doi:10.1002/jcsm.12526