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Are there links between skeletal structure and climate variation during human evolution?

The answer to this question, of course, depends on the specific context. On some levels, the answer is decidedly "yes". Some aspects of body size and shape appear to be population- or species-level adaptations to climatic extremes, such as hot, dry climates. However, in most contexts, the answer to this question is not very clear. While researchers hypothesize that transitions in hominin adaptations may be related to climatic and environmental change, our ability to assess these hypotheses is limited by the sparseness of the fossil record and spatial and temporal resolution of environmental data. I will briefly discuss some of the challenges to examining the role of climate in the contexts of four levels of variation in postcranial morphology: 1) major transitions in skeletal design, 2) differences between species, 3) variation within a species (e.g., directional or non-directional), and 4) residues of the behavior and activity of individuals. Climate may potentially play a role in each, and each involves different fundamental questions about how (or whether) hominins respond to environmental variation or perturbation.