Temporal Trends in Human Body Size and Shape in Europe from the Middle of the Last Ice to the Present

Temporal and geographic variation in body size (stature and body weight) and body shape (body proportions) among Terminal Pleistocene and Holocene Europeans are examined using a skeletal sample of >2100 Europeans combined with recent anthropometric data. When possible, statures are estimated “anatomically” and body weight by applying a cylindrical model.

Results demonstrate considerable temporal fluctuation in body size over millennia mostly reflecting changes in the general nutrition and health, but there has also been changes due to changes in gene pools. Temporal changes in body proportion have been less remarkable and have largely reflected stature changes. For example, shoulder breadth (indicated by clavicular length) and limb lengths (indicated by long bone lengths) have tended to change more than bi-iliac breadth of pelvis with temporal changes in stature due to their greater phenotypic plasticity.

The most notable periods of change in body size and shape were the Early Upper Paleolithic transition across the Last Glacial Maximum, the Late Neolithic and Early Bronze Age (due to the Secondary Products Revolution), the Little Ice Age during the Late Medieval and Early Modern period, and the 20th century. These findings demonstrate that skeletal analyses are useful in studying important environmental, economic and genetic changes in past millennia.