

## The Role of the Autophagy-Inducer Spermidine in Cardiovascular Ageing

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### Background

Spermidine is a compound of the polyamine family which has been shown in a number of animal models to stimulate autophagy and result in a number of cardioprotective effects. It is an easily accessible nutrient being particularly abundant in wheatgerm, fermented soybeans and aged cheeses. Spermidine cellular concentrations have been shown to decrease with age and correlates with impaired cardiovascular health. It is proposed that increasing consumption of this nutrient has implications in improving cardiovascular health.

### Methods

A keyword search was carried out using 'Spermidine and autophagy and cardiovascular health'. Search engines PubMed, Google Scholar and Web of Science were used to collate papers. Inclusion criteria included: 1) English Language 2) Peer Reviewed Studies 3) Ethical approval acquired where relevant 4) No evidence of bias in research (Relevant conflicts of interest). The final analysis included 22 papers.

### Results

Spermidine has shown promise in the preservation of cardiovascular health in a number of animal models. Spermidine's effectiveness is predominantly through the induction of autophagy and increased nitric oxide synthesis, all improving cardiovascular health. A survey study in humans has correlated increased spermidine intake with increased cardiovascular health. More thorough research is needed to elucidate a strong connection between spermidine intake and increased cardiovascular health in humans

### Key Messages

Animal models and a human survey study have highlighted the potential of spermidine in improving cardiovascular health. With ageing populations, the simple introduction of a compound that can be acquired through diet and have a drastic cardiovascular impact is an attractive implication for improving overall health.

