TYPE OF STUDY
Two-phase, prospective, randomised, animal study in rats

PURPOSE OF THE STUDY
To compare the strength of incorporation, foreign body reaction, and changes in material composition after implantation of Parietene™ ProGrip™ Mesh with other mesh fixation methods (fibrin glue and staples)

METHODS
Forty male Sprague Dawley rats were implanted with 2 cm² of polypropylene (Parietene™ Light) mesh fixed to the abdominal wall with one of four methods:

- Hernia stapler (Endo Universal 65-degree 4.8mm; HS)
- Fibrin glue (Tissucol Duo Quick; FG)
- ProGrip™ (polypropylene self-gripping mesh coated on the underside with small absorbable hooks made of polylactic acid)
- Unfixed mesh as control (UM)

Animals were sacrificed at Day 5, or after 2 months

- Meshes were removed together with the musculature of the abdominal wall, and tested for adhesive strength
- Samples were analyzed using histology and electron microscopy technique

RESULTS
After 5 days, the ProGrip™ and hernia stapler groups showed significantly higher shear strength than fibrin glue or unfixed mesh; after 2 months, ProGrip™ remained significantly stronger than all other groups


PRODUCT DISCUSSED: Parietene ProGrip™ self-gripping mesh
DISCUSSION

- Fixation of meshes in tissue has gained much more importance as a principal means of avoiding slippage
- Superior mechanical properties of PG meshes reduce mesh slipping and can lead to positive effect on hernia recurrence with FG and UM
- This study did not compare pain levels with the different fixation methods

CONCLUSIONS

ProGrip™ demonstrated a substantially stronger strength of incorporation in muscle tissue compared to other fixation systems and is an economic alternative to stapling or fibrin glues

This concludes the clinical synopsis of this publication

Histological results show that inflammatory reactions were considerably more severe after 5 days than after 2 months. In addition, no significant differences in foreign-body reactions were found between groups. Electronic microscopy shows that at two months, the hooks of the ProGrip™ Mesh showed no signs of degradation and had reached the muscle, resulting in superior tissue integration.