Featured
US life expectancy predicted to decline 1.13 years in 2020 due to COVID-19

Actual CDC data: US life expectancy declined 1 year in the first half of 2020

Headline vs study
Headline: Fossil fuel air pollution causes almost 1 in 5 deaths globally each year
Study: Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem

Contrary or Null Findings
Metformin decreases median lifespan in older female mice

No effect of maternal age on offspring body condition in roe deer

Chronological age predicts mortality better than multiple summary measures of biological age

Canine cognitive dysfunction not associated with plasma A-Beta levels

Energetics/Nutrition
Review: Mediterranean diet and hallmarks of aging
Review: Functional nutrients to improve frailty syndrome
Review: Caloric restriction as a treatment for inflammatory diseases
Review: Molecular mechanisms of obesity and aging
Review: Pasteurized non-fermented, but not fermented, milk increases mTOR activity

Basic Biology
Centenarians develop aging protein signatures at later ages than other humans

Gut microbiome composition predicts survival in humans

More human gut microbiome: Microbiome differs significantly between healthy and unhealthy long-lived people
Neurofilament light chain is associated with mortality in the oldest old and mice

Mutations in different parts of the insulin receptor gene differentially modulate aging and reproduction in fruit flies

Inhibition of 15-PGDH improves muscle mass and function in old mice of unknown sex

Correlations of microbiome and metabolome with age in male mice

Neuronal cell-type specific roles of Forkhead transcription factors in Drosophila health and longevity

Brain pH decreases with age and Alzheimer’s disease

Nicotinamide supplementation improves heart function in aged and diseased rats and mice

Sodium rutin extends lifespan and improves health in male mice

A machine learning framework to identify signatures of human frailty

Rapamycin treatment reduces senescence of rat tendon stem cells

Insights into epithelial cell senescence from human oral keratinocytes

New resource for design of functional longitudinal studies in C57BL/6 mice

Review: Hallmarks of aging and immunosenescence

Review: Aging biomarkers and the brain

Review: TOR signaling in cardiac aging and heart failure

Review: Aging and the deterioration of nuclear morphology

Review: Splicing alterations in healthy aging and disease

Review: Regulation of wound healing response during aging

Review: Oxygen sensing and age-related phenotypes

Ecology & Evolution
Longevity genes are under positive selection in capuchin monkeys

Experimentally decreasing body size in hydra leads to reduced fecundity but increased survival

Increased paternal age reduces offspring sperm production in the African houbara bustard

Costs of reproduction in female field crickets

Transposable element insertions are higher, but expression is lower in fruit fly lines selected for longevity
Novel Organisms/ Comparative
**Cognitive performance of aged rhesus macaques**

*Canine cognitive dysfunction associated with reduced hippocampal volume in older dogs*

*Declines in oocyte and embryonic metabolic activity with increasing maternal age in horses*

*Meta-analysis: Tissue specific aging of the transcriptome across species*

*Review: Parasitic worms as anti-inflammaging therapy?*

*Review: Killifish as models of age-related neurodegeneration*

*Review: Aging, stress, and senescence in plants*

**Epidemiology/Demography**

*Climate change is predicted to cause 5.5% of deaths in China by the 2090s*

*Meta-analysis: Mortality is higher in individuals with vision impairment as compared to mild vision impairment or normal vision*

*Review: Demographic perspectives on the rise of longevity*

**COVID-19 and Aging**

*Age and frailty status are independently associated with COVID-19 mortality*

**COVID-19, biogerontology, and the aging of humanity**

*medRxiv: COVID-19 hospitalization rates soar with age, plummet with thymic T-cell production*

*Cardiovascular risk factors and COVID-10 outcomes*

*Dynamics of age and COVID-19 mortality across countries*

**COVID-19 mortality as a fingerprint of biological age**

**Clinical**

*Using different definitions of sarcopenic obesity can change the prevalence from 0-85%*

*Review: Genetic insights into Alzheimer’s disease*

*Review: Testosterone replacement: should you or shouldn’t you?*

**Care-giving**

*Caregivers of dementia patients report increased burden during COVID-19 quarantine*

*What’s important when caring for a loved one? Results of an online survey of informal caregivers*

**Policy/Ethics**

*More accurate forecasting of mortality to better inform healthcare policies*
Effects of public support policies on caregiver health

Commentary
The future of healthy aging: translation of geroscience discoveries to public health practice

Longevity pharmacology comes of age

Use machine learning to improve omics data analysis in aging research

Odd and Ends
Examining muscle regeneration in zebrafish models of age-related muscle wasting

bioRxiv: HumGut: Novel resource for human prokaryotic genomes

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.

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