

### **F3 Larger health benefits in severe (BMI >35) compared to non-severe obese older adults with type 2 diabetes during combined lifestyle intervention.**

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Purpose: Weight loss is key in treatment of obese older adults with DM2. We recently showed muscle mass preservation during combined lifestyle intervention (CLI) by adding a protein drink to the diet (PROBE-study), and now evaluated whether severe obese benefit similarly to non-severe obese older adults with DM2.

Methods: We used data from a 3-month CLI of dietary advice (-600 kcal/day) and resistance exercise in which subjects were randomized to receive 10x/week a 20g protein drink or isocaloric control drink. 97 completers (62 male, 35 female) were included in this post-hoc analysis with dependent variables appendicular skeletal muscle mass and visceral adipose tissue (ASMM, VAT; DXA), CRP, insulin sensitivity and resistance (Matsuda, HOMA-IR; OGTT), and blood pressure (SBP, DBP). Linear regression analysis was performed for severe (BMI>35, n=28) and non-severe obese (BMI≤35, n=69) subgroups, with protein intake as independent variable and baseline assessment as confounder.

Results: Mean values were: age 67, BMI 33.3, protein intake during intervention 93±30 gram/day, weight loss -2.6±2.9kg, fat loss -2.8±2.3kg. Per 20g additional protein intake, 68±168g (p=0.686) muscle was preserved in severe obese vs 204±67g (p=0.003) in non-severe obese. Severe obese showed higher response for VAT (-58.9±32.1 (p=0.079) vs +2.5±6.6), CRP (-2.5±1.4 (p=0.081) vs +0.3±1.3), insulin sensitivity (Matsuda +1.2±0.6 (p=0.044) vs +0.4±0.4) and resistance (HOMA IR 5.3±2.4 (p=0.034) vs +0.2±0.6), SBP (-19.1±9.4 (p=0.055) vs -1.3±4.2), and DBP ( 16.7±6.7 (p=0.022) vs +1.2±2.4), while non-severe obese showed no significant effects.

Conclusions: Severe obese might benefit even more from combined lifestyle intervention than non-severe obese older adults with DM2.