

# THE SOMATOTYPE OF HUNGARIAN MALE AND FEMALE CLASS I PADDLERS AND ROWERS

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**Abstract:** The paper reports on the body build of paddlers and rowers. All of them are qualified at least as class I athletes, some of them are members of national teams. The report contains the respective characteristics of a physically active group of young adults. The height of the female paddlers is similar to the average Hungarian values. Their larger weight seems to be related to strength training. Of the males rowers are the tallest. Body composition being similar in all studied group of males rowers' greater weight is largely explained by their taller stature and the mentioned training effect.

*Key words:* Physique, somatotype, paddlers, rowers.

Kayak and canoe belong even today to the successful sports in Hungary. Our national teams generally take part in the finals of the continental or world championships and often win placing, too. Unfortunately, similar statements cannot be made in respect of the national teams of rowers. Few of the Hungarian rowing competitors or crews reach international standards.

## Material and Methods

The present paper reports on the body build of Hungarian paddlers and rowers. All of them are qualified at least as national class I athletes, some of them are members of the national teams. As a basis of comparison, the report contains the respective characteristics of a physically active group of young adults. This group consists of students aged 18 to 19 who passed the entrance examination of the Hungarian University of Physical Education in the recent years. The distribution of the subjects is summarized in Table 1.

Table 1  
Distribution of subjects

Group	Male	Female	Total
Paddlers	26	30	56
Rowers	15	17	32
Physical education freshmen	819	831	1650

Body build and composition will be characterized by referring to the components of the Heath—Carter's somatotype (CARTER—HEATH 1971) and to the means and variability of body weight and stature.

### Results and Discussion

Means and standard deviations of body height and weight of the reference group are denoted by full bars, those of the paddlers by open bars and the ones referring to the rowers by the heavily lined bars (Fig. 1). Stature in the competitive females does not differ from that of the physically active reference women. Both female paddlers and rowers are of the same weight, but they are heavier than the female freshmen. Of the males the rowers are the tallest exceeding both paddlers and freshmen who do not differ in height. Rowers

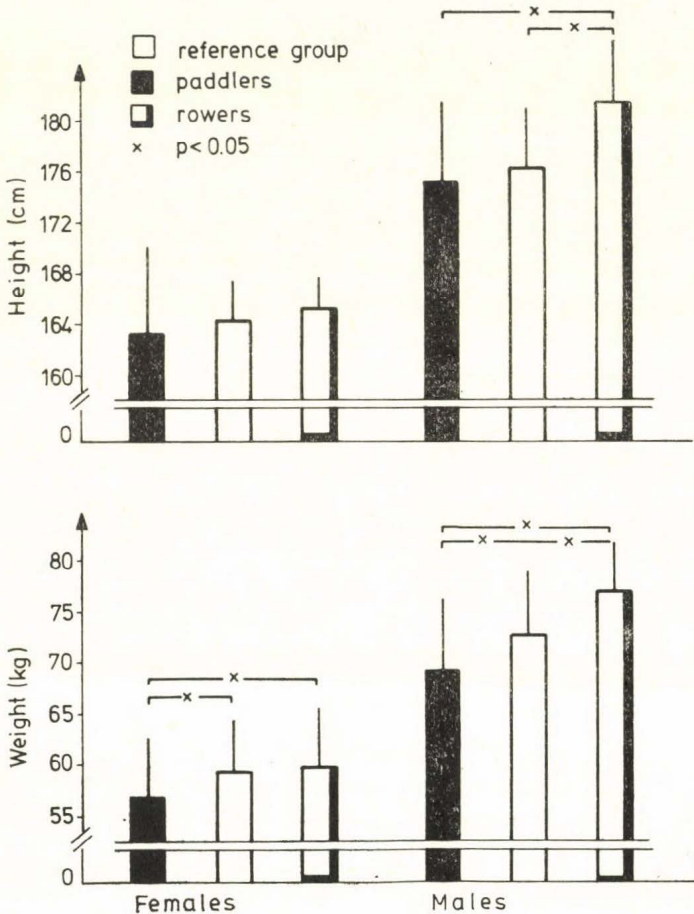


Fig. 1. Means and SDs of height and weight

are also the heaviest, but in this variable paddlers too exceeded the reference group.

Figure 2 demonstrates the somatotypes of the females. The full circle refers to the mean of the reference group, the open ones to the paddlers and the squares belong to the rowers. No statistical analysis was made to compare the somatotypes. Components differing by more than half a unit were regarded as different. The first component of the two competitive groups is strikingly

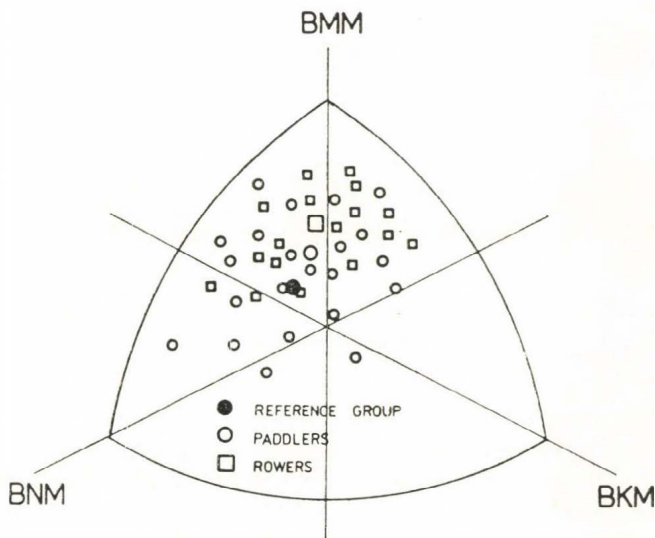


Fig. 2. Somatotypes of the females

similar, but the relative fatness of the freshmen is higher. Variability is largest in the second component, freshmen having an average score while paddlers scored four and a half. Relative robustness was greatest in the rowers and exceeded that of the paddlers by more than three quarters of a unit. The third component was lower than average and similar in all the three groups. The dominant character is robustness in the competitive groups while the share of the other two components in the somatotype is equally below average. The reference group may be called endomorphic mesomorphs.

Figure 3 demonstrates the somatotypes of the males. The groups are denoted by the symbols used before. The share of the first component is the smallest in all the three groups of the males, and the groups do not deviate from each other by more than half a unit. Relative robustness is above average here, too, without any remarkable intergroup difference. Linearity contributes to the somatotype to nearly the same extent as the first component. Since the groups do not differ in this characteristic either, all of them may be designated as balanced mesomorphs.

Our results harmonize with the dominant tendency of our days, namely that in the majority of sports competitors of above average stature and athletic build are the best performers. The height of the paddlers is very similar to the average Hungarian stature, and we may reason that vessels having a standard

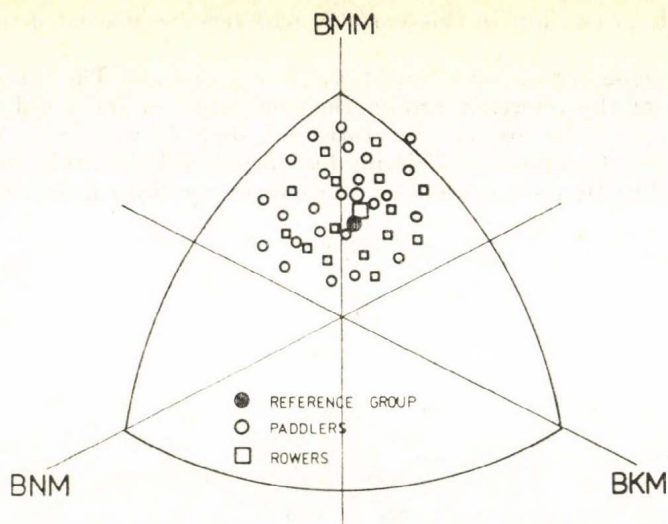


Fig. 3. Somatotypes of the males

size do not offer enough room for giants the balance of whom is also critical. The larger weight of these athletes is likely to be related to strength training. In view of the comparable stature of the female groups the significantly greater weight of the paddlers and rowers is due to differences in body density. This conclusion is, however, indirect and is based on the lower score in relative fatness. In this way, greater weight means greater active mass as well and is directly related to the well-known effects of physical training.

Among the males the rowers are distinctly the tallest, though by their mean stature of 181 cm they look almost like dwarfs beside the national team of the German Democratic Republic who now belong to the best of the world and are about 190 cm tall. Body composition being similar in the three groups, the athletes' greater weight is largely explained by the taller stature. As we saw, the height of the paddlers was comparable to the reference group, their greater body weight has to be explained therefore by the same training affect the analogy of which we have seen in the females.

FARMOSI (1980) found that the height of another sample of Hungarian female rowing competitors was above national average, with an average score in I<sub>st</sub> and II<sub>nd</sub> components.

The mean height of both female and male Polish rower was also above the average Polish stature (DROZDOWSKI 1979).

The male Czechoslovakian paddlers were slightly taller and more robust than the population mean (ŠTĚPNIČKA 1977), and then the Hungarian paddlers of this study. In this Czechoslovakian sample endomorphy was about 1.5, this is rather low though YUHASZ (1977) too reported a fat content of 7–8% only in Canadian rowers. This is as low as that of sport gymnasts who are known to have the lowest content in fat.

Somatometric somatotyping has its natural limits, of course, and in the absence of such important factors as the distribution of body proportions it

may be sometimes misleading. In particular for paddlers, the analysis of the proportions between stature and lower limb length, stature and torso as well as those of relative arm length and shoulder width would be a valuable contribution to disclose essential features.

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