Previous study showed that electroacupuncture (EA) increases the concentration and reorganization of collagen molecules in rat tendon healing (ALMEIDA et al., 2012). However, the analysis of the ultrastructure of collagen fibrils after acupuncture (AC) treatment is unknown. Objectives: To assess the effect of AC protocols on ultrastructure of collagen fibrils during tendon healing. Methods: The Wistar rats were divided into: not tenotomized (normal group), tenotomized (teno group) as well as tenotomized and submitted to manual AC at points Zusanli (ST36 group), Chengshan (BL57 group), Zusanli associated with Chengshan (SB group) and electrical stimulation at points mentioned (EA group). The Mass-average diameter (MAD) (EDWARDS et al., 2005; FLINT et al., 1984) and the reorganization of collagen fibrils diameter were determined at days 7, 14 and 21 after tendon injury. Results: The MAD increased at days 14 and 21 of the healing process in BL and SB groups. In the EA group, the MAD initially increased and at day 21 it decreased. The reorganization of collagen fibrils diameter in EA group at day 14 and SB group at day 21 was similar to the normal (N) group according to Kolmogorov and Smirnov test for two samples. Thick fibrils were not found at EA group in day 21. Conclusion: These results indicate that the use of EA up to day 14 and manual AC at Zusanli and Chengshan points up to day 21, improves the ultrastructure of the tendon, indicating the strengthening of the tendon structure. These data suggest a potential use of AC in rehabilitation protocols. Future studies need to investigate the mechanisms activated by AC during the tendon healing.

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Fig. 1: Electron micrographs of collagen fibrils at days 7, 14 and 21. Note the mixture of thick and thin fibrils in group N. The diameter of collagen fibrils decreases in groups T and E-36. In groups BL57 and SB at days 14 and 21 there are thick fibrils, as well as in the EA group at day 14. At day 21, thick fibrils are not seen in EA group. Bar: 500 nm.