Abstract: The Neolithic transition, the passage from mobile foraging to sedentary farming, was a major shift during human prehistory: a series of behavioral and ecological transformations substantially modified the daily lifestyles and eventually impacted human biology. Studies suggested that this transition positively impacted fertility rates, promoted reproduction and enhanced population fitness; however, bioarchaeological studies carried on human remains have also documented a general decline in health status and a global increase in morbidity, suggesting that the shift toward agriculture also paradoxically had an adverse effect on individuals’ physiological fitness. Using 200 Mesolithic and Neolithic skeletal remains (9500-5500 BC) discovered on the territory of Serbia, this research test the assumption that the transition to the Neolithic brought important biological changes which are reflected by a higher prevalence of various skeletal and dental pathological conditions, and by a global reduction in the size of populations under the effect of growth disturbances. Two lines of evidence are compared chronologically and spatially: non specific stress markers (Cribraorbitalia, Porotic hyperostosis, Enamel hypoplasia), indicators of diet (dental caries and calculus), and body proportions (body mass, stature and body mass index).