The flexibility of the spine and the curvature of the feet of men over 40 with various physical activity

Summary

The main aim of the research was to establish the relationship between physical activity and the flexibility of the spine and arched feet. 121 men participated in the study (31 runners, 30 swimmers, 29 fitness practitioners and 31 less active men). The surveyed men were at the age of 40-66 and in the past they had never practiced competitive sports.

The subjects completed the International Physical Activity Questionnaire (IPAQ), which is the most popular tool for assessing physical activity. IPAQ has a long and a short version. A long version of the questionnaire was used, which is more favored in research as it allows a better estimate of physical activity.

The arching of the feet was assessed by the plantographic method on the basis of foot prints made with a non-marking technique with the Ślężyński's instrument, on which Clarke angles (α), hallux valgus angles (β) and heel angles (γ) were plotted, as well as the calculated Sztriter-Godunow indexes (Ky).

The flexibility of the spine was measured with a device designed by Ślężyński (patent no. 105042), which allows to assess its mobility in all three planes under the conditions of pelvic stabilization. Spine mobility was measured in the sagittal plane (forward and backward bend), frontal (left and right bend) and horizontal (left and right bend) planes.

Body height measurements were made with an anthropometer. Measurements of body weight and tissue components were made with the „Tanita" type BC 543 scale, which allows to assess the percentage (FR%) and total (FM kg) content of adipose tissue and lean body mass (FFR%). The body mass index (BMI) was also calculated.

Research suggests that physical activity has an effect on the somatic components of men. The body composition of the more physically active men was better than the less active ones. The greater muscle mass of physically active men additionally confirms the beneficial role of continuous improvement. Intensive and moderate physical activity assessed by the IPAQ questionnaire showed significant correlations with almost all measurements of spine flexibility in the sagittal, frontal and horizontal planes. Foot arch rates were significantly better in physically active men. The Clarke's angle and the tarsal shading index were the most reliable indicators of the well-arched feet of the tested physically active men. Body mass index (BMI), excessive fatness (FR%) and total body fat (FM kg) are associated significantly with lower Clarke's foot angle of the studied men. The flexibility of the spine was a distinguishing feature of more physically active men, but the greatest mobility of the main axis of the body was found in fitness practitioners, while men with mediocre physical activity were less active.

Studies have confirmed that physical activity is an important factor contributing to the maintenance of optimal mobility and correct body weight, delaying the processes of involution and improving the quality of life of middle-aged and elderly men.