Table S1. Demographic data, bone collagen δ13C, δ15N and δ34S values, collagen quality indicators and laboratory specifics for the humans from Teouma.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Burial | Bone sampled | Agea | Sex b | %C  | δ13C (‰) | %N | δ15N (‰) | C:N  | %S | δ34S (‰)c | C:S | N:S | Preparedd | Laboratorye |
| T1 | Tibia shaft | OA | M | 35.2 | -15.0 | 12.2 | 11.8 | 3.4 | ***0.32*** | ***8.8*** | ***295.8*** | ***87.9*** | U. Otago | Iso-Trace |
| T2a | Rib | OA | M | 50.5 | -15.6 | 17.3 | 12.9 | 3.4 | 0.26 | 10.6 | 518.9 | 152.4 | U. Otago | Iso-Trace |
| T3 | Rib | MA | F | 24.1 | -14.1 | 9.5 | 10.6 | 3.0 |  |  |  |  | U. Otago | Iso-Trace |
| T4 | Rib | MA | M | 24.4 | -17.0 | 9.6 | 13.4 | 3.0 |  |  |  |  | U. Otago | Iso-Trace |
| T5a | Fibula shaft | MA | F | 40.3 | -14.9 | 14.1 | 11.5 | 3.3 | 0.28 | 9.6 | 389.5 | 116.8 | U. Otago | Iso-Trace |
| T6 | Tibia shaft | MA | M | 46.5 | -15.5 | 16.2 | 13.1 | 3.3 | 0.23 | 10.2 | 528.6 | 158.1 | U. Otago | Iso-Trace |
| T7 | Fibula shaft | YA | M | 34.1 | -14.3 | 12.2 | 12.1 | 3.3 | 0.22 | 11.3 | 404.3 | 124.0 | U. Otago | Iso-Trace |
| T8 | Femur shaft | OA | M | 36.5 | -14.5 | 12.7 | 11.8 | 3.4 | 0.26 | 12.1 | 367.4 | 109.6 | U. Otago | Iso-Trace |
| T9 | Scapula | UA | F | 16.4 | -14.2 | 6.6 | 12.1 | 2.9 | ***0.31*** | ***11.4*** | ***142.2*** | ***49.0*** | U. Otago | Iso-Trace |
| T10E | Femur shaft | MA | M | 42.7 | -15.6 | 14.1 | 12.7 | 3.5 | ***0.35*** | ***8.7*** | ***323*** | ***91.7*** | U. Otago | Iso-Trace |
| T11 | Tibia shaft | UA | M | 31.3 | -14.9 | 10.5 | 11.0 | 3.5 |  |  |  |  | U. Otago | Iso-Trace |
| T12 | Tibia shaft | OA | F | 27.0 | -16.8 | 10.3 | 11.3 | 3.1 |  |  |  |  | U. Otago | Iso-Trace |
| T14a | Scapula | OA | M | 20.5 | -16.7 | 7.9 | 12.8 | 3.0 | ***0.25*** | ***12.4*** | ***215.1*** | ***71.1*** | U. Otago | Iso-Trace |
| T15 | Lumbar vertebrae | YA | F | 43.2 | -15.8 | 14.7 | 12.5 | 3.4 | 0.23 | 10.7 | 495.7 | 145.0 | U. Otago | Iso-Trace |
| T16 | Fibula shaft | OA | F | 41.7 | -16.2 | 14.0 | 10.6 | 3.5 | 0.26 | 11 | 426.1 | 122.6 | U. Otago | Iso-Trace |
| T18 | Tibia shaft | YA | M | 40.1 | -15.2 | 13.1 | 11.5 | 3.6 | 0.23 | 11.7 | 457.4 | 128.1 | U. Otago | Iso-Trace |
| T19 | Fibula shaft | MA | M | 41.9 | -16.1 | 14.7 | 12.0 | 3.3 | 0.24 | 10.7 | 471.1 | 141.7 | U. Otago | Iso-Trace |
| T20 | Femur shaft | YA | M | 39.8 | -16.2 | 13.1 | 16.1 | 3.5 | 0.22 | 13.6 | 488.9 | 137.9 | U. Otago | Iso-Trace |
| T23 | Sacrum | YA | M | 9.2 | -15.0 | 3.6 | 13.1 | 3.0 | ***0.11*** | ***10.6*** | ***223.8*** | ***75.1*** | U. Otago | Iso-Trace |
| T25 | Tibia shaft | YA | M | 35.4 | -16.4 | 12.1 | 14.3 | 3.4 | 0.2 | 13.5 | 463.7 | 135.8 | U. Otago | Iso-Trace |
| T27 | Long bone shaft | MA | F | 23.6 | -18.6 | 9.1 | 11.0 | 3.0 | ***0.22*** | ***11.2*** | ***282.6*** | ***93.4*** | U. Otago | Iso-Trace |
| T31 | Scapula | OA | M | 34.6 | -17.4 | 12.3 | 13.0 | 3.3 | 0.27 | 11.3 | 338.6 | 103.2 | U. Otago | Iso-Trace |
| T32 | Long bone shaft | MA | F | 33.5 | -16.7 | 12.2 | 11.0 | 3.2 |  |  |  |  | U. Otago | Iso-Trace |
| T33 | Femur shaft | UA | F | 35.0 | -17.0 | 12.7 | 12.1 | 3.2 |  |  |  |  | U. Otago | Iso-Trace |
| T34 | Humerus shaft | OA | F | 33.5 | -16.1 | 12.1 | 13.0 | 3.2 |  |  |  |  | U. Otago | Iso-Trace |
| T36 | Femur shaft | OA | F | 40.6 | -14.0 | 14.1 | 11.5 | 3.4 | 0.23 | 12.3 | 474.4 | 141.2 | U. Otago | Iso-Trace |
| T37 | Femur shaft | UA | M | 33.7 | -16.0 | 12.4 | 12.5 | 3.2 | 0.22 | 9.5 | 401.2 | 126.5 | U. Otago | Iso-Trace |
| T38 | Tibia shaft | UA | F | 33.5 | -15.8 | 12.8 | 11.6 | 3.1 | ***0.3*** | ***10.6*** | ***294.6*** | ***96.5*** | U. Otago | Iso-Trace |
| T40 | Long bone shaft | YA | F | 35.8 | -15.4 | 13.1 | 12.9 | 3.2 | ***0.1*** | ***10*** | ***954.7*** | ***299.4*** | U. Otago | Iso-Trace |
| T41 | Tibia shaft | YA | F | 33.4 | -15.5 | 12.0 | 10.4 | 3.2 |  |  |  |  | A.M.U. | Iso-Analytical |
| T43 | Tibia shaft | UA | M | 40.1 | -15.9 | 14.2 | 11.5 | 3.3 |  |  |  |  | A.M.U. | Iso-Analytical |
| T44 | Pelvis | OA | M | 35.4 | -18.2 | 12.8 | 13.4 | 3.2 | ***0.3*** | ***10.3*** | ***317.6*** | ***98.4*** | U. Otago | Iso-Trace |
| T47 | Lumbar vertebrae | UA | F | 17.2 | -15.0 | 6.6 | 12.2 | 3.0 |  |  |  |  | U. Otago | Iso-Trace |
| T48 | Ulna shaft | MA | F | 34.1 | -14.4 | 13.0 | 11.4 | 3.1 | ***0.32*** | ***10.6*** | ***285.9*** | ***93.4*** | U. Otago | Iso-Trace |
| T49 | Pelvis | UA | M | 15.6 | -19.3 | 6.2 | 12.2 | 2.9 |  |  |  |  | U. Otago | Iso-Trace |
| T50 | Femur shaft | MA | M | 34.7 | -15.5 | 12.4 | 13.0 | 3.3 |  |  |  |  | A.M.U. | Iso-Analytical |
| T51 | Humerus shaft | UA | M | 23.5 | -15.7 | 8.4 | 13.0 | 3.3 |  |  |  |  | A.M.U. | Iso-Analytical |
| T52 | Tibia shaft | OA | F | 36.8 | -16.2 | 13.3 | 11.5 | 3.2 |  |  |  |  | A.M.U. | Iso-Analytical |
| T53 | Humerus shaft | MA | M | 26.2 | -14.2 | 9.3 | 12.0 | 3.3 |  |  |  |  | A.M.U. | Iso-Analytical |
| T54 | Tibia shaft | OA | M | 41.1 | -13.8 | 14.6 | 12.3 | 3.3 |  |  |  |  | A.M.U. | Iso-Analytical |
| T55 | Fibula shaft | UA | F | 39.7 | -15.9 | 14.2 | 10.8 | 3.2 |  |  |  |  | A.M.U. | Iso-Analytical |
| T56 | Tibia shaft | UA | F | 39.9 | -15.1 | 14.3 | 12.1 | 3.2 |  |  |  |  | A.M.U. | Iso-Analytical |
| T57 | Tibia shaft | MA | F | 38.9 | -16.6 | 13.8 | 11.4 | 3.3 |  |  |  |  | A.M.U. | Iso-Analytical |
| T58 | Fibula shaft | MA | F | 35.7 | -14.5 | 12.7 | 11.4 | 3.3 |  |  |  |  | A.M.U. | Iso-Analytical |
| T59 | Tibia shaft | YA | US | 39.2 | -15.4 | 14.1 | 12.7 | 3.2 |  |  |  |  | A.M.U. | Iso-Analytical |
| T60 | Tibia shaft | UA | F | 38.1 | -13.6 | 13.6 | 11.9 | 3.3 |  |  |  |  | A.M.U. | Iso-Analytical |
| ***T63*** | ***Tibia shaft*** | ***UA*** | ***F*** | ***23.1*** | ***-15.6*** | ***9.8*** | ***6.9*** | ***2.7*** |  |  |  |  | A.M.U. | *Iso-Analytical* |
| ***T64*** | ***Tibia shaft*** | ***YA*** | ***M*** | ***36.3*** | ***-16.4*** | ***15.3*** | ***8.0*** | ***2.8*** |  |  |  |  | A.M.U. | *Iso-Analytical* |
| T65 | Tibia shaft | UA | F | 39.6 | -15.4 | 14.7 | 10.7 | 3.1 |  |  |  |  | A.M.U. | Iso-Analytical |
| T66 | Femur shaft | YA | F | 33.5 | -15.4 | 12.4 | 11.8 | 3.1 |  |  |  |  | A.M.U. | Iso-Analytical |
| T67 | Tibia shaft | MA | F | 38.3 | -14.9 | 14.2 | 11.7 | 3.1 |   |   |   |   | A.M.U. | Iso-Analytical |

a YA = Young adult (20-34 years), MA = Mid adult (35-49 years), OA = Old adult (50 + years), and UA = Adult with unknown age.

b M = Male, F = Female, and US = Unknown Sex.

c Sulfur stable isotope analysis was conducted by EA-IRMS (Europa elemental analyser and mass spectrometer) at Iso-Analytical (Cheshire, UK). Internal standards IAEA-SO-5 (δ34S = 0.50 ‰) and IA-R027 (δ34S = 16.30 ‰) were run in sets of six alongside the samples for quality control. Analytical precision was calculated from duplicate measurements of the samples and nine repeated measurements of the barium sulfate control IA-R036 (δ34S = 20.74 ‰).

d Collagen was extracted at either the University of Otago (Dunedin, NZ) or Aix-Marseille University (Aix-en-Provence, France) using methods described in the text.

e Carbon and nitrogen stable isotope analysis was conducted by EA-IRMS at one of two labs. One lab was Iso-Analytical (Cheshire, UK), which used an Europa elemental analyser and Europa 20-20 mass spectrometer. The internal standards IA-R005 (δ13C = -26.03 ‰) and IA-R006 (δ13C = -11.64 ‰) for carbon and IA-R045 (δ15N = -4.71 ‰) and IA-R046 (δ15N = 22.04 ‰) for nitrogen were analysed in sets of eight alongside the samples for quality control. Analytical precision was calculated from duplicate measurements of the samples and eighteen repeated measurements of the bovine liver control NIST-1577B (δ13C = -21.60 ‰ and δ15N = 7.65 ‰). The other lab was Iso-Trace (Dunedin, NZ), which used a Roboprep CN elemental analyser and Finnigan MAT 252 mass spectrometer. Internal standards NBS22 (δ13C = -30.03 ‰) and ANU Sucrose (δ13C = -10.8 ‰) for carbon and IAEA N1 (δ15N = 0.4 ‰) and IAEA N2 (δ15N = 20.3 ‰) for nitrogen were analysed alongside the samples. Analytical precision was calculated from duplicate measurements of the samples and three repeated measurements of the control EDTA (δ13C = -38.3 ‰ and δ15N = -0.9 ‰).

Bold and italicized samples did not reach the collagen quality criteria outlined in the text.