Resistance training prevents age-related tendon damage

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A study published online in *The FASEB Journal* suggests that resistance training may prevent age-related tendon problems, such as ruptures and tendinopathies. In the report, scientists used different groups of sedentary and resistance-trained rats to reveal that the tendons of trained rats showed fewer signs of age-related damage than their sedentary counterparts. If this proves true in humans, it would provide further evidence that resistance training can have beneficial effects throughout one's lifespan.

"The relationship between aging and tendon disorders is not well documented," said Rita de Cassia Marqueti Durigan, Ph.D., a researcher involved in the work from the Rehabilitation Science Program, University of Brasilia, in Brasilia, Brazil. "To restrain and revert the deleterious aging process, resistance training can be used as an important tool to prevent degeneration and even restore tendon functions."

Durigan and colleagues used four groups of rats: 1) young sedentary, three months old; 2) young trained, three months old; 3) old sedentary, 21 months old; and 4) old trained, 21 months old. The sedentary rats did not perform the resistance training. The trained rats climbed a vertical ladder three times for 12 weeks, bearing progressive loads comprising 65, 85, 95, and 100 percent of their maximum carrying capacity. After the 12-week training period, the animals were euthanized for removal of the calcaneal tendon tissue. The researchers performed several assays (biochemical, histological, immunohistochemical, and molecular) to evaluate the effects of resistance training on the molecular and cellular

aspects of the calcaneal tendon in young and old rats and their implications for tendon remodeling.

"It seems very plausible that the findings from this well-designed study are applicable to the comparable human situation, so the clinical potential is very signficiant," said Thoru Pederson, Ph.D., Editor-in-Chief of *The FASEB Journal*.

More information: Rita C. Marqueti et al, Effects of aging and resistance training in rat tendon remodeling, *The FASEB Journal* (2017). DOI: 10.1096/fj.201700543R

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