

Monitoring of Anthropometric Characteristics of Swimmers

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Abstrakt

Cieľom príspevku bolo sledovať dynamiku rozvoja antropometrických charakteristík starších žiakov a juniorov plaveckého oddielu STU Trnava. V spolupráci s plaveckým oddielom STU Trnava od roku 2006 realizujeme meranie vybraných antropometrických charakteristík tela starších žiakov a juniorov v plávaní. Počas štyroch ročných tréningových cyklov sme vo vybranej skupine plavcov zisťovali rovnaké somatické predpoklady. Výsledky nášho výskumu v sledovaných súboroch starších žiakov a juniorov nám potvrdzujú, že dynamika rozvoja antropometrických charakteristík tela plavcov je individuálna. Jednoznačným prínosom nášho výskumu je longitudinálne sledovanie a vyhodnocovanie antropometrických charakteristík tela plavcov, ktoré umožňuje exaktne, číselne zhodnotiť dynamiku somatických predpokladov sledovaných plavcov s výhľadom na kvalitu plaveckého výkonu.

Abstract

The aim of this research was the monitoring of anthropometric characteristics development of chosen male junior and age group swimmers of SUT Trnava swimming team. We have been realising the measurement of chosen anthropometric characteristics of the body of male junior and age group of swimmers in cooperation with SUT Trnava swimming team since 2006. We have found out the same somatic preconditions at this selected group of swimmers during last four annual training cycles. The clear benefit of our research is longitudinal monitoring and evaluation of anthropometric characteristics of the swimmers' bodies, allowing the exact and numerical evaluation of dynamics of somatic assumptions at monitored swimmers with a perspective on the quality of swimming performance.

Kľúčové slová: antropometrické charakteristiky, žiaci, juniori

Key words: anthropometric characteristics, age group swimmers, junior swimmers, male

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INTRODUCTION

Nowadays there is no exact structure of swimming performance in the individual disciplines. Based on the current knowledge we can conclude that endurance and power abilities, functional and somatic preconditions, factors of technique and personal preconditions (Čechovská 1994, Leško; Kalečík 1996, Macejková 1999, Rybárik; Bence 2000, Ružbarský; Turek 2006, Medeková; Šelingerová 2007) are the limit factors. Anthropometric characteristics of the swimmer's body belong to somatic factors. At present it is necessary to have above-the-average body height and length characteristics (length of the individual segments of the upper and lower limbs, the length and width of the hand and foot) in all disciplines.

AIM

The aim of this research was the monitoring of anthropometric characteristics development of chosen male junior and age group swimmers of SUT Trnava swimming team.

METHODS

We have carried out the measurement of chosen anthropometric characteristics of the body of male junior and age group swimmers in cooperation with SUT Trnava swimming team since 2006. The measurement is accomplished in the same period of the annual training cycle.

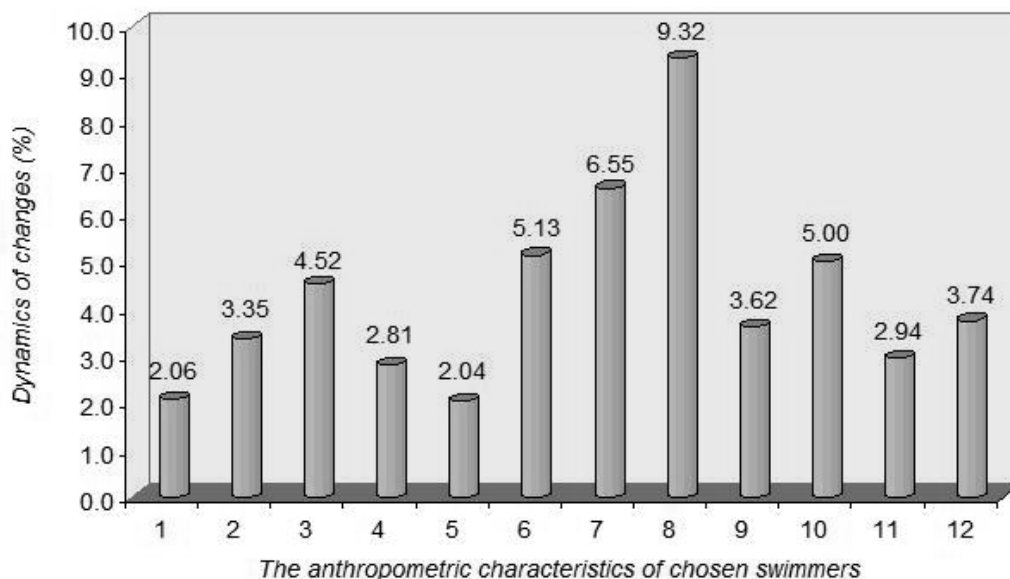
The research subject has been selected male junior and age group swimmers from SUT Trnava swimming team (n=21). We have found out the same somatic preconditions at this selected group of swimmers during last four annual training cycles. Monitored anthropometric characteristics of swimmers have been counted from measuring 10 anthropometrical points (vertex, acromiale, radiale, stylium, dactylium, iliospinale, tibiale, sphyrium, acropodium, pternium) by the anthropometer. We have consented the length characteristics (body height, upper and lower limbs length, foot and palm length), which were likely to have the influence on swimming performance.

RESULTS AND DISCUSSION

The clear benefit of our research is longitudinal monitoring and evaluation of anthropometric characteristics of the swimmers' bodies, allowing exact and numerical evaluation of the dynamics of somatic assumptions at monitored swimmers with a perspective on the quality of swimming performance.

Figure 1 represents the anthropometric characteristics of 16-year-old swimmers. We found the most dynamic progress in the anthropometric characteristics of upper and lower limbs. We understand this fact as a dynamic change in body growth in the 16th year of life of monitored swimmers. The highest per-

Figure 1: The anthropometric characteristics changes of 16 years old male swimmers (n=6)

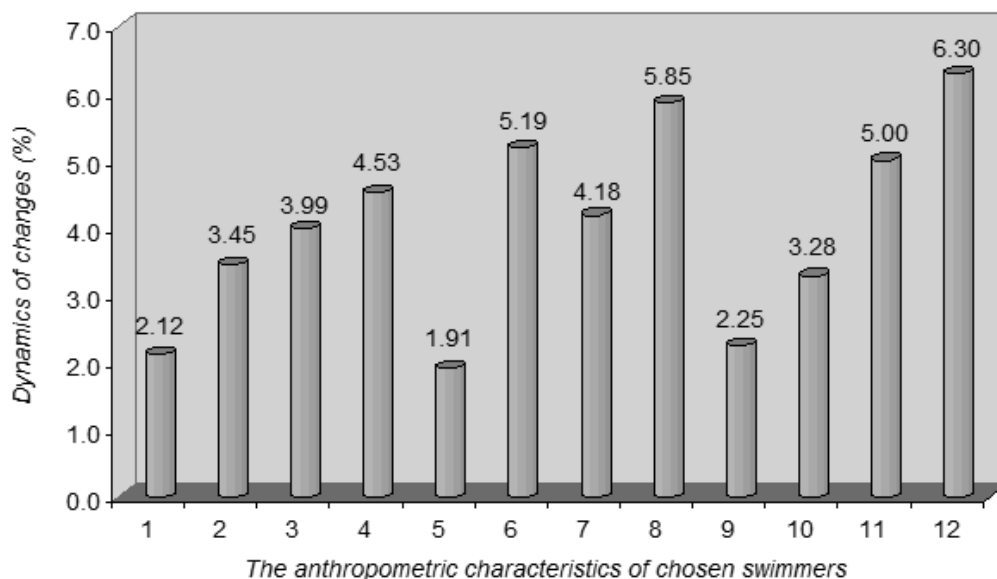


centage progress has been found in the anthropometric characteristics – the thigh length.

The clear benefit of our research is longitudinal monitoring and evaluation of anthropometric characteristics of the swimmers' bodies, allowing exact and numerical evaluation of the dynamics of somatic assumptions at monitored swimmers with a perspective on the quality of swimming performance.

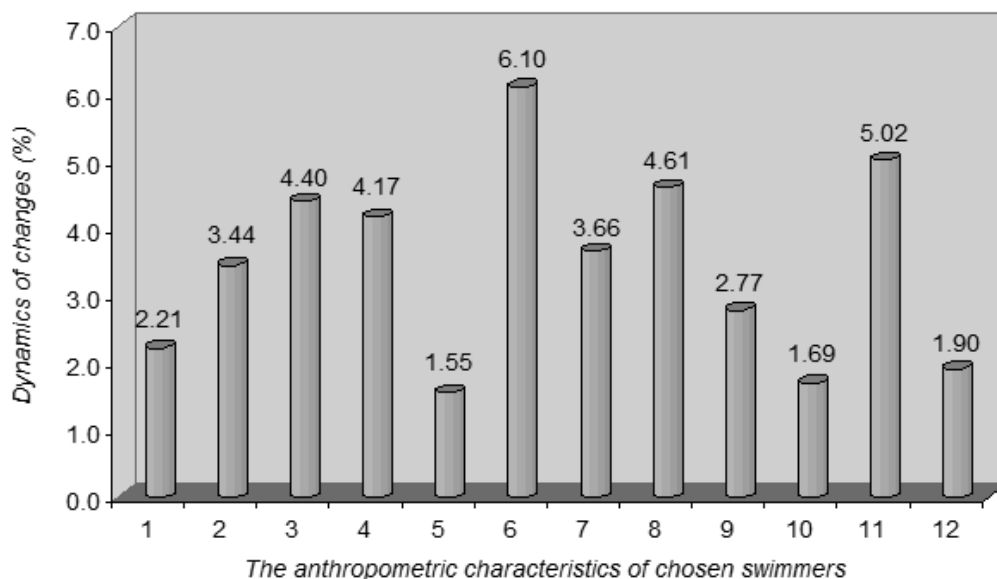
Legend: 1 – the body height; 2 – length of the arm; 3 – length of the upper arm; 4 – length of the forearm; 5 – length of the hand; 6 – width of the palm; 7 – length of the leg; 8 – length of the thigh; 9 – length of the calf; 10 – height of the ankle; 11 – length of the foot; 9 – length of the trunk

Figure 2: The anthropometric characteristics changes of 17 years old male swimmers (n=8)



The anthropometric characteristics of 17 years old swimmers are presented in figure 2. We found dynamic progress almost in all anthropometric characteristics. That might mean that the body growth in the 17th year of life of monitored swimmers is not finished. The highest percentage progress has been found in the anthropometric characteristics – the trunk length.

Figure 3: The anthropometric characteristics changes of 18 years old male swimmers (n=7)



The anthropometric characteristics of 18 years old swimmers are presented in figure 3. The highest percentage progress has been found in the anthropometric characteristics – the palm width.

CONCLUSION

The results of this research of monitored age group and junior male swimmers proved that dynamics of the anthropometric characteristics changes of chosen swimmers is high individual. Anthropometric characteristics clearly affect the dominant parts of efficient swimming technique. These parts of swimming technique should be adjusted to the body of the individual swimmer.

Considering still insufficient number of measured swimmers, and a small number of measurements, our results are valid only for monitored swimmers. Because of this reason we will continue in the measurements.

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