

'Stress' protein could halt aging process, say scientists

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HSP10 (Heat Shock Protein), helps monitor and organise protein interactions in the body, and responds to environmental stresses, such as exercise and infection, by increasing its production inside cells.

Researchers at Liverpool, in collaboration with colleagues at the University of California, found that excessive amounts of HSP10 inside mitochondria - 'organs' that act as energy generators in cells - can halt the body's ageing process by preserving muscle strength.

HSP10 occurs naturally in all [living organisms](#) and scientists believe that study into its functions could prove significant for the design of future health care for the elderly, who are particularly susceptible to [muscle](#) damage. Researchers examined the role HSP10 plays inside [cells](#), to further understand how ageing muscle tissue can recover from stress.

Professor Anne McArdle, from the University's School of Clinical Sciences, said: "We studied the role of HSP10 inside mitochondria, as it is here that unstable chemicals are produced which can harm parts of the cell. The damage caused by this is thought to play an important part in the [ageing process](#), in which [skeletal muscle](#) becomes smaller and weaker and more susceptible to stress damage.

"In response to these stresses HSP10 increases its levels and helps cells resist damage and recover more effectively. Our research is the first to demonstrate that age-related loss of skeletal muscle mass is not inevitable and this could have considerable implications for the future health care of the elderly. Between the ages of 50 and 70 we lose

approximately 25-30% of our muscle. Falls - a major cause of injury and death in people over the age of 65 - are often the direct result of loss of mobility and weakened skeletal muscle.

"We now need to look at how we might artificially increase production of HSP10 in the body, specifically in relation to ageing muscle, to see if the protein could be used as a therapeutic measure. In time, clinical trials must take place to establish what benefits HSP10 can have on human quality of life, such as preservation of muscle strength."

The research, funded by the Biotechnology and Biological Sciences Research Council (BBSRC), is published in the *American Journal of Physiology*.

Provided by University of Liverpool

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