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[Search](#)

[Causes of prostatitis](#)

[Drainage in Prostatitis](#)

[Methods of treatment](#)

[Alpha List of files](#)

[Welcome doctors](#)

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[Archive](#)

Prostatitis

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Ultrastructure of Achilles Tendons of Rats Treated with Ofloxacin and Fed a Normal or Magnesium-Deficient Diet

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ABSTRACT

Fluoroquinolones can cause tendinitis and tendon rupture. However, toxicological as well as clinical information on quinolone-induced tendopathy is scarce. We performed extensive electron microscopic studies with Achilles tendon specimens from ofloxacin-treated rats. The drug was given at a dose of 1,200 mg/kg (body weight) orally. Juvenile Wistar rats received one or three oral doses each of 1,200 mg of ofloxacin/kg (body weight)/day.

Three days after treatment, the tenocytes of their Achilles tendons showed degenerative alterations, such as multiple vacuoles and vesicles in the cytoplasm that had developed due to swellings and dilatations of cell organelles. Other indications of cell degradation were the occurrence of cell debris and cell detachment from the extracellular matrix accompanied by a loss of cell-matrix interaction.

The tenocytes of juvenile Wistar rats that had been treated at day 36 with a single oral dose of 1,200 mg of ofloxacin/kg (body weight) and sacrificed either 3 or 6 months later exhibited similar degenerative alterations. The number of degenerative alterations of tenocytes after ofloxacin treatment was considerably higher in rats that had received a magnesium-deficient diet than in rats with normal magnesium status. Of the adult rats that had been treated once, 5 times, and 10 times with ofloxacin and killed 1 day later, only those with the 10-times treatment showed a significantly increased number of degeneratively altered tenocytes. In summary, effects observed in tendons show similar pathological features as described earlier in cartilage, indicating that quinolone-induced arthropathy and quinolone-induced tendopathy probably are different clinical manifestations of the same toxic effect on cellular components of connective tissue structures.

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