

Tissue changes over time after polydioxanone thread insertion: An animal study with pigs.

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Abstract

BACKGROUND: Polydioxanone (PDO) sutures have been widely used to tighten and **lift** the face. However, why the complexion brightens and skin elasticity is maintained with a smaller facial outline after a PDO monofilament **thread** treatment remains unclear.

AIMS: We aimed to determine what significant changes occur in the tissue over time when a PDO suture is inserted.

METHODS: We selected four White Yucatan variety pygmy pigs with skin that most closely resembles the structure of human skin. 4-0 PDO **thread** was inserted into the subcutaneous fat. Tissue samples were obtained at 4, 12, 24, and 48 weeks. For the histologic analysis, H&E staining, Masson trichrome staining, and anti-smooth muscle actin immunohistochemical staining techniques were used.

RESULTS: Nine histological findings appeared over time, and these findings are summarized as five tissue changes.

CONCLUSIONS: PDO sutures cause specific changes to the surrounding tissues that result in neo-collagenesis, a fibrous merging effect, fat reduction, tissue contracture, and an improved vascular environment. The results of this study explain the positive changes described in previous clinical research.

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KEYWORDS: PDO **thread**; Yucatan pig; histology

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