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# References

## Aktuell


Husby 2023

Anders Husby et al., *Clinical outcomes of myocarditis after SARS-CoV-2 mRNA vaccination in four Nordic countries, Population based cohort study.* BMJ Medicine **2** (2023), e373. DOI:10.1136/bmjmed-2022-000373.

OBJECTIVE To investigate the clinical outcomes of myocarditis associated with mRNA vaccines against the SARS-CoV-2 virus compared with other types of myocarditis.

DESIGN Population based cohort study.

SETTING Nationwide register data from four Nordic countries (Denmark, Finland, Norway, and Sweden), from 1 January 2018 to the latest date of follow- up in 2022.

PARTICIPANTS The Nordic myocarditis cohort; 7292 individuals aged ≥12 years who had an incident diagnosis of myocarditis as a main or secondary diagnosis, in a population of 23 million individuals in Denmark, Finland, Norway, and Sweden. MAIN OUTCOME MEASURES Heart failure, or death from any cause within 90 days of admission to hospital for new onset myocarditis, and hospital readmission within 90 days of discharge to hospital for new onset myocarditis. Clinical outcomes of myocarditis associated with SARS-CoV-2 mRNA vaccination, covid- 19 disease, and conventional myocarditis were compared.

Results In 2018–22, 7292 patients were admitted to hospital with new onset myocarditis, with 530 (7.3 %) categorised as having myocarditis associated with SARS-CoV-2 mRNA vaccination, 109 (1.5 %) with myocarditis associated with covid- 19 disease, and 6653 (91.2 %) with conventional myocarditis. [ . . . ] Among patients aged 12- 39 years with no predisposing comorbidities, the relative risk of heart failure or death was markedly higher for myocarditis associated with covid-19 disease than for myocarditis associated with vaccination (relative risk 5.78, 1.84 to 18.20).

Conclusions Compared with myocarditis associated with covid- 19 disease and conventional myocarditis, myocarditis ater vaccination with SARS-CoV-2 mRNA vaccines was associated with better clinical outcomes within 90 days of admission to hospital.

Anders Husby, Hanne Løvdal Gulseth, Petteri Hovi, Jørgen Vinsløv Hansen, Nicklas Pihlström, Nina Gunnes, Tommi Härkänen, Jesper Dahl, Øystein Karlstad, Tiina Heliö, Lars Køber, Rickard Ljung & Anders Hviid


## Anthropologie


Gibbons 2023

Ann Gibbons, *Should an also-ran in human evolution get more respect?* science **379** (2023), 522–523.

Oldest Oldowan tools—seen as a hallmark of our own genus—found with bones of an unexpected hominin.

Plummer 2023

Thomas W. Plummer et al., *Expanded geographic distribution and dietary strategies of the earliest Oldowan hominins and Paranthropus*. science **379** (2023), 561–566.

s379-0561-Supplement.pdf

The oldest Oldowan tool sites, from around 2.6 million years ago, have previously been confined to Ethiopia's Afar Triangle. We describe sites at Nyayanga, Kenya, dated to 3.032 to 2.581 million years ago and expand this distribution by over 1300 kilometers. Furthermore, we found two hippopotamid butchery sites associated with mosaic vegetation and a C4 grazer–dominated fauna. Tool flaking proficiency was comparable with that of younger Oldowan assemblages, but pounding activities were more common. Tool use-wear and bone damage indicate plant and animal tissue processing. Paranthropus sp. teeth, the first from southwestern Kenya, possessed carbon isotopic values indicative of a diet rich in C4 foods. We argue that the earliest Oldowan was more widespread than previously known, used to process diverse foods including megafauna, and associated with Paranthropus from its onset.

Thomas W. Plummer, James S. Oliver, EmmaM. Finestone, Peter W. Ditchfield, Laura C. Bishop, Scott A. Blumenthal, Cristina Lemorini, Isabella Caricola, Shara E. Bailey, Andy I. R. Herries, Jennifer A. Parkinson, Elizabeth Whitfield, Fritz Hertel, Rahab N. Kinyanjui, Thomas H. Vincent, Youjuan Li, Julien Louys, Stephen R. Frost, David R. Braun, Jonathan S. Reeves, Emily D. G. Early, Blasto Onyango, Raquel Lamela-Lopez, Frances L. Forrest, Huaiyu He, Timothy P. Lane, Marine Frouin, Sébastien Nomade, Evan P. Wilson, Simion K. Bartilol, Nelson Kiprono Rotich & Richard Potts

## Kultur

Callaway 2023

Ewen Callaway, *Surprising chemicals used to embalm Egyptian mummies*. nature **614** (2023), 202–203.

Resins used to prepare bodies for the afterlife found in vessels in an ancient workshop.

Ikram 2023

Salima Ikram, *Recipes for ancient Egyptian mummification*. nature **614** (2023), 229–230.

What ingredients and processes underlay mummification in ancient Egypt? The molecular analysis of labelled pots excavated from an embalming workshop provides some answers to this question.

Rageot 2023

Maxime Rageot, Ramadan B. Hussein, Mahmoud M. Bahgat, Cynthianne Spiteri & Philipp W. Stockhammer et al., *Biomolecular analyses enable new insights into ancient Egyptian embalming*. nature **614** (2023), 287–293.

n614-0287-Supplement.pdf

The ability of the ancient Egyptians to preserve the human body through embalming has not only fascinated people since antiquity, but also has always raised the question of how this outstanding chemical and ritual process was practically achieved. Here we integrate archaeological, philological and organic residue

analyses, shedding new light on the practice and economy of embalming in ancient Egypt. We analysed the organic contents of 31 ceramic vessels recovered from a 26th Dynasty embalming workshop at Saqqara1,2. These vessels were labelled according to their content and/or use, enabling us to correlate organic substances with their Egyptian names and speciic embalming practices. We identiied speciic mixtures of fragrant or antiseptic oils, tars and resins that were used to embalm the head and treat the wrappings using gas chromatography–mass spectrometry analyses. Our study of the Saqqara workshop extends interpretations from a micro-level analysis highlighting the socioeconomic status of a tomb owner3–7 to macro-level interpretations of the society. The identiication of non-local organic substances enables the reconstruction of trade networks that provided ancient Egyptian embalmers with the substances required for mummiication. This extensive demand for foreign products promoted trade both within the Mediterranean8–10 (for example, Pistacia and conifer by-products) and with tropical forest regions (for example, dammar and elemi). Additionally, we show that at Saqqara, antiu and sefet—well known from ancient texts and usually translated as 'myrrh' or 'incense'11–13 and 'a sacred oil'13,14—refer to a coniferous oils-or-tars-based mixture and an unguent with plant additives, respectively.

Maxime Rageot, Ramadan B. Hussein, Susanne Beck, Victoria Altmann-Wendling, Mohammed I. M. Ibrahim, Mahmoud M. Bahgat, Ahmed M. Yousef, Katja Mittelstaedt, Jean-Jacques Filippi, Stephen Buckley, Cynthianne Spiteri & Philipp W. Stockhammer

## Mathematik

### Wen 2023

Yixiong Wen, Laiming Zhang, Ann E. Holbourn, Chenguang Zhu & Katharine W. Huntington et al., *$CO_2$-forced Late Miocene cooling and ecosystem reorganizations in East Asia*. PNAS **120** (2023), e2214655120.

pnas120-e2214655120-Supplement.pdf

In parallel with pronounced cooling in the oceans, vast areas of the continents experienced enhanced aridiication and restructuring of vegetation and animal communities during the Late Miocene. Debate continues over whether pCO2-induced global cooling was the primary driver of this climate and ecosystem upheaval on land. Here we present an 8 to 5 Ma land surface temperatures (LST) record from East Asia derived from paleosol carbonate clumped isotopes and integrated with climate model simulations. The LST cooled by ≈7 °C between 7.5 and 5.7 Ma, followed by rapid warming across the Miocene–Pliocene transition (5.5 to 5 Ma). These changes occurred synchronously with variations in alkenone and Mg/Ca-based sea surface temperatures and with hydroclimate and ecosystem shifts in East Asia, highlighting a global climate forcing mechanism. Our modeling experiments additionally demonstrate that pCO2-forced cooling would have altered moisture transfer and pathways and driven extensive aridiication in East Asia. We, thus, conclude that the East Asian hydroclimate and ecosystem shift was primarily controlled by pCO2-forced global cooling between 8 and 5 Ma.

Keywords: Late Miocene cooling | land surface temperature | clumped isotope | climate modeling | Chinese Loess Plateau

Yixiong Wen, Laiming Zhang, Ann E. Holbourn, Chenguang Zhu, Katharine W. Huntington, Tianjie Jin, Yalin Li & Chengshan Wang

Significance: A widespread Late Miocene reorganization of terrestrial environments between 7.5 and 5 My B.P. occurred within a global context of ocean sea

surface temperature cooling (up to 6 °C) and climate change. Yet the timing of events on land and the overall driving mechanism remains poorly understood. We present a new land surface temperature record from the Chinese Loess Plateau in East Asia, which reveals that cooling and aridiication occurred synchronously with ocean cooling, highlighting a global forcing mechanism. Our results in combination with general circulation simulations suggest that positive feedbacks between decreasing atmospheric CO2, global cooling, and enhanced land aridiication promoted a major reorganization of ecosystems in East Asia during the Late Miocene.

## Mittelalter

Gabrieli 1957

Francesco Gabrieli, *Die Kreuzzüge aus arabischer Sicht*. Bibliothek des Morgenlandes (München 1975). Original: Storici arabi delle Crociate.

Schneidmüller 2011

Bernd Schneidmüller, *Grenzerfahrung und monarchische Ordnung, Europa 1200–1500*. Geschichte Europas 3 (München 2011).

## Mittelpaläolithikum

Baquedano 2023

Enrique Baquedano & César Laplana et al., *A symbolic Neanderthal accumulation of large herbivore crania*. Nature Human Behaviour (2023), preprint, 1–23. DOI:10.1038/s41562-022-01503-7.

NatHumBeh2023.02-Baquedano-Supplement.pdf

This work examines the possible behaviour of Neanderthal groups at the Cueva Des-Cubierta (central Spain) via the analysis of the latter's archaeological assemblage. Alongside evidence of Mousterian lithic industry, Level 3 of the cave inill was found to contain an assemblage of mammalian bone remains dominated by the crania of large ungulates, some associated with small hearths. The scarcity of post-cranial elements, teeth, mandibles and maxillae, along with evidence of anthropogenic modiication of the crania (cut and percussion marks), indicates that the carcasses of the corresponding animals were initially processed outside the cave, and the crania were later brought inside. A second round of processing then took place, possibly related to the removal of the brain. The continued presence of crania throughout Level 3 indicates that this behaviour was recurrent during this level's formation. This behaviour seems to have no subsistence-related purpose but to be more symbolic in its intent.

Enrique Baquedano, Juan L. Arsuaga, Alfredo Pérez-González, César Laplana, Belén Márquez, Rosa Huguet, Sandra Gómez-Soler, Lucía Villaescusa, M. Ángeles Galindo-Pellicena, Laura Rodríguez, Rebeca García-González, M.-Cruz Ortega, David M. Martín-Perea, Ana I. Ortega, Lucía Hernández-Vivanco, Gonzalo Ruiz-Liso, Juan Gómez-Hernanz, José I. Alonso-Martín, Ana Abrunhosa, Abel Moclán, Ana I. Casado, Marina Vegara-Riquelme, Ana Álvarez-Fernández, Ángel C. Domínguez-García, Diego J. Álvarez-Lao, Nuria García, Paloma Sevilla, Hugues-Alexandre Blain, Blanca Ruiz-Zapata, M. José Gil-García, Adrián Álvarez-Vena, Teresa Sanz, Rolf Quam & Tom Higham

Curry 2023

Andrew Curry, *Neanderthals lived in groups big enough to eat giant elephants*. science **379** (2023), 428.

Gaudzinski-Windheuser 2023

Sabine Gaudzinski-Windheuser, Lutz Kindler, Katharine MacDonald & Wil Roebroeks, *Hunting and processing of straight-tusked elephants 125.000 years ago, Implications for Neanderthal behavior*. Science Advances **9** (2023), eadd8186. DOI:10.1126/sciadv.add8186.

SciAdv09-eadd8186-Supplement.pdf

Straight-tusked elephants (Palaeoloxodon antiquus) were the largest terrestrial mammals of the Pleistocene, present in Eurasian landscapes between 800,000 and 100,000 years ago. The occasional co-occurrence of their skeletal remains with stone tools has generated rich speculation about the nature of interactions between these elephants and Pleistocene humans: Did hominins scavenge on elephants that died a natural death or maybe even hunt some individuals? Our archaeozoological study of the largest P. antiquus assemblage known, excavated from 125,000-year-old lake deposits in Germany, shows that hunting of elephants weighing up to 13 metric tons was part of the cultural repertoire of Last Interglacial Neanderthals there, over >2000 years, many dozens of generations. The intensity and nutritional yields of these well-documented butchering activities, combined with previously reported data from this Neumark-Nord site complex, suggest that Neanderthals were less mobile and operated within social units substantially larger than commonly envisaged.

Roebroeks 2021

Wil Roebroeks & Katharine MacDonald et al., *Landscape modification by Last Interglacial Neanderthals*. Science Advances **7** (2021), eabj5567. DOI:10.1126/sciadv.abj5567.

SciAdv07-eabj5567-Supplement.pdf

Little is known about the antiquity, nature, and scale of Pleistocene hunter-gatherer impact on their ecosystems, despite the importance for studies of conservation and human evolution. Such impact is likely to be limited, mainly because of low population densities, and challenging to detect and interpret in terms of cause-effect dynamics. We present high-resolution paleoenvironmental and archaeological data from the Last Interglacial locality of Neumark-Nord (Germany). Among the factors that shaped vegetation structure and succession in this lake landscape, we identify a distinct ecological footprint of hominin activities, including fire use. We compare these data with evidence from archaeological and baseline sites from the same region. At Neumark-Nord, notably open vegetation coincides with a virtually continuous c. 2000-year-long hominin presence, and the comparative data strongly suggest that hominins were a contributing factor. With an age of c. 125,000 years, Neumark-Nord provides an early example of a hominin role in vegetation transformation.

Wil Roebroeks, Katharine MacDonald, Fulco Scherjon, Corrie Bakels, Lutz Kindler, Anastasia Nikulina, Eduard Pop & Sabine Gaudzinski-Windheuser