Data analysis shows nonhuman female mammals also live longer than males

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Here a male surrounded by his harem is emitting a cry to mark his territory. Elephant seals are one of the species in which females outlive males. Credit: © Isabelle CHARRIER / Neuro-PSI / CNRS Photothèque

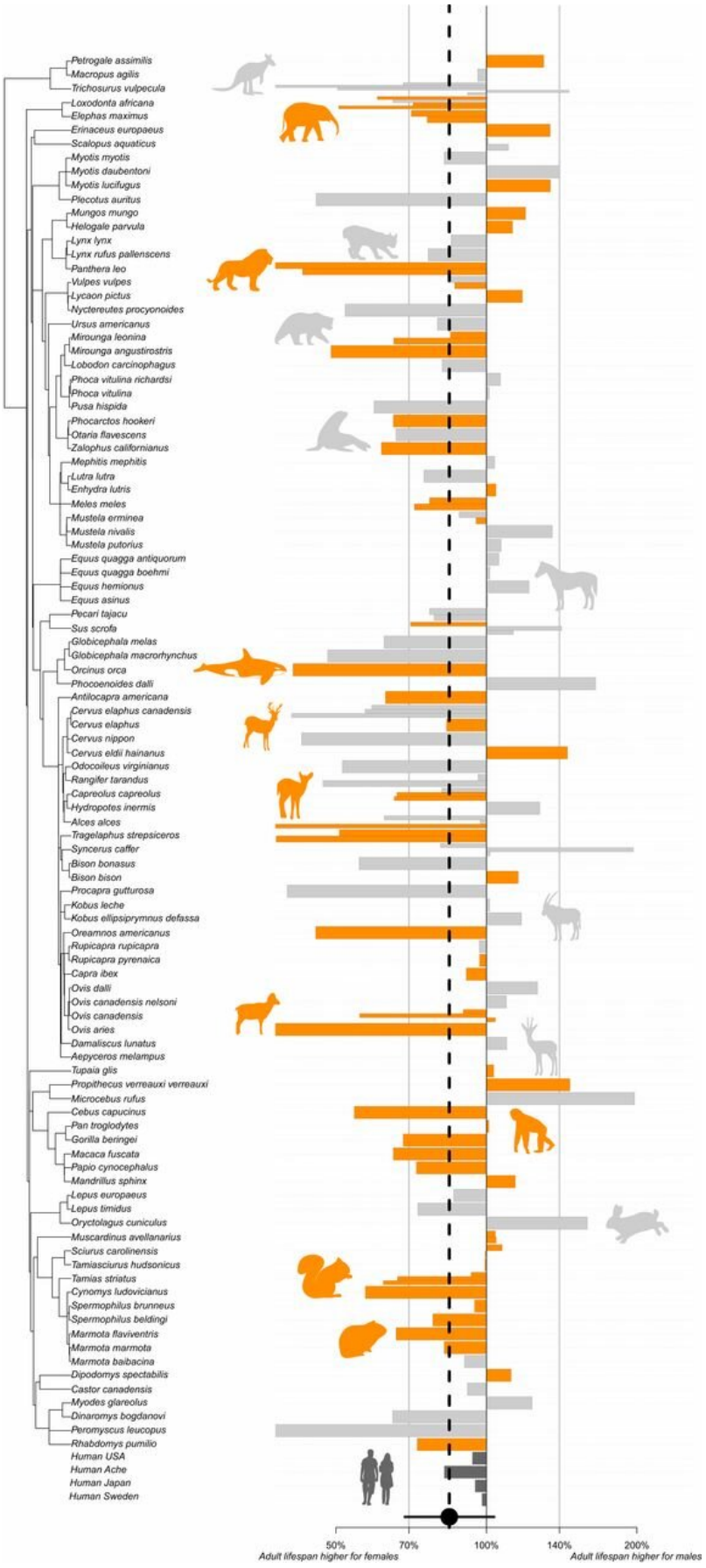
An international team of researchers has found evidence that shows female mammals besides humans also live longer than males. In their paper published in *Proceedings of the National Academy of Sciences*, the group describes how they compiled and analyzed demographic data from a large number of animal populations and what they found.

Scientists have known for many years that in humans, females tend to live longer than males. The reason is still up for debate. Some suggest it is because women have two copies of the same chromosome; others believe it is because men live riskier lives; others yet argue that it is due to age-associated diseases. Whatever the reason, prior research has shown that with humans, there is a 7.8 percent gap in longevity. In this new effort, the researchers have found evidence indicating that the same is true for most other mammals.

To better understand longevity rates for mammals in general, the researchers collected and analyzed demographic data for 101 species covering 134 populations. They also separately studied longevity in gorilla and orca populations to learn more about why there are gender differences in mammals at all.

In looking at their results, the researchers found that females outlived males in 60 percent of the species they studied. They also found that female mammals live on average 18.6 percent longer than males—a gap more than twice that of humans. The researchers also found that as a

population ages, the wider the gap in longevity grows—a finding also true for humans. Prior research has shown that nine out of 10 supercentenarians are women, for example.


Petrogale assimilis
Macropus agilis
Trichosurus vulpecula
Loxodonta africana
Elephas maximus
Erinaceus europaeus
Scalopus aquaticus
Myotis myotis
Myotis daubentoni
Myotis lucifugus
Plecotus auritus
Mungos mungo
Helogale parvula
Lynx lynx
Lynx rufus pallenscens
Panthera leo
Vulpes vulpes
Lycaon pictus
Nyctereutes procyonoides
Ursus americanus
Mirounga leonina
Mirounga angustirostris
Lobodon carcinophagus
Phoca vitulina richardsi
Phoca vitulina
Pusa hispida
Phocarctos hookeri
Otaria flavescens
Zalophus californianus
Mephitis mephitis
Lutra lutra
Enhydra lutris
Meles meles
Mustela erminea
Mustela nivalis
Mustela putorius
Equus quagga antiquorum
Equus quagga boehmi
Equus hemionus
Equus asinus
Pecari tajacu
Sus scrofa
Globicephala melas
Globicephala macrorhynchus
Orcinus orca
Phocoenoides dalli
Antilocapra americana
Cervus elaphus canadensis
Cervus elaphus
Cervus nippon
Cervus eldii hainanus
Odocoileus virginianus
Rangifer tarandus
Capreolus capreolus
Hydropotes inermis
Alces alces
Tragelaphus strepsiceros
Syncerus caffer
Bison bonasus
Bison bison
Procapra gutturosa
Kobus leche
Kobus ellipsiprymnus defassa
Oreamnos americanus
Rupicapra rupicapra
Rupicapra pyrenaica
Capra ibex
Ovis dalli
Ovis canadensis nelsoni
Ovis canadensis
Ovis aries
Damaliscus lunatus
Aepyceros melampus
Tupaia glis
Propithecus verreauxi verreauxi
Microcebus rufus
Cebus capucinus
Pan troglodytes
Gorilla beringei
Macaca fuscata
Papio cynocephalus
Mandrillus sphinx
Lepus europaeus
Lepus timidus
Oryctolagus cuniculus
Muscardinus avellanarius
Sciurus carolinensis
Tamiasciurus hudsonicus
Tamias striatus
Cynomys ludovicianus
Spermophilus brunneus
Spermophilus beldingi
Marmota flaviventris
Marmota marmota
Marmota baibacina
Dipodomys spectabilis
Castor canadensis
Myodes glareolus
Dinaromys bogdanovi
Peromyscus leucopus
Rhabdomys pumilio
Human USA
Human Ache
Human Japan
Human Sweden
50%
70%
100%
140%
200%
Adult lifespan higher for females
Adult lifespan higher for males

Graphic overview of average lifespan of female and male mammals in wild populations. Credit: *Proceedings of the National Academy of Sciences* (2020). DOI: 10.1073/pnas.1911999117

The researchers note that many studies into longevity in mammals have been conducted. But most were focused on a single species or a group of related species. They claim theirs is the widest-reaching study of its kind to date because of the large numbers of species that were included. They also note that they found that the longer a species of mammal is studied, the more accurate estimations of their longevity become. And groups that have been studied the longest show some of the biggest gaps in longevity—some as much as 20 percent.

More information: Jean-François Lemaître et al. Sex differences in adult lifespan and aging rates of mortality across wild mammals, *Proceedings of the National Academy of Sciences* (2020). DOI: 10.1073/pnas.1911999117

Press release