

Too much red meat and too few vegetables may increase your body's biological age

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Credit: University of Glasgow

A diet containing too much red meat and not enough fruit and vegetables could increase your body's 'biological age' and contribute to health problems.

Research led by the University of Glasgow and published today in *Aging*, has found that a moderate increase in serum [phosphate levels](#) caused by [red meat](#) consumption, combined with a poor overall diet, increases biological age (miles on the clock) in contrast to chronological age (years of age).

The study, which looked at participants from the most deprived to the least deprived in the NHS Greater Glasgow Health Board area, also demonstrates that deprived males were the worst affected.

Data from the study suggests that accelerated biological ageing, and dietary derived [phosphate](#) levels among the most deprived males, were directly related to the frequency of red meat consumption. Researchers believe that excess red meat particularly affects this group because of their poor diet and "sub-optimal fruit and vegetable intake".

The research, led by the Institute of Cancer Sciences in collaboration with the Karolinska Institutet (Stockholm, Sweden), also found that high phosphate levels in deprived males correlated with reduced [kidney function](#) and even underlying mild to moderate chronic kidney disease.

Professor Paul Shiels said: "The data in this study provides evidence for a mechanistic link between high intake of phosphate and age-related morbidities tied to socio-economic status.

"Our observations indicate that elevated red meat consumption has adverse effects amongst deprived males, who already have a poor diet and eat less fruit and vegetables than recommended.

"We think in this group the effects of high serum phosphate intake may be exacerbated. Indeed it's notable that these effects are not apparent among less deprived males, or in females, especially in the context of a more balanced diet."

Phosphate is naturally present in basic foodstuffs, including meats, fish, eggs, dairy products and vegetables. Intestinal absorption of naturally occurring phosphate is minimally regulated, as absorption is efficient, hence high supplementation results in markedly elevated levels of serum phosphate, which can have adverse health consequences.

Indeed high phosphate levels, as a consequence of dietary intake, have already been linked to higher all-cause and cardiovascular mortality risk, premature vascular ageing and kidney disease.

Professor Shiels said: "Strikingly, many of the subjects had kidney function indicative of incipient or early onset [chronic kidney disease](#). It has also not escaped our attention that red meat product quality and preservation may have an impact upon the diets of the most deprived and their associated health."

The researchers observed significant relationships between serum phosphate and biological age markers, including DNA content and telomere length.

This research has taken place as a part of the psychological, social, and biological determinants of ill health (pSoBid) study cohort, originally funded by the Glasgow Centre for Population Health.

The study, 'Accelerated Ageing and Renal Dysfunction Links Lower Socioeconomic Status and Dietary Phosphate Intake' is published in *Aging*.

More information: Accelerated ageing and renal dysfunction links lower socioeconomic status and dietary phosphate intake, Ruth McClelland, Kelly Christensen, Suhaib Mohammed, Dagmara McGuinness, Josephine Cooney, Andisheh Bakshi, Evangelia Demou, Ewan MacDonald, Muriel Caslake, Peter Stenvinkel, and Paul G Shiels,

Aging, published online 26 April 2016.

www.impactaging.com/papers/v8/n4/full/100948.html

Provided by University of Glasgow

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