Nature Reviews Molecular Cell Biology | AOP, published online 12 September 2012; doi:10.1038/nrm3441

In the news

NOT A YOUTH ELIXIR

Drastically cutting down on calories may not increase lifespan as previously thought, according to a study in *Nature*.

The idea that calorie restriction prolongs lifespan has been around for decades, and it is well established that rats and mice, as well as invertebrates, kept on a restricted diet live substantially longer. Now a study spanning 25 years at the National Institutes of Aging (NIA) in Bethesda, USA, has tested whether this also holds true in primates. The authors reported that rhesus monkeys fed 30% fewer calories than their control counterparts did not live longer. Notably, the study reported some, albeit mixed, improvements in health, for example decreased levels of cholesterol in male monkeys.

These results contradict those of a long-term study, published in 2009, that was carried out at the Wisconsin National Primate Research Center (WNPRC), USA. In a related commentary in *Nature*, gerontologist Steven Austad (University of Texas Health Science Center at San Antonio, USA) speculated that the discrepancies may be due to differences in diet composition (WNPRC animals were fed a diet higher in sucrose) and food availability (control animals in the WNPRC study ate *ad libitum*), making the WNPRC control diet more unhealthy. Genetic differences may also partly account for the mixed results.

Rafael de Cabo, senior author of the study, believes that the findings suggest that "calorie restriction is not a Holy Grail for extending the life span of everything that walks on earth." (*The Wall Street Journal*, 30 Aug 2012.) Other scientists agree that the reality is more complicated, with dietary composition potentially being more important in lengthening lifespan. "I think it's clear that the types of calories the monkeys ate made a profound difference," said Don Ingram, who designed the NIA study almost 30 years ago (*Nature News*, 29 Aug 2012).

Rachel David