The Ascent

OCTOBER 19, 2026

EDITIONS



EDITORIAL ILLUSTRATION / AN ARTISTIC INTERPRETATION

Strength is something we keep making.

MOVEMENT / RECOVERY / THE LONG GAME

The full original issue follows, with its articles and sources preserved.
Editorial review copy. This illustration update is not a new evidence audit.

Capacity Worth Returning To

Athletes and active adults · 1,914 words · about 13 minutes at 150 words/minute

The next session matters. So does the ability to return next month, next year, and into later life. Today’s selection looks at the work inside muscle, the timing around a training day, and the challenge of understanding a biomarker after contact sport.

The DEAF1 work remains preclinical. A change in a blood marker after sport is not a diagnosis or a prediction of an individual’s future. Keep useful questions about training and safety connected to the population and outcome actually studied.

This is a selected edition. The complete daily issue and the full evidence intake remain available to every reader.



Strength Is Something We Keep Making

A 2025 study examines how exercise changes the FOXO-DEAF1-mTORC1 pathway in fruit flies, aged mice, and cultured mouse muscle cells. It is preclinical research, with no human treatment trial and no evidence here establishing an age after which beginning exercise is too late.

Muscle is useful in wonderfully ordinary ways. It gets us off the floor, carries us up a path, and lets us join in. Underneath that capacity is continuing work: making, clearing, repairing. This animal research offers a closer look at how those processes may become unbalanced with age.

The paper appeared in PNAS in 2025. Full-text review now confirms experiments in aged mice as well as flies and cultured cells. The methods report six male mice per group; the supplementary protocols and assay-specific samples still need a detailed audit before making broader claims about robustness.

The gene is called DEAF1. Muscle needs a balance between making new proteins and clearing out damaged ones. A cell-growth pathway called mTORC1 helps run that balance. In aging muscle, the authors write, mTORC1 becomes overactive. That is linked to sarcopenia, the loss of muscle mass and function with age. What drives the overactivity was unclear.

The researchers report that DEAF1 is one driver. According to the study, DEAF1 binds the promoter of the mTOR gene and raises its activity. In the mouse muscle cells, they found 16,611 DEAF1 binding sites, about 75% at gene promoters. More DEAF1 meant more mTOR messenger RNA. Less DEAF1 meant less.

In flies, muscle strength was tracked by climbing ability at weeks 1, 3 and 6. Climbing declined by week 6. Lowering Deaf1 in muscle significantly preserved muscle function. Raising it had no effect early on but worsened defects at week 6.

Aged fly muscle showed more protein production, less clearing of damaged proteins, more protein clumps and more markers of cell senescence, a state in which cells stop dividing and can harm nearby tissue. Lowering Deaf1 reduced these changes. Raising it intensified them. The mTORC1-blocking drugs rapamycin and everolimus suppressed Deaf1-induced muscle defects in flies. This supports the idea that mTORC1 sits downstream of DEAF1. In the mouse cells, the same pattern held. These were experiments in animals and cells; nobody should start, stop or change any medication, treatment or exercise regimen without consulting their clinician.

Exercise enters through a family of proteins called FOXO. The abstract states that exercise suppresses Deaf1 by activating FOXO. That restores mTORC1 balance and eases muscle aging. When FOXO was inhibited, or Deaf1 was overexpressed, the benefits of exercise were

blocked. This is the strongest evidence in the paper that the pathway is needed for exercise to work in these models.

Here is what it may mean for health, with caution. The study did not test when exercise should begin, and it did not study people. The press release from Duke-NUS Medical School, which led the work, says exercise may no longer fully restore muscle repair when DEAF1 is extremely high or FOXO activity is very low, and that the benefits may diminish when the system becomes too disrupted. The release also states that the findings do not suggest exercise loses its value with age. Whether any of this applies to people is untested, and this is where the argument is weakest: it rests on animal and cell work and says nothing about timing.

The release quotes lead author Tang Hong-Wen: "Exercise can reverse this process, correcting the imbalance." The study's own language is similarly strong: its title says exercise will reverse muscle aging, and the text says the pathway rejuvenates aging muscle. Its closing caution is that targeting the FOXO-DEAF1-mTORC1 axis may offer therapeutic potential.

The institutional Duke-NUS release located for this review is dated January 12, 2026. The original issue linked later coverage dated October 15. These are separate publication events around a 2025 paper, so this story should be presented as a research revisit.

WHAT TO WATCH NEXT Whether DEAF1 levels and FOXO activity can be measured in human muscle, and whether studies in older adults show that they predict who benefits most from exercise.

There is pleasure in learning more about a familiar act. The work now is to discover how much of this pathway carries into human muscle, and whether that knowledge can help preserve useful strength.

Sources: https://doi.org/10.1073/pnas.2508893122 · https://www.sciencedaily.com/releases/2026/10/261015003550.htm · https://pmc.ncbi.nlm.nih.gov/articles/PMC12685040/ · https://www.duke-nus.edu.sg/newshub/media-releases/deaf1

Original reporting: 2026-10-19-03, pp. 8-10. Selected source updates are documented in the workbook.

A Morning the Body Can Recognize

If governments stop changing the clocks twice a year, which time should they keep? A new analysis in the Canadian Medical Association Journal (CMAJ) says permanent standard time, because it keeps more morning light in the part of the day when the body clock needs it most.

A clock gives the day a shared shape. Light gives the body another set of instructions. A policy decision about which hour to keep reaches into that daily negotiation, with different consequences for the student, the early worker, and the person whose schedule leaves room to adjust.

This is not a new experiment. The paper, by Raymond Lam, Ralph Mistlberger, Patrick Baylis and Alexandra Choi, is a policy analysis that pulls together existing research. It has no participants of its own. Much of the evidence it cites is observational, meaning it finds links between light, sleep and health but cannot prove cause. The authors say the evidence for health effects is accumulated, and they call the effects on economic and education outcomes unclear.

The biology is straightforward. According to the paper, the master clock in the brain runs a little slow, about 24.2 hours per cycle. Daylight resets it each day. Morning light moves the clock earlier. Evening light moves it later. Morning light therefore helps body time match the time set by work and school, and evening light works against that.

Modern life already pushes the clock later, the authors write. Many people spend the day indoors and miss bright morning light. Electric lights and screens extend light into the evening. The result is what researchers call social jet lag: waking for work or school before the body is ready. Observational studies link it to short sleep, poorer mental health, metabolic risk and cognitive problems.

Permanent daylight saving time (pDST) would make this worse in winter, the authors argue. It shifts daylight an hour later, so winter mornings stay dark longer and evenings stay light longer. That works against the body clock at both ends of the day.

Mood is a particular concern. The paper estimates 1% to 3% of people in Canada live with seasonal affective disorder, and as many as 15% have milder winter changes in mood, sleep, appetite and energy. Teenagers aged 12 to 17 are most affected. The leading explanation is a delayed body clock. Early morning bright light is the standard treatment because it shifts the clock earlier. The authors say pDST pushes in the opposite direction.

Geography points the same way, though these are correlations. Seasonal affective disorder prevalence rises by 0.2% for each degree of latitude. In US county data, people living on the western edge of a time zone, where the clock-time sunrise is later, had up to 2 more suicide

deaths per 100,000 people each year than those on the eastern edge. A 2025 modelling study found the health benefit of pDST was a third lower than that of permanent standard time (pST).

The paper also describes costs of later solar time. One study found an hour of later sunset reduced weekly sleep by nearly an hour and long-run earnings by about 5%. A Florida study linked an extra hour of morning sunlight to modestly higher adolescent math and reading scores. The authors stress the overall economic and education picture is unclear.

The analysis does not claim standard time is free of trade-offs. Earlier dusk limits evening activities. Earlier summer sunrise may wake some people too early. Light also varies by place, so the effect of either choice differs across Canada, and it matters less near the poles and equator.

The Irish Times, which reported on the paper, quoted Mistlberger: "Our biological clocks need morning light to stay synchronised with the 24-hour day. Permanent daylight saving time moves that light an hour later just when winter mornings are already darkest." The newspaper also cited a 2020 PLoS Computational Biology report of more fatal traffic accidents (up to 30%) and about 4% more heart attacks around the spring change. Those figures come from the coverage, not from the CMAJ text reviewed here.

The analysis discusses population measures and mitigation strategies, including attention to morning light, schedules, travel safety, and seasonal symptoms. It does not provide an individualized light-therapy prescription. Anyone considering treatment for a sleep or mood disorder should discuss their circumstances with a qualified clinician.

The paper discusses policy developments as context. Current jurisdiction-by-jurisdiction legal status and the status of U.S. legislation were not independently established in this processing pass. Its central argument concerns the health implications of morning light, not evidence that a permanent-time policy has already been enacted everywhere discussed.

A better arrangement would leave more people able to meet the morning with the sleep and alertness they need. That makes the design of the day part of the health conversation.

Sources: https://doi.org/10.1503/cmaj.261089 · https://irishtimes.com/health/your-wellness/2026/10/19/clock-changes-and-your-health-research-finds-the-best-course-might-not-be-the-one-you-want · https://pubmed.ncbi.nlm.nih.gov/42833692/

Original reporting: 2026-10-19-02, pp. 5-7. Selected source updates are documented in the workbook.

Selected signals

The briefs below retain their evidence limits. “Primary checked” here means the stated access level, often an abstract check.

Contact sport sessions raise blood markers of brain cell damage, review finds

A meta-analysis in Sports Medicine pooled 33 studies with 892 participants. Blood markers of neural damage rose clearly after a session of fight sports, American football and soccer. Experimental football heading showed no significant change. Few studies controlled for exercise effects, so the risk of bias was considerable. The findings show short-term changes, not long-term outcomes.

Evidence: Meta-analysis / systematic synthesis. Abstract and metadata only; no full-text adjudication.

Source: https://pubmed.ncbi.nlm.nih.gov/42839221/ · Original p. 43 · 2026-10-19-b126

Resistance-trained adults show less arterial stiffness; brain blood flow responses to leg press similar

A study in Medicine and Science in Sports and Exercise compared 44 healthy young adults, some resistance-trained and some not. At rest, brain blood flow measures did not differ. Trained people had lower arterial stiffness and diastolic pressure. During heavy leg presses, their brain blood flow responses were similar to or smaller than those of untrained people.

Evidence: Observational / other; inspect source. Extracted from supplied newsletter; linked source not checked in this pass.

Source: https://pubmed.ncbi.nlm.nih.gov/42841366/ · Original p. 31 · 2026-10-19-b044

Planned trial will test ultrasound for muscle recovery after tiring handgrip exercise

A trial registered on ClinicalTrials.gov, sponsored by Universidade Federal de Santa Maria, has not yet begun recruiting and has no results. It plans to enrol 80 healthy adults aged 18 to

45. Some will get low-intensity therapeutic ultrasound after fatiguing handgrip exercise. Others will get a placebo with the intensity set to zero. The main outcome is pain.

Evidence: Registered study; outcome results not established. Extracted from supplied newsletter; linked source not checked in this pass.

Source: https://clinicaltrials.gov/study/NCT07871942 · Original p. 38 · 2026-10-19-b096