

## Reporting Summary

Nature Research wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Research policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

### Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

- | n/a                                 | Confirmed                                                                                                                                                                                                                                                                                      |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> The exact sample size ( $n$ ) for each experimental group/condition, given as a discrete number and unit of measurement                                                                                                                                    |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly                                                                                                                                    |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> The statistical test(s) used AND whether they are one- or two-sided<br><i>Only common tests should be described solely by name; describe more complex techniques in the Methods section.</i>                                                               |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> A description of all covariates tested                                                                                                                                                                                                                     |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons                                                                                                                                        |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals) |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> For null hypothesis testing, the test statistic (e.g. $F$ , $t$ , $r$ ) with confidence intervals, effect sizes, degrees of freedom and $P$ value noted<br><i>Give <math>P</math> values as exact values whenever suitable.</i>                            |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings                                                                                                                                                           |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes                                                                                                                                                |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> Estimates of effect sizes (e.g. Cohen's $d$ , Pearson's $r$ ), indicating how they were calculated                                                                                                                                                         |

*Our web collection on [statistics for biologists](#) contains articles on many of the points above.*

### Software and code

Policy information about [availability of computer code](#)

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data collection | No software was used for data collection                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Data analysis   | Dating: OxCal 4.3.2; DNA analysis: MiSeq platform (Illumina), leeHom, BLAST (BlastN), MEGAN, Burrows-Wheeler Aligner (BWA); Virtual reconstruction: Mimics 18.0 (Materialise, Be) and Avizo 7.0 (Visualization Sciences Group, 608 2012); MeshLab; 3ds Max 2020 (Autodesk); Thin section morphology: analySIS pro5 image analysis software; Dental analysis: Amira (6.3.0, FEI Inc.); ImageJ (1.51, NIH); Sediment analysis: R package; DIFFRAC.SUITE™ EVA software package (Bruker AXS GmbH, Germany); |

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Research [guidelines for submitting code & software](#) for further information.

### Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A list of figures that have associated raw data
- A description of any restrictions on data availability

All data generated during this study are included in this published article and Supplementary Information and/or are available from the corresponding author/s on reasonable request.

## Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences ☐ Behavioural & social sciences ☒ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see [nature.com/documents/nr-reporting-summary-flat.pdf](https://www.nature.com/documents/nr-reporting-summary-flat.pdf)

## Ecological, evolutionary & environmental sciences study design

All studies must disclose on these points even when the disclosure is negative.

|                                   |                                                                                                                                                                                                                                                       |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Study description                 | Anatomical and taphonomic study of an immature hominin fossil and geochemical, granulometric and micromorphological analyses of the burial pit content                                                                                                |
| Research sample                   | The manuscript reports on the recovery of a partial juvenile human skeleton, approximately 3-3.5 years of age.                                                                                                                                        |
| Sampling strategy                 | The skeletal remains were carefully preserved and conserved and now curated in the National Museums of Kenya, in Nairobi. Samples were retrieved mostly from surrounding sediment. No invasive studies were performed on the intact skeletal remains. |
| Data collection                   | Skeletal, geochemical, granulometric, micromorphological, studies were performed on the burial pit. All procedures for sampling are thoroughly provided in the Manuscript, the Methods and the Supplementary Information.                             |
| Timing and spatial scale          | Not applicable since this is an archaeological and human palaeontological study.                                                                                                                                                                      |
| Data exclusions                   | No significant data have been excluded from this manuscript.                                                                                                                                                                                          |
| Reproducibility                   | This does not apply to this study since no experiment was conducted.                                                                                                                                                                                  |
| Randomization                     | This does not apply to this study since no experiment was conducted.                                                                                                                                                                                  |
| Blinding                          | This does not apply to this study since no experiment was conducted.                                                                                                                                                                                  |
| Did the study involve field work? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                                                   |

## Field work, collection and transport

|                        |                                                                                                                                                                                                                                |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Field conditions       | The archaeological site is in the coastal uplands of Kenya. The tropical ecotonal environment is described in the manuscript and in supplementary sections of the manuscript.                                                  |
| Location               | The cave is in the Dzitsoni limestone hills that run parallel to the Kenyan coast, approximately halfway between Mombasa and Malindi (the Nyali Coast of eastern Africa).                                                      |
| Access & import/export | All samples and field work was permitted by the National Museums of Kenya. In addition, the Max Planck Institute for the Science of Human History and the National Museums of Kenya have a signed Memorandum of Understanding. |
| Disturbance            | None.                                                                                                                                                                                                                          |

## Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

### Materials & experimental systems

| n/a                                 | Involved in the study                                             |
|-------------------------------------|-------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Antibodies                               |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Eukaryotic cell lines                    |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> Palaeontology and archaeology |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Animals and other organisms              |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Human research participants              |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Clinical data                            |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Dual use research of concern             |

### Methods

| n/a                                 | Involved in the study                           |
|-------------------------------------|-------------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> ChIP-seq               |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Flow cytometry         |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> MRI-based neuroimaging |

## Palaeontology and Archaeology

|                                                                                                                                                            |                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Specimen provenance                                                                                                                                        | Samples are all curated at National Museums of Kenya, in Nairobi, Kenya.                                                                                                                                                                      |
| Specimen deposition                                                                                                                                        | National Museums of Kenya, Nairobi, Kenya                                                                                                                                                                                                     |
| Dating methods                                                                                                                                             | Dates were reported in previous publications and the appropriate literature was cited. One single additional luminescence age is reported and all information is supplied in the Methods and Supplementary Information sections of the study. |
| <input checked="" type="checkbox"/> Tick this box to confirm that the raw and calibrated dates are available in the paper or in Supplementary Information. |                                                                                                                                                                                                                                               |
| Ethics oversight                                                                                                                                           | All work was permitted and overseen by the National Museums of Kenya.                                                                                                                                                                         |

Note that full information on the approval of the study protocol must also be provided in the manuscript.