

Changes in lean mass, strength, and physical performance after sleeve gastrectomy surgery for severe obesity

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BACKGROUND

Bariatric surgery leads to durable weight loss and improvements in comorbidities, quality of life, and mortality. However, with substantial weight loss comes a decrease in lean mass, which has negative implications for strength and physical performance. It also remains unclear how weight-loss surgery affects myosteatosi

METHODS

- 1. Prospectively enrolled adults with severe obesity undergoing laparoscopic sleeve gastrectomy surgery at UCSF.
- 2. Assessed body composition by DXA and QCT at pre-op, 6-months and 12-months post-op.
- 3. Measured grip strength and physical performance (4m gait speed, 400m walk time, sit-to-stand test) at each timepoint.

RESULTS

- 53 participants underwent pre-op and ≥1 post-op imaging scan
- There was a significant post-op **decrease** in BMI, total body fat mass, total body lean mass, and cross-sectional muscle area
- No meaningful change in myosteatosi
- Grip strength was **stable** throughout 12-month study period
- 400-meter walk times were **faster** and sit-to-stand performance **improved** at 12-months post-op

DISCUSSION

Lean mass is lost, grip strength is preserved, and physical performance improves after sleeve gastrectomy. We found no meaningful change in myosteatosi 12-months after surgery. Our findings suggest that myosteatosi change is not the driver of preserved strength and improved physical performance; future studies could investigate other potential determinants such as protein intake, IGF-1, and vitamin D.

This study was funded by the NIH, NIDDK (R01DK107629). Additional support from P30DK098722, P30AR075055, UL1TR001872, and NCIRE.

Despite **loss** of lean mass, strength is **preserved** and some measures of physical performance **improve** 12 months after sleeve gastrectomy surgery.

Figure 1A: Example DXA Scans

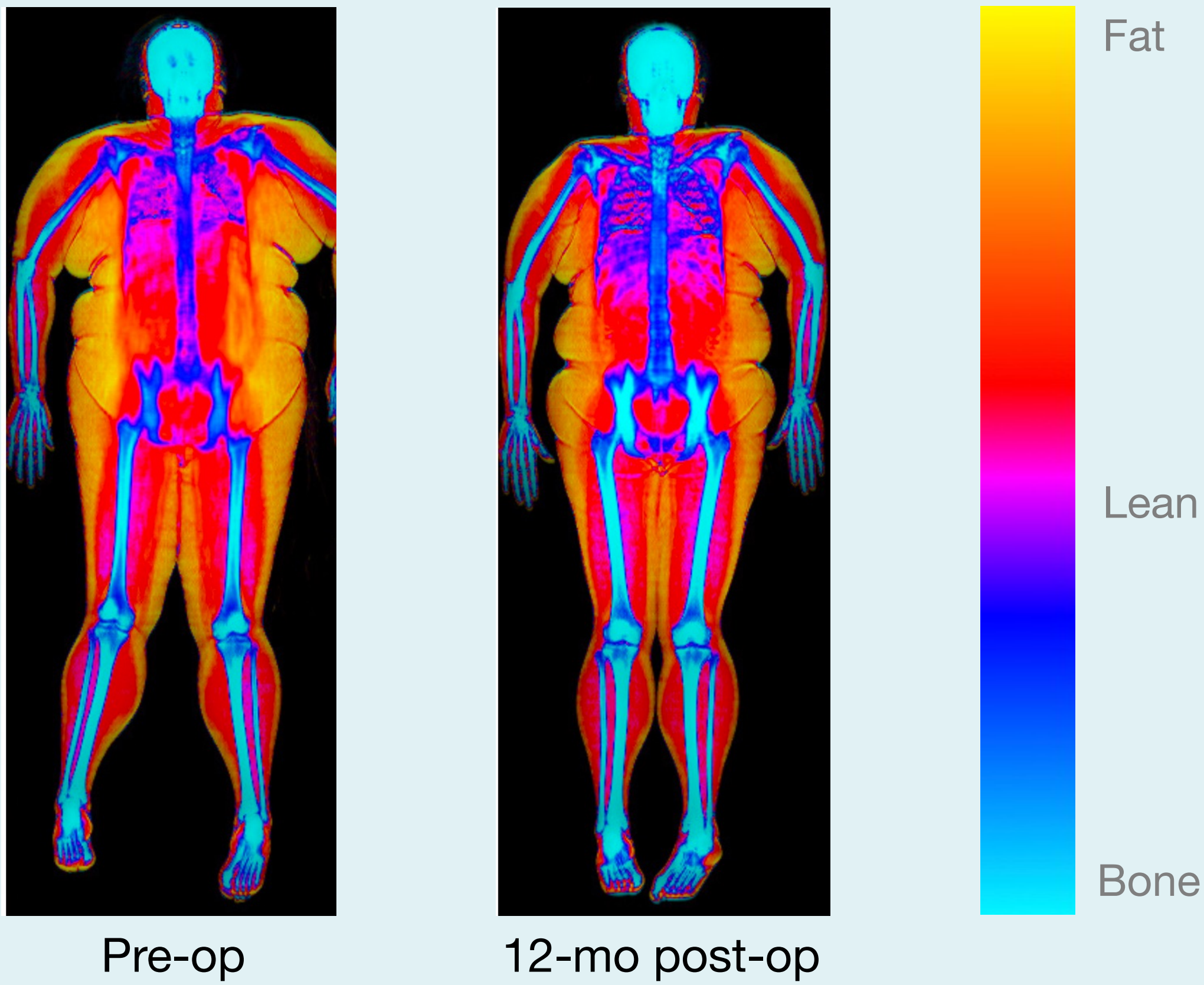


Figure 1B: Example Quantitative CT Scans

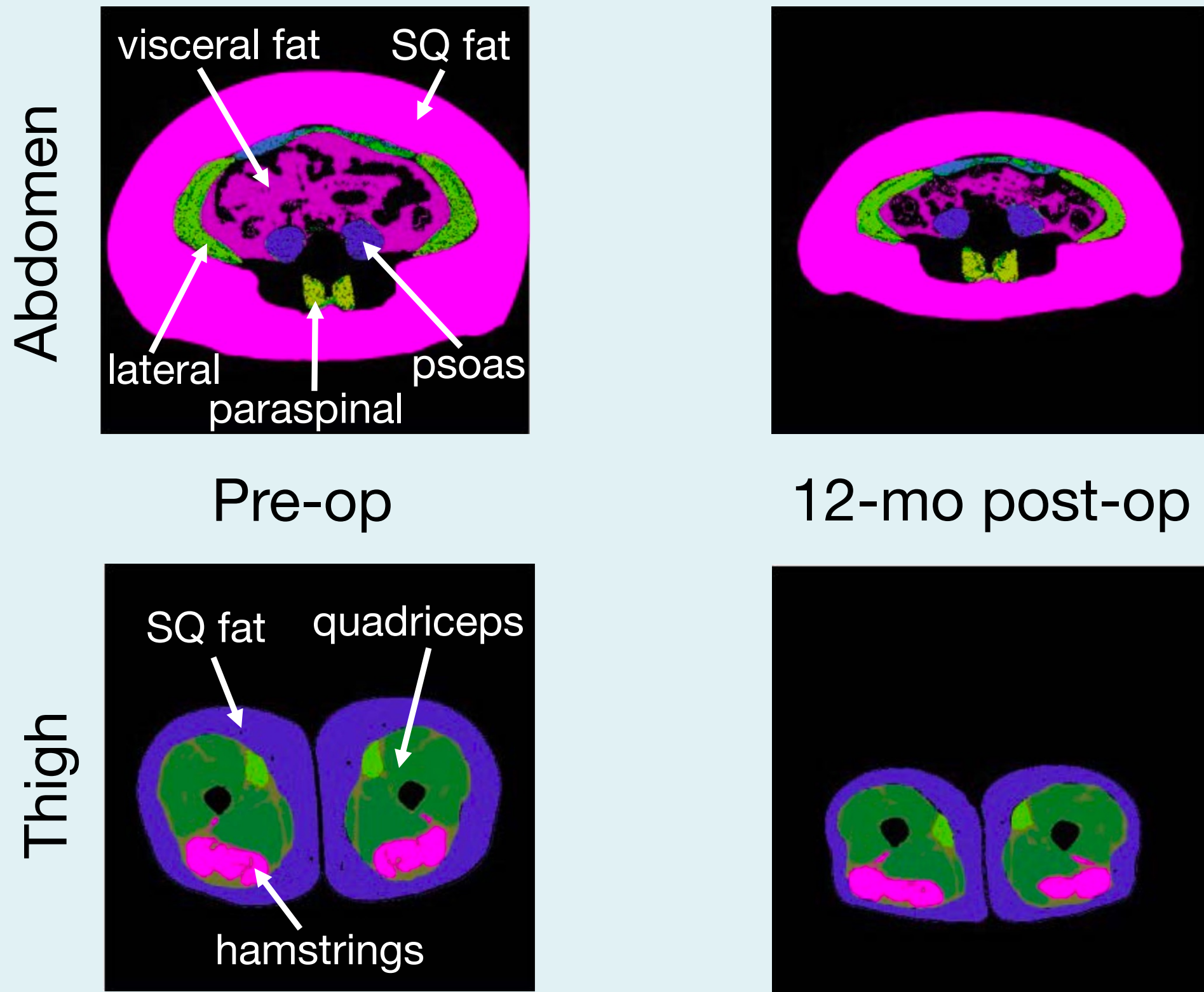
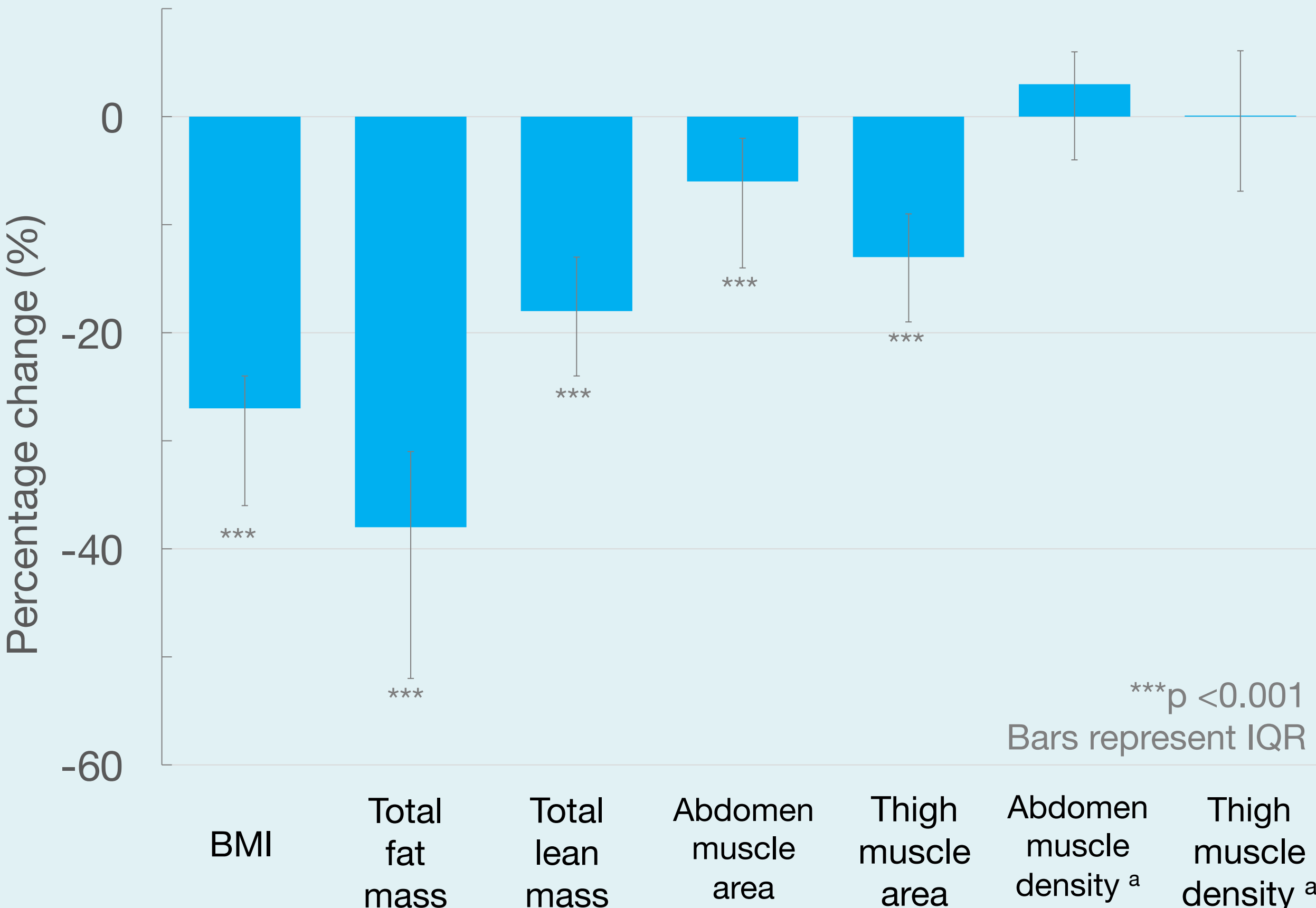


Figure 2: Changes in Body Composition at 12-mo



a Higher muscle density = lower fat content

Figure 3: 12mo Changes in Strength & Performance

