**Prevention of peritendinous adhesions with electrospun poly (lactic acid-co-glycolic acid) (PLGA) bioabsorbable nanofiber: An experimental study**

**ABSTRACT**

**Background**: In this study, we explored the application of poly (lactic acid-co-glycolic acid) in the rat Achilles tendon injury model for the prevention or alleviation of peritendinous adhesion and guidance of Achilles tendon regeneration.

**Methods:** In the study, 48 rats were used and the rats were randomized by closed envelope method and divided into 4 mating groups in groups of 12. Left Achilles tendons of the control group (groups 1 and 2) were cut and repaired. In the experimental group (groups 3 and 4) the left achilles tendons were cut and repaired, then poly (lactic acid-co-glycolic acid) bioabsorbable material was wrapped around the repair line. The rats in the 1st and 3rd groups were sacrificed at the end of the 1st month, and the rats in the 2nd and 4th groups at the end of the 2nd month.

**Results:** In macroscopic evaluation, a significant difference was found between the experimental groups (group 3-4) and control groups (group 1-2) in the length, characteristics and severity of adhesion (p<0.05). There was no significant difference in the biomechanical tests of left leg surgically treated tendons in all groups (p> 0.05). Inflammatory density, vascularization and fibrosis were higher in the experimental group (p<0.05).

**Conclusion:** As a result, it was thought that poly (lactic acid-co-glycolic acid) material did not significantly affect biomechanical tests, but peritendinous adhesions were significantly reduced, and this effect could occur with the amount of vascularization investigated in histopathological examination.

**Keywords:** Adhesion; nanofiber membranes; nanotechnology; poly (lactic acid-co-glycolic acid); tendon.