The analysis of the fat component showed that the average values on the right hand of swimmers are 10 ± 1,17%, on the left – 11,31 ± 1,2%. The differences reached 1,31%, left-sided asymmetry was revealed. The fat mass on both legs was 28,2%, on the right leg – 14,24 ± 1,52%, which is 0,28% more than on the left – right-sided asymmetry. On the torso 12,5%.

In the studied girls, the severity of fat mass in relative terms of body weight was 20,3%, a slight shift to the left side by 0,43% occurred on the upper extremities, a right-sided asymmetry was revealed on the lower extremities by 0,7%. 17,1% of the body fat mass was determined in the trunk area. The existing asymmetry in the severity of the fat and muscle components of the body on the upper limb may indicate unbalanced physical activity, right- or left-handed athletes. Differences in the severity of body components on the lower extremities may be due to their different lengths and lead to the development of right- or left-sided scoliosis. The specifics of the sport also have an impact on the distribution of fat and muscle mass along the body.

Conclusion. As a result of the bioimpedance study, original statistical data were obtained on the severity of the fat and muscle components of the body of swimmers of various levels of fitness, sexual and age characteristics, on the basis of which an initial morphological analysis can be carried out In the future, repeated studies will help to identify the dynamics of the desired indicators, analyze the options for the location of the masses along the body and, as a result, determine the individual type of distribution of fat and muscle mass (upper, lower, uniform with a shift to the right or left side). The obtained data can be used by coaches, specialists in the field of physical culture and sports for the competent construction of the training process of athletes engaged in swimming and the necessary correction of posture in swimmers with the presence of right- or left-sided scoliosis.

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FUNCTIONAL ASYMMETRY OF FINGER DERMATOGLYPHICSOF QUALIFIED SWIMMERS

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Keywords: finger dermatoglyphics, qualified swimmers, dermatoglyphic indicators, functional asymmetry, crest score, delta index.

The relevance of research. In the modern world, it is quite difficult to identify predispositions to various types of activities without modern scientific equipment. But there are genetic markers, by quantitative and qualitative indicators of which it is possible without much effort to determine the individual characteristics of those involved in any kind of sport, without taking into account gender, age and level of fitness [2]. Such hereditary landmarks include finger dermatoglyphs, the study of which has been quite relevant in the last few decades [4]. Many works are devoted to the

characteristics of patterns on the fingers of both hands in athletes of various sports, but there are not enough studies considering the existing asymmetry of indicators on the fingers of the right and left hands, which may indicate the leading hemisphere of the brain, the peculiarities of perception of the information received, predisposition to various types of motor activity, etc. In our study, dermatoglyphic indicators of qualified swimmers of different sexes are considered. As well as the features of the patterns and their asymmetry on the distal phalanges of the fingers of athletes of various qualifications enables specialists in the field of physical culture and sports to collect the necessary data for the selection and orientation of children starting a sports career [3].

The purpose of the study: to study the asymmetry of the finger dermatoglyphics of athletes of various qualifications involved in swimming.

Material and methods. Based on the studied scientific and methodological literature, using the dermatoglyphics technique and the available methods of mathematical statistics, research data were conducted and analyzed. 31 qualified athletes aged 17–24, engaged in classical swimming, took part in the experiment. Out of the total number of subjects, two gender groups were formed: 8 girls (group 1) and 23 men (group 2). Among the women, 25% had the title of MS of the Russian Federation, 62,5% – CMS, the rest are not lower than the II category. Among males, 17,4% each had the title of MS of the Russian Federation and theI category, 60,9% – CMS, the rest are not lower than the II category. Dermatoglyphic studies were carried out once, because the patterns on the distal phalanges of the fingers are unchanged throughout life. The pattern was determined using the hardware and software complex "Malachite" developed by Bauman Moscow State Technical University and allowed to identify qualitative and quantitative indicators: dermatoglyphic phenotype (DP), crest score (CS), delta index (DI) on the fingers of the right and left hands.

Findings and their discussion. A dermatoglyphic study revealed that among women, the simplest pattern in structure – an arc (A) – was found in 25% of swimmers, loops (L) in 75%, and curls (W) in 62,5% of young women. In males, out of the total number of subjects, arces (A) were found in 21,7% of athletes, loops (L) were found in 100%, curls (W) in 86,9%, and 4,3% of swimmers havea complex (rare) pattern.

The dermatoglyphic phenotype (DP) with the presence of a whorl type of pattern was determined in 27,9% of male swimmers (WL), loops (LW) prevailedin 55.6% of the subjects, 5,5% of the athletes each had the phenotype 10L, LA and AL.

To study the functional asymmetry of finger patterns on the right and left hands, the indicators of the total comb count were divided into two parts: the comb count of the right hand and the comb count of the left hand. Similarly, the indicators of the delta index were revealed (Table 1).

Table 1 – Quantitative dermatoglyphic indicators of the right and left hand of qualified swimmers

Crest score			
	Overall indicator	Right	Left
♀	189,3±65,4	94,3±32,7	95±33,5
♂	201,6±27,5	107,9±14,1	93,7±14,1

Delta index			
	Overall indicator	Right	Left
♀	12±2,7	6,2±1,3	5,9±1,4
♂	12,7±1,2	6,5±0,6	6,2±0,6

The obtained values of general indicators exceed the data available in the literature on the total ridge count by 68.1 ridges in women and by 80.4 in males [1]. The table shows that in swimmers on the left hand, the asymmetry along the ridges is 0.7, in men there is a right-sided asymmetry by 14.2 ridges. There is insufficient data in the literature on the reasons for the differences in quantitative patterns on the fingers of both hands. According to T.F. Abramova's delta index for both hands in swimmers is 13 deltas, which is 1 and 0.3 deltas more than our values [1].

A comparative characteristic of the patterns on each finger of the right and left hands was carried out in order to identify the asymmetry of complex dermatogyphic patterns. The most complex pattern is a curl (W), the average in complexity is a loop (L), and the simplest is an arc (A). The data were given as a percentage (Table 2).

Table 2 – Percentage ratio of asymmetry on the fingers of the right and left hands

		1	2	3	4	5
♀	Right			11,1	22,2	11,1
	Left	22,2	33,2			
♂	Right	16,7	5,5	11,1	11,1	11,1
	Left		27,8	5,5		

From the table values obtained, it can be seen that female swimmers have the greatest asymmetry on the second finger of the left hand in relation to the same finger of the right hand (33,2%). With 22,2% probability, asymmetry occurs on the first finger of the left and fourth finger of the right hand and minor asymmetry occurs on the third and fifth finger of the right hand (11,1%).

Male swimmers have the greatest asymmetry on the second finger of the left hand (27,8%). There is 16,7% asymmetry on the first finger of the right hand. With an 11,1% probability, asymmetry occurs on the third, fourth and fifth fingers of the right hand. With the least probability (5,5%) asymmetry on the second finger of the right and third finger of the left hand.

Conclusion. Finger dermatoglyphics testing is a necessary part of the selection and orientation in sports of children of different genders and ages. The obtained values of qualitative and quantitative indicators of swimmers will help coaches, parents and specialists in the field of physical culture and sports to identify the most effective and efficient children at various stages of training and will allow them to orient themselves in predisposition to a certain type, style and discipline of distances.

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INTERNATIONAL RELATIONS AND SPORT IN THE ONTEXT OF MODERN GEOPOLITICS

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The sphere of International Relations (IR) as an sphere of research has been the subject of intense debate over the past decades. Nevertheless, IR has existed in one form or another for almost 100 years, during which a number of theoretical models have appeared that facilitate the study of international problems. In the academic community, a differentiation is usually made between international relations (usually abbreviated as IR), which relate to an academic discipline with that name, and international relations as a process in world politics. Today, in the era of global geopolitical transformations, the sports ecosystem is strongly influenced by external factors (political and military conflicts, religious and cultural differences, etc.)

To identify the key spheres in which sport collaborate with international relations.

Material and methods. Analysis of literary sources, interviewing, the method of expert assessments, methods of mathematical statistics.

Findings and their discussion. Sport is largely ignored in international relations. The growing economic and political influence of individual countries and regions inexorably causes a rise in the sport of high achievements. At the moment, the phenomenon of the "Global South" is relevant expressed in the shift of the center of power in international sports: the Arab Emirates has become the center of sports governance, and China is getting positions as an international sports nation. In European countries, the classical sports paradigms that have been established for centuries are crumbling and undergoing revision. But despite the global shocks of recent years (the COVID-19 pandemic, military conflicts, anti-doping scandals), sport still remains an essential part of diplomacy, confirmation of the country's status in the international political arena. In this context, the following aspects are most relevant:

• The development of transnational institutions and networks, the growing importance of sport in global governance and further use of sports as tool for foreign policy.

• The role of sports stars, clubs and federations as political players helping to stimulate diplomacy and convey true values to the broad masses of the population.

• The use of sport as a means of promoting social and economic development, as well as human rights. The role of sport in stimulating the processes of individualization (promotion of national sports) and globalization (widespread global sports).

•Participation of the Olympic movement in International diplomacy [7].