

Does the third lumbar vertebral skeletal muscle index (L3SMI) predict weight loss in patients post Metabolic Bariatric Surgery?

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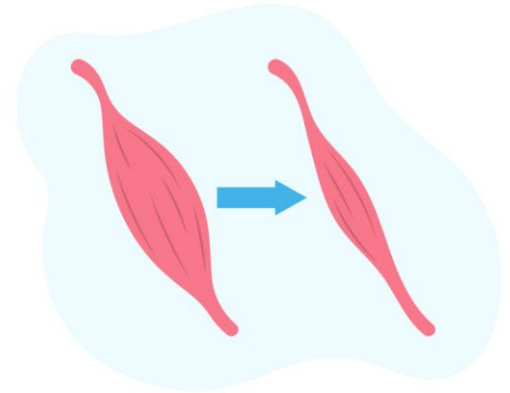
Background: Sarcopenia & Obesity

Broad, various definitions of Sarcopenia

Diverse methods of assessment

2 main methods of assessment:

- European Working Group Consensus (EWGSOP2): Low muscle strength, muscle quantity or quality, physical performance
- ESPEN/EASO: Low muscle strength, low muscle mass, increased fat mass, sarcopenic obesity



Objectives & Methods

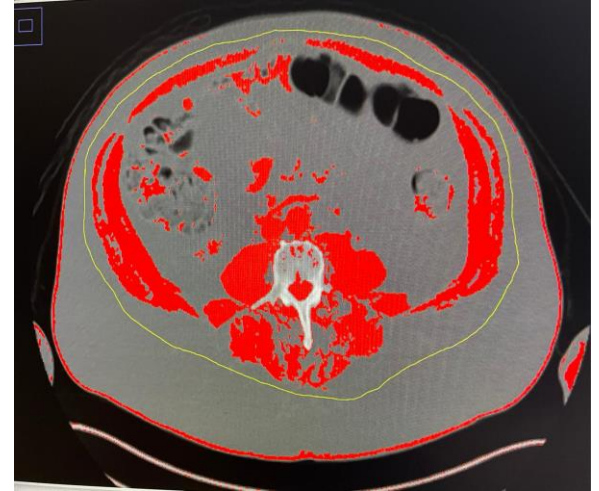
- **Objectives:** Does pre-operative muscle (sarcopenia) influence post-operative weight loss (at 12 and 24 months)?
- **Methods:**
 - Compare pre- and post-operative Skeletal Muscle Index at L3 vertebra (L3SMI) using Computer Tomography (CT)
 - Validated approach
 - Pre-op CT within 2 years (for any reason)
 - Post-op CT at 12 and 24 months (for any reason)



CT Measurement

- Software to measure Skeletal Muscle Index at L3 vertebra (L3SMI)
- Total muscle surface area @ L3/squared height

L3SMI Measurement



$$\text{Skeletal Muscle Index} = \frac{\text{Total Muscle Surface Area (at L3 vertebra)}}{\text{Height in m}^2}$$

Results (n= 72)

Sex



84.7%

Age (Median)

48
years

39 — 57

BMI (Median)

43.5
Kg/m²

40.7

48.6

RYGB



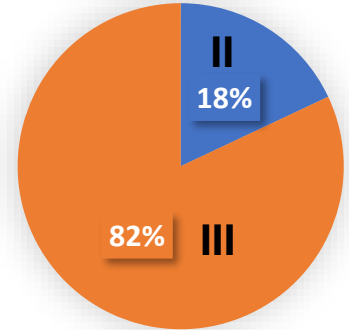
84.7%

SG



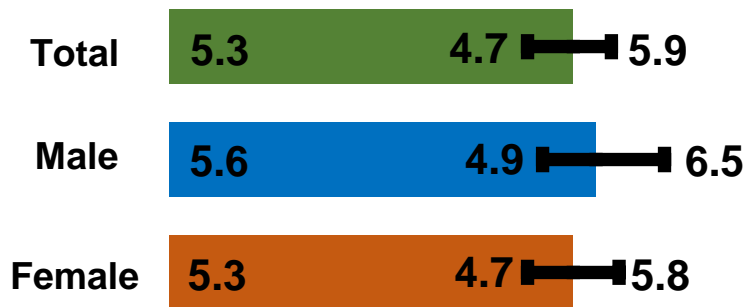
15.3%

ASA

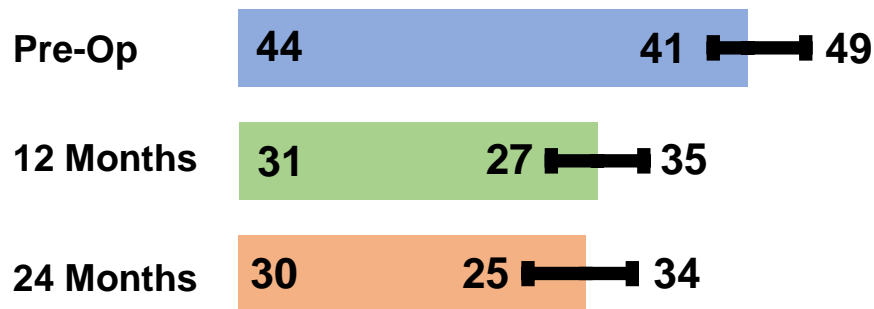


Results

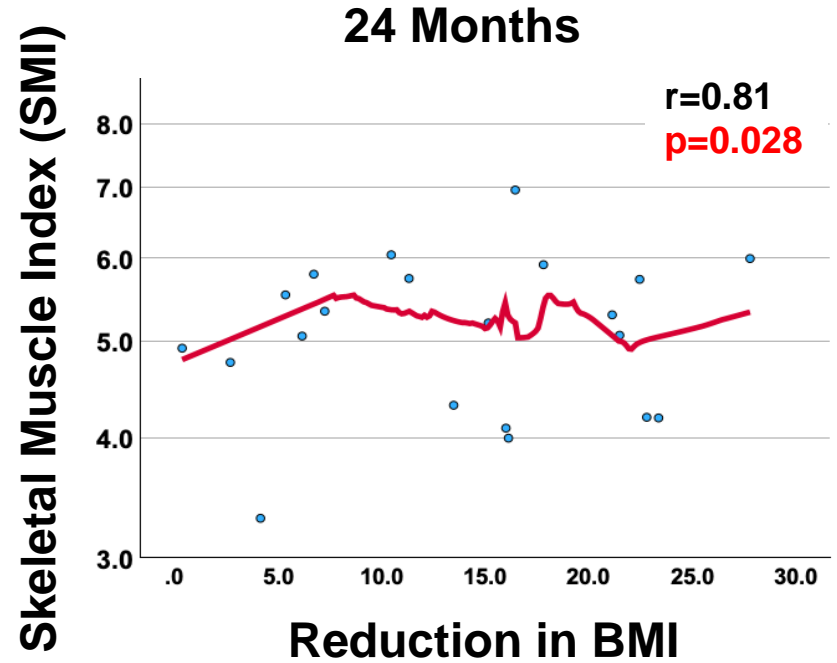
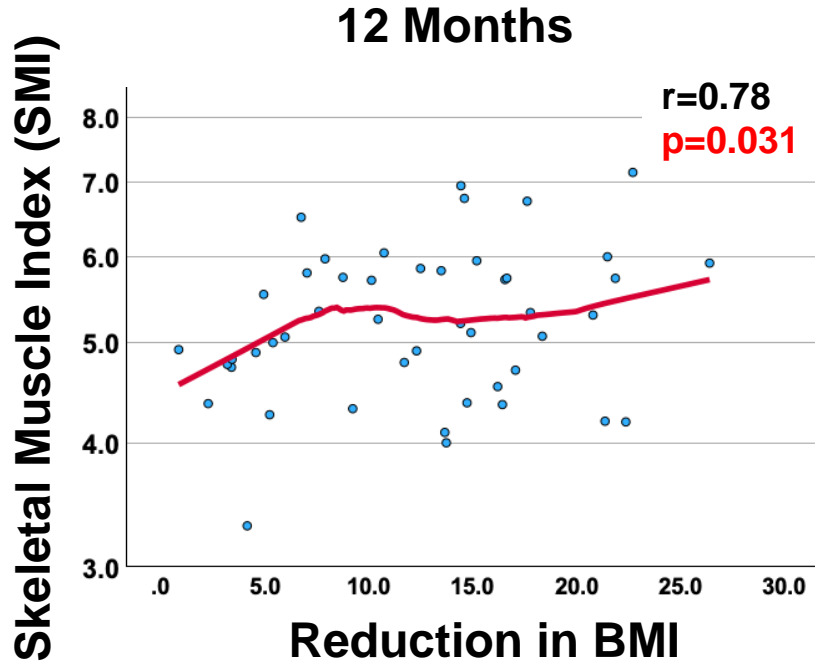
Skeletal Muscle Index (Pre)



Body Mass Index



SMI & BMI Reduction



Conclusion

- Increased Skeletal Muscle Index (SMI) at surgery is significantly correlated with greater weight loss at 12 and 24 months
- Possible explanations may be:
 - Higher baseline SMI (more active)
 - Muscle energy consumption is high
 - Psychological motivators ('looking good')
- Further work intends to explore other factors (ethnicity, age, occupation, gender, social deprivation)



Thank you for
your kind
attention