RESEARCH HIGHLIGHTS

Selections from the scientific literature

NEUROSCIENCE

Carbon dating spots new neurons

Human cells renew themselves in the striatum, a brain region involved in cognition and coordinating body movements.

Neurons are known to regenerate in the human adult hippocampus. To find out whether regeneration occurs in other areas, Jonas Frisén at the Karolinska Institute in Stockholm and his colleagues developed a carbon-14 dating technique. They compared levels of the isotope in DNA extracted from different areas of post-mortem brains with levels of atmospheric carbon-14 during the birth year and lifetime of the donors. The team found that the carbon-14 levels in the striatum matched atmospheric levels present after the birth of the donors, suggesting that new neurons in this brain region were generated post-natally.

Only a type of neuron called an interneuron seems to regenerate in the striatum.

Cell **http://dx.doi.org/10.1016/j.cell.2014.01.044 (2014)**

BANFF WILDLIFE CROSSINGS PROJECT

CONSERVATION BIOLOGY

Bears use animal bridges to breed

Animal crossings in Canada's Banff National Park allow bears to cross a major highway to breed, preventing genetic isolation.

Roads can fragment animal populations, increasing the risk of inbreeding and extinction. Bridges (pictured) and underpasses could help, but it has not been clear how well they work. Michael Sawaya and his colleagues at Montana State University in Bozeman studied grizzly bears (*Ursus arctos*) and black bears (*Ursus americanus*) that used 20 animal crossings along a 45-kilometre stretch of highway bisecting the park. The researchers snared fur samples from passing bears, using barbed wire and other devices, for DNA analysis.

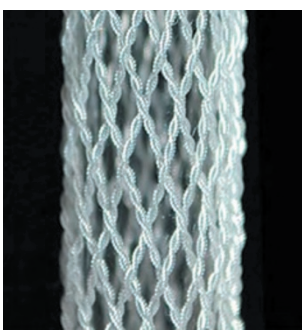
Genetic data from bears using the crossings and those in the greater park area revealed a healthy amount of genetic exchange between populations on either side of the road.

Proc. R. Soc. B 281, **20131705 (2014)**

MATERIALS

Muscles made from thread

Twisting strong fibres such as sewing thread and fishing line produces artificial 'muscles' that are stronger than their human counterparts.



People have long made yarn by twisting fibres. But Ray Baughman at the University of Texas at Dallas in Richardson and his team twisted low-cost nylon or polyethylene fibres so tightly, while applying just the right amount of weight, that the fibres became extremely coiled muscles. The researchers could then weave the muscles into braids (**pictured**) or textiles. A bundle of polyethylene muscle fibres generated mechanical work that was more than 100 times greater than that produced from the same weight of human muscle.

The artificial muscles could one day be used in robotics, prosthetic devices, and even in clothing with pores that open and close in response to temperature changes.

Science 343, **868–872 (2014)**

ARCHAEOLOGY

Ancient artists' gender is a mystery

Efforts to infer the sex of ancient hand-painting artists by comparing their prints with those of modern humans could be flawed, according to a team in the Czech Republic.

Patrik Galeta and his colleagues at the University of West Bohemia in Pilsen studied the handprints of 50 modern men and 50 modern women from France. An analysis of data, including the length of the hand and fingers, correctly identified the sex to which the print belonged in 92% of cases, but only 54% could be classified with 95% certainty. When the authors used a method previously developed using US handprints, 100% of French female prints were successfully classified, compared with only 58% of those belonging to French males; this discrepancy is mainly due to differences in hand size between the US and French populations.

Modern measurements cannot be generalized across populations, casting doubt

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