

INTRO

Bariatric surgery leads to a significant reduction in body weight, involving not only fat loss but also loss of muscle mass. Muscle tissue plays a crucial role in various bodily functions such as metabolism, bone health, thermoregulation, and overall physical performance. The aim of this study was to explore the impact of bariatric surgery on abdominal muscle mass loss.

METHODS

At the L4 level in the axial plane, the volumes of various muscles or muscle groups were measured. Hounsfield units were measured to assess density. All p-values were calculated using two-tailed independent t-tests, with statistical significance defined as $p \leq 0.05$.

- Sample Size: 29 patients
- Inclusion Criteria: underwent sleeve gastrectomy or gastric bypass surgery and had both preoperative CT scans and postoperative CT scans taken at least 6 months after bariatric surgery

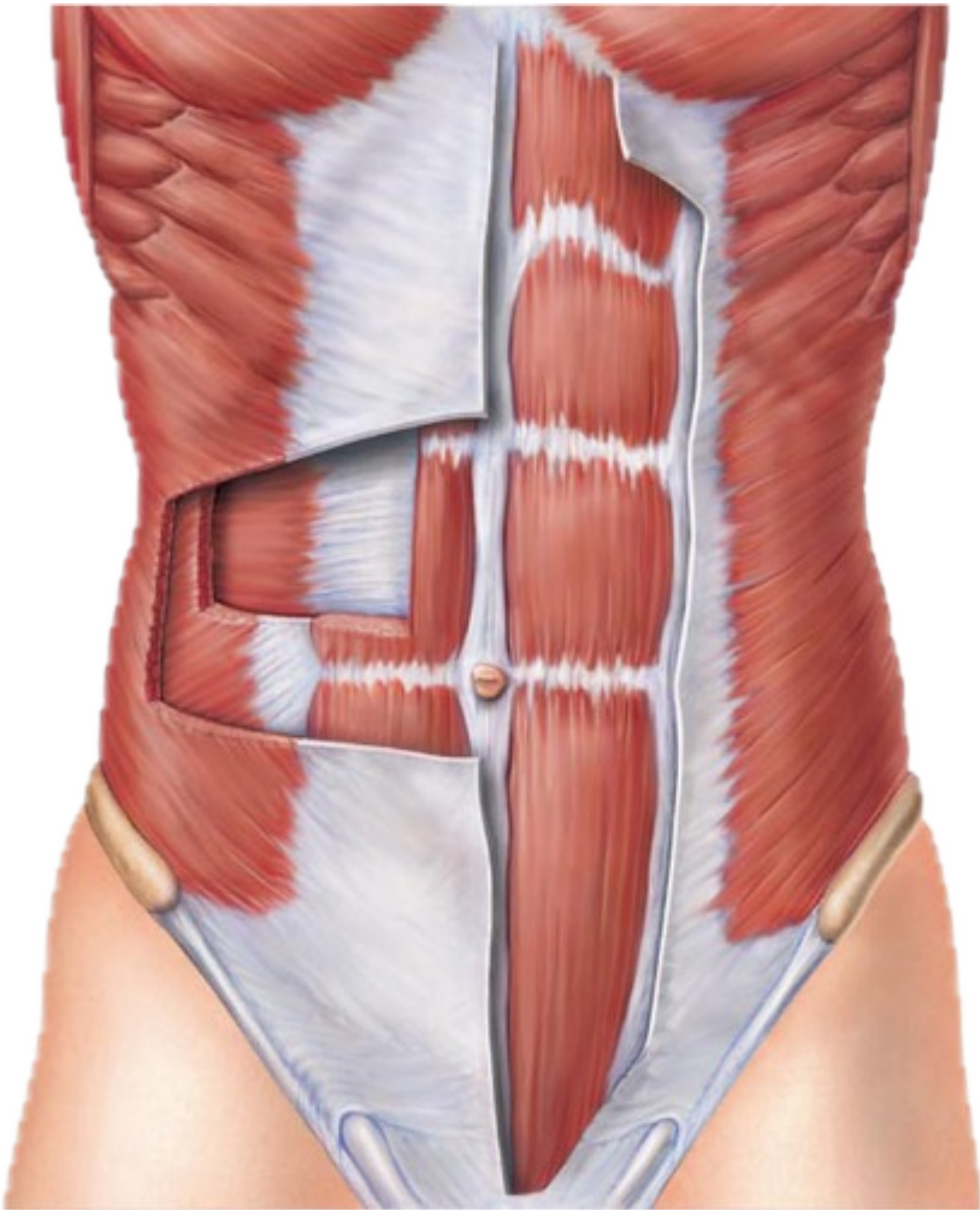
Lateral Abdominal Wall Muscles

➤ Internal Abdominal Oblique

➤ External Abdominal Oblique

➤ Transversus Abdominis

R	L
Volume p = 0.008	Volume p = 0.006
Hounsfield units p = 0.119	Hounsfield units p = 0.362



Rectus Abdominis

R	L
Volume p = 0.134	Volume p = 0.003
Hounsfield units p = 0.017	Hounsfield units p = 0.175

RESULTS

Both left and right lateral abdominal wall muscle groups exhibited significant decreases in muscle volume. Bilateral psoas major muscles also demonstrated a significant reduction in volumes. While there was a significant decrease in volume for the left rectus abdominis, the reduction in volume for the right rectus abdominis was not significant. The mean Hounsfield unit of the right rectus abdominis muscle significantly increased postoperatively. No significant differences in mean Hounsfield units were observed for the other muscles.

Psoas Major

Right	Left
Volume p = 0.022	Volume p = 0.035
Hounsfield units p = 0.900	Hounsfield units p = 0.620

CONCLUSION

All muscles besides the right rectus abdominis showed significant volume reductions and nonsignificant Hounsfield unit changes, indicating that overall muscle density remained largely unchanged. These findings suggest some degree of widespread muscle mass loss. The potential increase in muscle mass of the right rectus abdominis could be attributable to dominant-side usage or measurement variability, representing an avenue of further research.