

CHANGES OF THE GENERAL BONE STATUS IN THE MENOPAUSE TRANSITION

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The purpose of the research was to study the relationship between the menopausal status (estimated by the reproductive and menstrual history as well as the level of female sex hormones) and the general bone status (characterized by bone structure and bone mass) in Hungarian women. A random sample of 2602 Hungarian women (aged 40–65 years) was to be enrolled in the study between 2011 and 2013. By considering the reproductive and menstrual history subjects were divided into premenopausal, early perimenopausal, late perimenopausal and postmenopausal subgroups. In a subsample of 150 subjects salivary estrogen and progesterone levels were determined by 17 beta-Estradiol Saliva Elisa and Progesterone ELISA immunoassays. Bone mass was estimated by Drinkwater-Ross four-component method. The bone SOS and BUA bone structural parameters were assessed by using the DTU-one osteometer. Hypotheses were tested at the 5% level of random error. By comparing the menopausal status estimation methods in the studied subsample, the reproductive and menstrual history was found to be a more reliable estimator of the menopausal status than the sex hormone levels (that are having considerable daily fluctuation also in a normal menstrual cycle) determination. Former epidemiological studies suggest that the menopause transition is associated with significant changes in bone structure. Our results evidenced these significant changes in body structure by reproductive ageing in women, but an important shift between the changes in bone mass and the bone structural parameters (SOS and BUA) was found. This could imply that (1) bone system changes not only in its absolute mass, but also in its structure in the perimenopausal period, and (2) the onset of these bone structural changes in the skeletal system and the intensity of these changes differ in the menopause transition. In general, the earlier onset of menopause the more pronounced changes were found in these trends of bone structure by reproductive ageing. The study was supported by the Hungarian National Foundation for Science (OTKA grant K83966).

Key words: *menopause, body structure, bone mass; Hungarian women*

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PHYSIOLOGICAL VARIATION ASSOCIATED WITH FRAILTY AMONG OLDER RESIDENTS OF HIGHER ALTITUDE VILLAGES OF THE SELŠKA VALLEY

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Frailty is the multi-system dysregulation following multiple life stressors that is associated with age and increases an individual's vulnerability to negative health effects (Fried et al 2001). One of the most critical questions frailty research seeks to answer is to what extent biocultural variables predict frailty. In the model employed in this paper, endogenous variables that individuals cannot control, such as age and sex, affect exogenous variables that are a result of individuals' lifestyles (Fried et al., 2001). These variables then affect frailty, as assessed by a five-factor frailty index developed by Fried et al. (2001) and Walston (2005). Previous research that also employed this index studied mostly North American populations and found associations between education level, age, sex, prevalence of certain diseases and levels of frailty (Fried et al., 2001, Walston, 2005). This paper broadens the range of variables studied, and expands the demographic and cultural scope of frailty research by applying the frailty index to a geographically isolated Slovenian population. Data were obtained from 40 participants aged 55 years and older during fieldwork in