Abstract

Background: The application time of therapeutic ultrasound is an infrequently studied dosimetric variable that affects tissue repair. Objectives: The aim of this study was to evaluate the effects of different treatment times of therapeutic ultrasound (US) on the organization of collagen fibers in the tendons of rats. Method: Forty Wistar rats were selected (300±45 g), and the rats were divided into five groups (n=8 for each group): Control, without tenotomy or any treatment; tenotomy group, with tenotomy and without treatment; US groups (US1, US2, and US3), subjected to tenotomy and treated with US for one, two, or three minutes per area of the transducer, respectively. The animals were sacrificed on the 12th post-operative day, and the tendons were surgically removed for analyses of the collagen fiber organization by means of birefringence analysis. Results: The collagen fibers exhibited better aggregation and organization in the US3 group compared with the tenotomy group (p<0.05). Conclusions: The findings suggest that US applied for three minutes per treated area improves the organization of collagen fibers during rat tendon repair.

Keywords

Therapeutic ultrasound, Achilles tendon, physical therapy, collagen, wound healing.