Supporting Information

Weaver and Hublin 10.1073/pnas.0812554106

SI Text

Kebara Pelvis. Rak and Arensburg based their reconstruction of the Kebara 2 pelvis on the well-preserved right innominate and the nearly complete sacrum (1, 2). Given the good preservation, most aspects of the reconstruction are completely secure; however, Ruff (3) noted, based on his observations on a cast, that portions of the ischiopubic ramus seem to be misaligned. He argued that if this problem were corrected, then the inferior pubic symphysis might move anteriorly by 1–2 cm, which would change the outlet dimensions. Our observations on the original fossils as well as CT scans of them do not support Ruff's argument, for several reasons. First, it is important to note that Kebara's anteroposterior and transverse (mediolateral) outlet dimensions differ by 2.6 cm (4), so substantial errors in the reconstruction would be required to produce a round, let alone a anteroposteriorly oval, outlet. Second, the misalignment of the ischiopubic ramus is localized to the middle of the ramus and does not substantially influence adjacent anatomical regions. Third, the positioning of the pubic symphysis is quite well constrained by bony connections between the superior pubic ramus and the pubic body (Fig. S2), and anterior displacement of the inferior pubic symphysis would lead to distortion of the shape of the symphysis.

1. Rak Y (1991) in *Le Squelette Moustérien de Kébara*, eds Bar-Yosef O, Vandermeersch B (CNRS Editions, Paris), pp 147–166.
2. Rak Y, Arensburg B (1987) Kebara 2 Neanderthal pelvis: First look at a complete inlet. *Am J Phys Anthropol* 73:227–231.
3. Ruff CB (1995) Biomechanics of the hip and birth in early *Homo*. *Am J Phys Anthropol* 98:527–574.
4. Tague RG (1992) Sexual dimorphism in the human bony pelvis, with a consideration of the Neandertal pelvis from Kebara Cave, Israel. *Am J Phys Anthropol* 88:1–21.

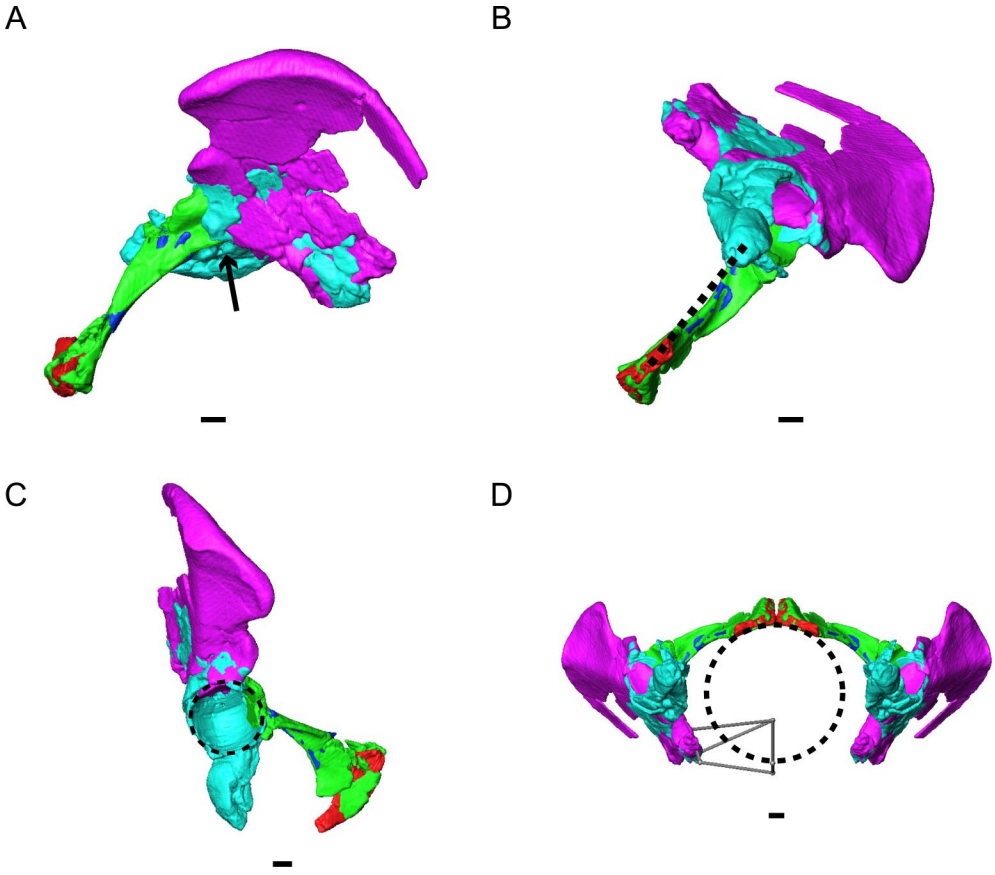

Fig. S1. Consistency of the reconstruction. Arcuate line curvature (*A*), ischial tuberosity and pubic body alignment (*B*), alignment of the pubic part of the acetabular rim (green) with the rest of the rim (blue and purple) (*C*), and the amount of ischial tuberosity medial rotation needed to produce a round pelvic outlet (indicated by the dashed circle) (*D*). Each fragment is displayed in a different color. The spheres show the locations of sacral landmarks, which are connected by links to create a stick representation of the form of the estimated sacrum. Sacral landmark definitions are given in Table 1. (Scale bar = 1 cm.)

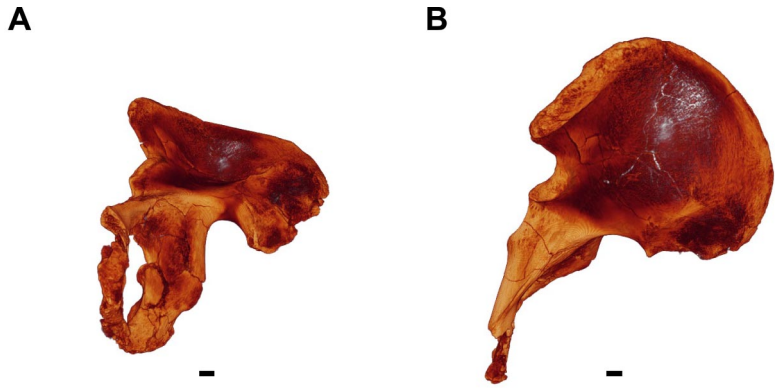

Fig. S2. Kebara right innominate. Medial view with the plane of the pubic symphysis facing outward (*A*), and anterosuperior view with the plane of the pelvic inlet (arcuate line) facing outward (*B*). Colors reflect higher (yellow) to lower (red) density. Only bone is displayed; that is, the glue holding individual fragments together has been virtually removed.

Table S1. Pelvic indices of Tabun and female humans from cold-climate groups

Group	Sample size	Mean inlet index	Mean outlet index
Tabun Neandertal	1	0.79	0.70
Alaskan mainland	8	0.86	1.11
Aleutian Islands	12	0.89	1.11
British Isles	19	0.86	1.01
Tierra del Fuego	8	0.89	1.14
Cold-climate human total	47	0.87	1.07