

# Aging has distinct and opposite effects on tendon in males and females

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New research from the University of Liverpool, published in the journal *Scientific Reports*, has identified that in tendon ageing has distinct and opposite effects on the genes expressed in males and females.

Tendons are bundles or bands of strong fibres that attach muscles to bones. Tendons transfer force from the muscle to the bone to produce the movement of joints.

Tendinopathy is a set of tendon disease that results in the tendons not functioning normally. Its development increases in frequency with age.

In this, the first study of its kind, researchers from the University's Institute of Ageing and Chronic Disease, analysed in parallel a number of gene datasets from male and females from two age groups (20-24 and 54-70 years) to identify sex-specific gene expression changes with age.

Every cell in a human body contains a complete set of chromosomes with every gene needed to make every protein that that organism will ever

make. However only a very small fraction of these genes are ever expressed in specific tissues at any one time.

Each cell is specialised to carry out certain tasks and will only need to express certain genes. Gene expression is the process by which specific genes are activated to produce a required protein.

The researchers analysed these [genes](#) and identified distinct molecular pathways which affect ageing in tendon dependant on gender.

The results highlight the importance of gender differences which are frequently neglected in [gene expression](#) studies.

Lead researcher Dr Mandy Peffers, said: "Our research highlights the possible need to treat tendon disease differently in males and females because alternative mechanisms may be involved.

"Our findings could help in the treatment of more bespoke treatments for this large patient group."

**More information:** Louise I. Pease et al, Cross platform analysis of transcriptomic data identifies ageing has distinct and opposite effects on tendon in males and females, *Scientific Reports* (2017). [DOI: 10.1038/s41598-017-14650-z](https://doi.org/10.1038/s41598-017-14650-z)

Provided by University of Liverpool

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