

**Abdominal Dermis Tensile
Strength in Aesthetic and
Massive Weight Loss
Patients and Its Role in
Ventral Hernia Repair: A
Cross-Sectional Study**

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INTRODUCTION

Bariatric Surgery → Incisional hernia +
Abdominal skin excess

Post-bariatric patient → ↑ Risk of infection → Avoidance of mesh

OBJECTIVES

- To compare the maximum tensile strength of abdominal skin to commercial meshes.
- To verify whether or not it varies between aesthetic patients and massive weight loss patients.

MATERIALS AND METHODS

- Experimental cross-sectional study



- Vertical and horizontal tensile tests

MATERIALS AND METHODS

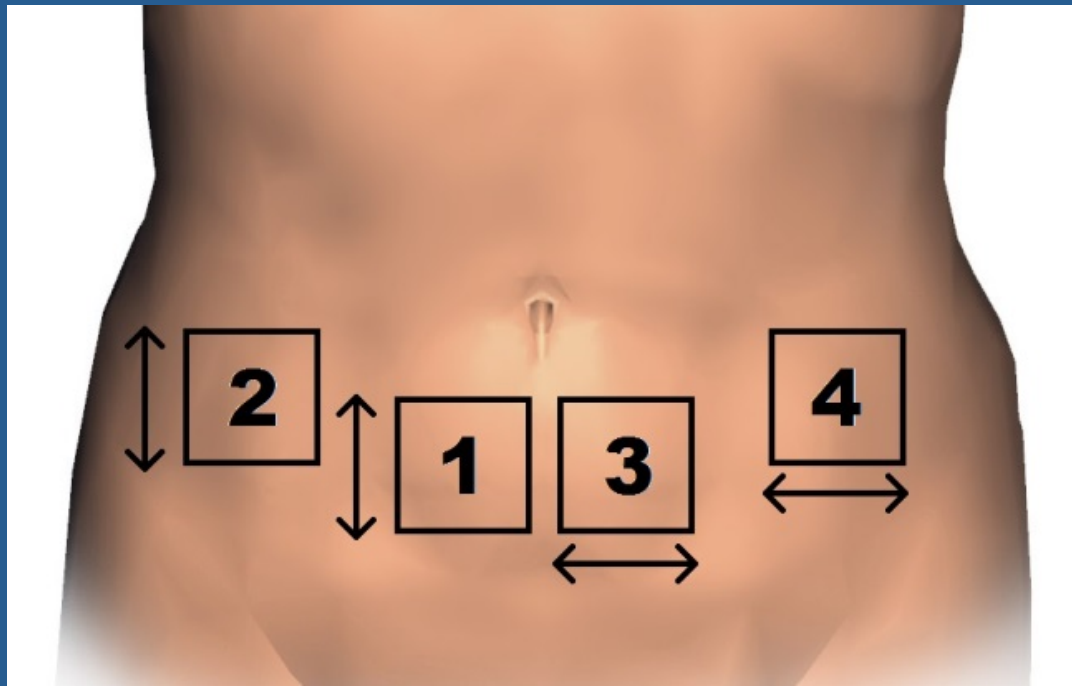


Figure 1: Samples positions

MATERIALS AND METHODS



Figure 2: System of clamps and screws used for graduated distension of the skin

MATERIALS AND METHODS

- Commercial meshes were also tested.
- Results were analyzed using the Generalized Estimating Equation (GEE).
- The study was approved by the local ethics committee.

RESULTS

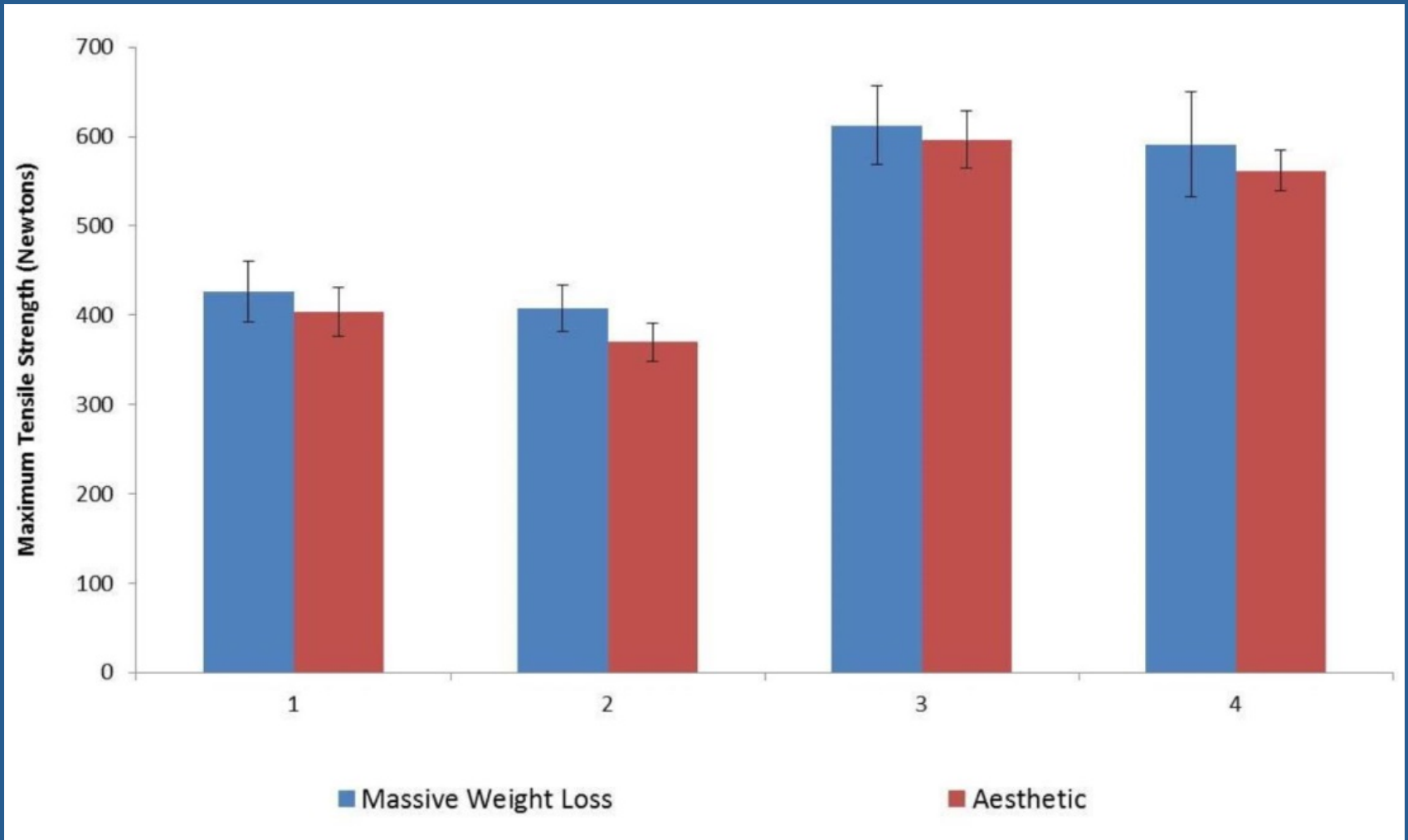


Figure 3: Abdominal Skin Tensile Strengths

RESULTS

- There were no differences between the groups with regard to the maximum tensile strength ($p = 0.472$).
- Statistically, if a difference between aesthetic and post weight loss patients exists, it is lesser than 100 N ($\beta=0.15$).
- The strengths between traction directions were significantly different ($p < 0,001$).

Table 1. Maximum tensile strength of commercial meshes tested.

Mesh	Strength
High-density polypropylene	104.6 N
Low-density polypropylene	54.4 N
PTFE	82.2 N
Hydrated porcine small-intestinal submucosa	60.6 N

N: Newtons; PTFE: polytetrafluorethylene

CONCLUSION

- Tensile strength of samples, both aesthetic and post-bariatric, were superior to commercial meshes.
- Clinical studies are needed to clarify the dermis role during ventral hernias repair in post-bariatric patients.