Assessment of results of anthropometric studies of sportswomen in rhythmic gymnastics and taekwondo

Mavlyanova Z.F., Baratova S.S.

Samarkand State Medical Institute, Samarkand, Republic of Uzbekistan

reab.sammi@mail.ru

Introduction

The modern level of sporting achievements, urgent tasks of sports (selection of specialization, improvement of sportsmanship level, management and control of training process, selection and prediction of performance, etc.) dictates the need in studying and evaluating the potential of all systems of the sportman's body in their relationship, as well as individual features and their influence on sporting achievements [5,7,8]. Therefore, anthropometric indicators are of great interest among many indicators of individual characteristics. As you know, they affect the manifestation of basic motor qualities – strength, speed, endurance, flexibility, provide adaptation to various conditions, features of recovery from training and competitive loads. These prerequisites form the basis of the sports section of anthropology and are the basis for the development of approaches to assessing features in various sports [1,2,6].

Aim of the research: comparative assessment of anthropometric features of development of sportswomen engaged in rhythmic gymnastics and taekwondo.

Materials and methods

During the study, 100 girls were examined aged from 10 to 20 years, 50 sportswomen were engaged in rhythmic gymnastics and 50 sportswomen were taekwondo.

All participants in the study had grades for these sports. This group also included candidates for Master of Sports and Master of Sports. The anthropometric study included measurements of the body weight of sportswomen on an empty stomach, measuring the height while standing and sitting, measuring the circumference of the chest in the phases of inhalation, exhalation, pause, and calculating the excursion of the chest.

The results of the study

The specifics of the sport imposes its imprint on the sportsman's body, which is expressed in the peculiarity of shape and proportions of its body. In connection with long-term sports, there is not only the formation of individual morphological signs and physique in general, but also the selection of individuals with the most favorable morphological characteristics and physical qualities for this sport.

Based on the above, the aim of the present study was a comparative assessment of anthropometric features of the development of sportswomen engaged in rhythmic gymnastics and taekwondo.

The results given above make it possible to talk about some differences in the physical development of sportswomen depending on the sport. For example, when assessing the body weight of gymnasts and taekwondo sportswomen, the fact that sportswomen occupying taekwondo have reliably higher values of this indicator (51.3±0.5), compared to female sportswomen occupying rhythmic gymnastics (48.8±0.7). In our opinion, this is due to the fact that sportswomen occupying taekwondo have a more developed muscle mass.

When evaluating the results of anthropometric indicators, such as measuring standing and sitting height, we can say that in sportswomen – gymnastics (162.7±1.1), these data prevail over taekwondo sportswomen (158.0±0.9). According to these results, we can conclude that girls who occupy rhythmic gymnastics are ahead in the height of their peers engaged in taekwondo.

The circumference of the chest is the main anthropometric indicator illustrating the development of the muscle system. The detected dependence is similar to that established in body weight. From the above table, it can be concluded that sportswomen occupying taekwondo have higher rates both at inhalation (90.7±0.8) and at exhalation (86.9±0.1) than sportswomen engaged in rhythmic gymnastics (inhalation – 86.9±0.3, exhalation – 83.6±0.2). Accordingly,
the chest excursion of taekwondo sportswomen (3.8±0.2) will also be larger than the chest excursion of gymnast sportswomen (3.3±0.5).

Anthropometric indicators of sportswomen generally reflect patterns of age development, but there are features that require the development of a specialized module of anthropometric indicators and the improvement of the system for assessing the physical development of sportswomen in order to solve the tasks of selection, determining the qualifications of sportswomen, as well as correction in the training process.

Table. Anthropometric characteristics of sportswomen engaged in various sports

<table>
<thead>
<tr>
<th>Anthropometric feature</th>
<th>Gymnasts (n=50)</th>
<th>Taekwondo sportswomen (n=50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body length standing</td>
<td>162,7±1,1*</td>
<td>158,0±0,9*</td>
</tr>
<tr>
<td>Body length sitting</td>
<td>56±0,2*</td>
<td>57,1±0,4*</td>
</tr>
<tr>
<td>Body weight</td>
<td>48,8±0,7*</td>
<td>51,3±0,5*</td>
</tr>
<tr>
<td>Chest circumference in pause</td>
<td>84,5±0,5*</td>
<td>88,6±0,4*</td>
</tr>
<tr>
<td>Chest circumference (breath)</td>
<td>86,9±0,3*</td>
<td>90,7±0,8*</td>
</tr>
<tr>
<td>Chest circumference (exhalation)</td>
<td>83,6±0,2*</td>
<td>86,9±0,1*</td>
</tr>
<tr>
<td>Chest excursion</td>
<td>3,3±0,5*</td>
<td>3,8±0,2*</td>
</tr>
</tbody>
</table>

* The index means with which group the differences are significant (p<0.05).

Conclusions

The study made it possible to establish the differences and at the same time the similarity of the individual anthropometric characteristics of the athletes of the studied groups, due to the peculiarities of physical activity in sports specialties [3,4]. The results obtained can be used as morphological criteria for sports orienteering, as well as for medical and biological control of the educational process in athletes of this age category.

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This article considers the main anthropometric characteristics of sportswomen engaged in rhythmic gymnastics and taekwondo in Samarkand.

**Aim of the research.** Is to conduct a comparative assessment of the anthropometric characteristics of the development of athletes involved in rhythmic gymnastics and taekwondo.

**Material and methods.** The study involved 100 sportswomen in rhythmic gymnastics and taekwondo. The anthropometric study included measurements of the body weight of athletes on the lean, measuring the height while standing and sitting, measuring the circumference of the chest in the phases of inhalation, exhalation, pause, and calculating the excursion of the chest.

**Results.** The results it possible to talk about some differences in the physical development of sportswomen depending on the sport.

**Conclusions.** The study made it possible to establish the differences and at the same time the similarity of the individual anthropometric characteristics of the athletes of the studied groups, due to the peculiarities of physical activity in sports specialties

**Key words:** sportswomen, rhythmic gymnastics, taekwondo, anthropometric indicators.
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Відомості про авторів

Мавлянова Зілола Фархадівна – кандидат медичних наук, доцент, завідувач кафедрою медичної реабілітації, спортивної медицини і народної медицини Самаркандського державного медичного інституту; Республіка Узбекистан, м. Самарканд, вул. Амир Темура, 18.

Баратова Сітора Сахідіновна – викладач кафедри медичної реабілітації, спортивної медицини і народної медицини Самаркандського державного медичного інституту; Республіка Узбекистан, м. Самарканд, вул. Амир Темура, 18.