Featured
17-α-estradiol extends life in older male mice, NR and three other drugs do not in either sex

Special issue: Aging and sociality: Why, when and how does sociality change aging patterns?

Headline vs Study
Headline: Mouse study finds potential treatment for myelin repair for MS, aging
Study: Functional genomic analyses highlight a shift in Gpr17-regulated cellular processes in oligodendrocyte progenitor cells and underlying myelin dysregulation in the aged mouse cerebrum

Contrary or Null Findings
Testosterone supplementation does not improve vascular function in middle age and older men

Neither self-identified race nor population ancestry associate with dementia prevalence in Cuba

Middle-age dogs outperform both old and young dogs in spatial reversal learning

Microbiomes change little with age or sex in free-ranging rhesus macaques

Energetics/Nutrition
Weight loss is associated with increased mortality risk in older Japanese adults

Late life alternate day fasting improves health in male, but not female, mice

Ketogenic diet preserves skeletal muscle with aging in male mice

Aged cynomolgus monkeys fed a high-fat/high-sugar diet recapitulate human metabolic and cardiovascular disorders

Selenium supplementation prevents high-fat diet-induced weight gain in mice

Caloric restriction improves the intestinal microbiota in aged male mice
An improved *E. coli* food source for worm metabolism and longevity studies

Review: Intermittent fasting: from calories to time restriction

Review: Nutritional concerns for cancer and frailty in companion cats and dogs

Review: Rotifers as models for investigating dietary and metabolic regulators of aging

Review: Metabolic syndrome and the aging retina

Review: Astrocytes as targets of exercise and caloric restriction mimetics

Review: Dietary fasting regimes and the gut microbiome

**Basic Biology**

*Upregulation of IL-6 leads to frailty in mice*

*Hyperphosphorylated tau accumulates in hippocampal synaptic mitochondria in naturally aged mice of unknown sex*

*Reduced hepatic IGF-I protects against atherosclerosis in female but not male mice in an atherosclerosis model*

*Transcriptomic and proteomic profiling of the aging kidney in genetically diverse mice*

*Cardiac response to adrenergic stress differs by sex and age in mice*

*Decreases in intraflagellar transport impairs sensory perception and metabolism with aging in worms*

*Inhibiting the integrated stress response extends life in worms*

*Overexpression of a proteasome activator improves cognition in aged female but not male mice*

*Polypharmacy induces functional impairment in old mice*

*Muscle mitochondrial genome number and damage predict physical performance in older humans*

*Hypothesis: Changing insulin signaling to increase lifespan without affecting reproduction or growth*

Review: Molecular functions of genetic variants linked to human aging

Review: Proteostasis and brain healthspan

Review: Lipid raft roles in neurodegeneration and aging

Review: Functional genomics of inflammaging and immunosenescence

Review: DNA damage and mutations in aging

Review: Proteomics in aging research

Review: *C. elegans* as models for drug discovery
Review: Aging of the gut microbiome

Review: Intersection of immunometabolism and immunosenescence during aging

Ecology & Evolution
Hatching first in a clutch increases adult fitness in common terns

Autophagy-related transcripts increase with age, and autophagy genes are under positive selection in long-lived bats

Novel Organisms/ Comparative
DNA methylation and exceptional longevity of bats

Transcriptomic profiling of long-lived termite queens

Trends in the use of marine ingredients in anti-aging cosmetics

Sexual activity increases longevity in a mole-rat genus: stress modulation implicated

Fertility and longevity in ant workers explained

Review: Diverse effects of reactive oxygen species on lifespan across experiments and species

Epidemiology/Demography
Low mitochondrial DNA copy number is associated with increased risk of type 2 diabetes in women

Compression of morbidity in older ages in Germany from 2002 to 2018

Review: Accelerated aging due to air pollution and traffic noise exposure

COVID-19 and aging
Attributes and predictors of long COVID

Biological aging predicts COVID-19 mortality

Review: What can we learn about aging and COVID-19 by studying mortality?

Clinical
Anemia associated with cognitive impairment and increased mortality risk in the oldest-old humans

Neuroimaging reveals sex differences in brain aging

Obstructive sleep apnea associated with signs of accelerated aging

Review: Senolytics as drugs for alleviating Type 2 diabetes

Care-giving
Older female caregivers have increased caregiving burden and decreased physical health compared to older male caregivers

When transitioning to informal caregiving, caregivers expect to die earlier
Policy/Ethics
The aging surgeon: Evidence and experience

Prioritizing COVID-19 vaccination by age

Barriers to implementing age-friendly initiatives in New Zealand

Commentary
What will the horrible year of 2020 bring to the future of aging research?

Can some drugs delay aging? Scientists focus on those that target frailty and age-related disease

Odd and Ends
A philosopher's perspective: Chronological age versus biological age

New healthy worm database for insights into compounds that improve health, not necessarily longevity

Sad passing of a bright light in aging research

Aging Biology Update is brought to you by the UAB Nathan Shock Center and compiled by Jessica Hoffman, Heather Patterson, Joseph Palmer, Melissa Harris, Anna Thalacker-Mercer, and Steven Austad. Subscribe to this newsletter.