CENTILE CHARTS OF MOTOR DEVELOPMENT IN GIRLS AGED BETWEEN 7.5–19.5 FROM THE KUJAWSKO-POMORSKIE DISTRICT

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The aim of the research was to present motor development with the help of centile charts, where the centile curves determine particular parts of the population: 3, 10, 25, 50, 75, 90 and 97 percentile.

The research was conducted in the spring of 2001. A survey of 11 803 girls aged between 7.5 and 19.5 years old, from various types of rural and urban schools of the Kujawsko-Pomorskie district, was conducted. Centile charts make it possible to observe the process of the development of the examined characteristic, to answer the question as to whether an individual is at the level which is characteristic of a certain age, and, in case of aberrations, to come to a conclusion that the process of growth is disturbed. While determining the centile position one can become familiar with the level of development of an individual against calendar individuals of the same age. The value of C50 determines the calendar age of an individual. The results of the empiric research shows that the curve of the individual development of a child "wanders" within some channels, which is quite normal and does not mean a distortion of development.

Keywords: Motor fitness of girls, centile charts.

INTRODUCTION

Political changes have brought about social and economical changes in Poland. This situation can influence the biological development of children and teenagers. In order to present individual development one can used centile charts, which are widely used by doctors and teachers. They are also being developed by the employees of the International Institute of Mothers and Children in Warsaw (Bożiłow et al., 2004).

The development of an individual at every stage is a function of genetic factors, environment and time. As a result of interaction between genotype and environment, development progresses in accordance with its specific developmental line (Stein & Julian, 2003).

METHOD

Motor development was presented with the help of centile charts, where the centile curves determine particular parts of the population: 3, 10, 25, 50, 75, 90 and 97 percentile (Stupnicki et al., 2003).

The research was conducted in the spring (at the turn of April and May) of 2001 and covered 11 803 girls aged between 7.5 and 19.5 from various types of rural and urban schools of the Kujawsko-Pomorskie district. The number of girls in particular age groups as well as the environment they lived in were similar.

The calendar groups were created in accordance with the terms generally used in tests of the developmental type (Malinowski, 1978; Kemper & Van Mechelen, 1996). It was assumed that a 7.5 year old child was one who, on the day the research was done, was age between 7 years and eight years without one day. Considering the 24 hour long biological rhythm, the research on motor activity was conducted between 10 a.m. and 1 p.m.

Both daytime and extramural students of the Academy of Bydgoszcz (now Kazimierz Wielki University in Bydgoszcz), as well as the teachers of physical education and the medical personnel from the examined schools proved very helpful. All examiners were trained in accordance with the research instructions.

In the opinion of the author motor ability is mainly seen at the level of manifestation of abilities and motor skills of an individual during a particular act of movement, including fitness tests. Fitness as a characteristic was adopted as the ability to solve motor tasks and the level of the fitness of the population was expressed in average values obtained in motor tests.

In order to determine motor abilities, eight tests from the International Committee on the Standardisation of Physical Fitness were used. The test includes universal assessment of groups of muscles of the whole body. The technical elements are not aimed at any of the basic sports disciplines.

Before the tests, the examined parties did a warm-up typical for intensive physical training. The sports outfit used during research was to consist of a t-shirt and shorts (alternatively a light track-suit) and some sports shoes without spikes and pins, with a non-slippery sole. The tests of overhang and forward bend were to be done

without any footwear. Instructions, helpful while doing particular tests, from the International Committee on the Standardisation of Physical Fitness, as described by Larson (1974) were adopted.

The centile charts were developed by the author on the basis of the obtained results.

RESULTS

The results are presented in graphic form, on centile charts, Figure 1–8.

Fig. 1
The centile chart of the girls' 50 m run

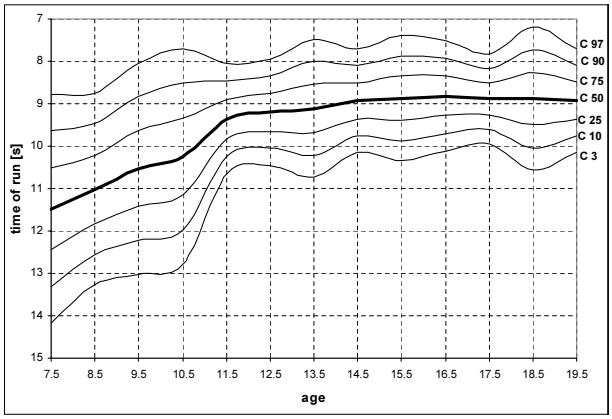


Fig. 2
The centile chart of the girls' 600 m for girls aged 7.5–11.5 and 800 m age 12.5–19.5 run

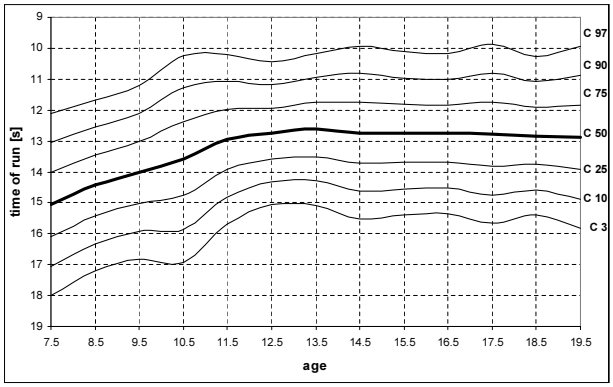


Fig. 3
The centile chart of the girls' 4 × 10 m shuttle run

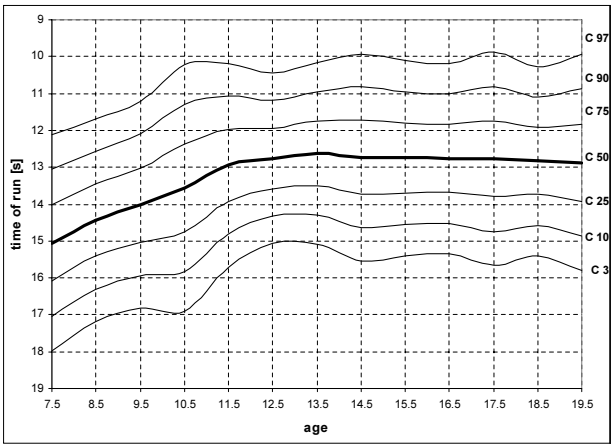


Fig. 4
The centile chart of the girls' forward bend of the trunk from the standing position

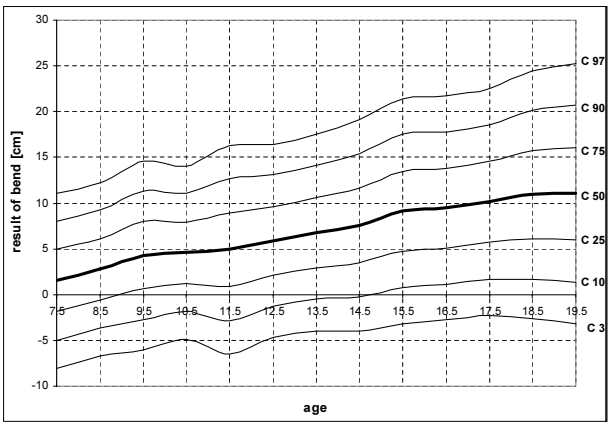


Fig. 5
The centile chart of the girls' – sit-ups within 30 sec.

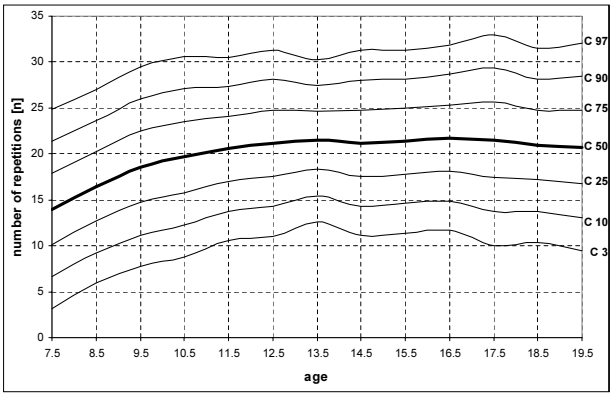


Fig. 6
The centile chart of the girls' horizontal bar bent arm hang

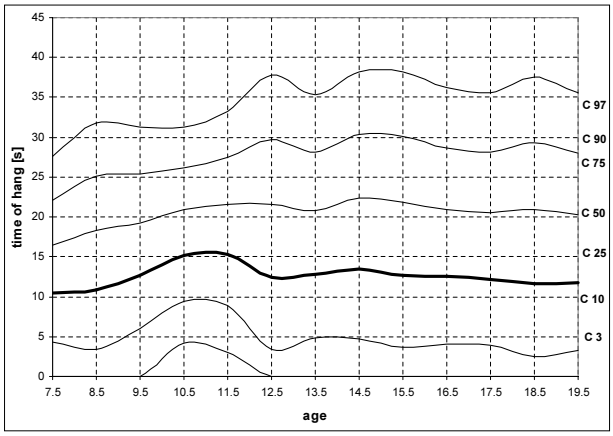


Fig. 7
The centile chart of the girls' dynamometer hand grip squeeze

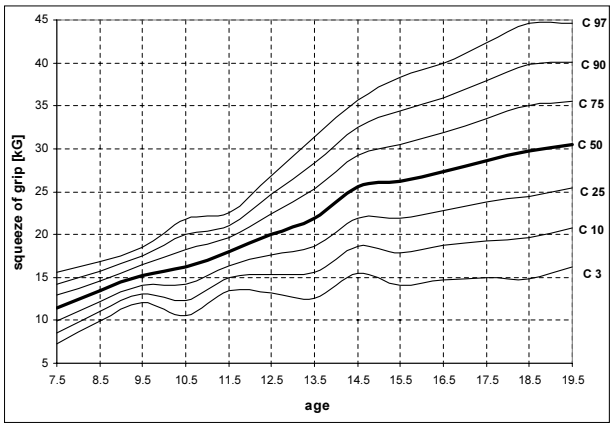
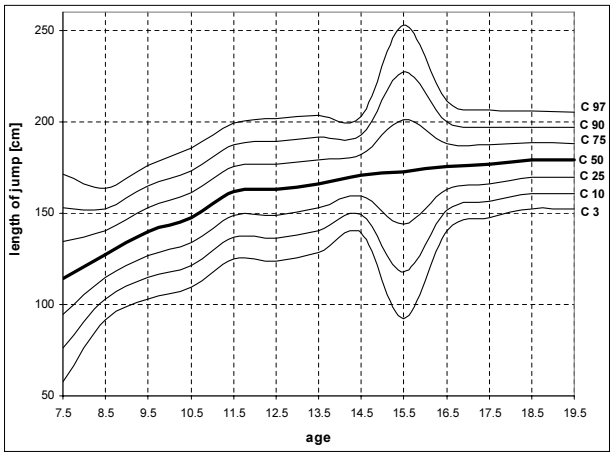


Fig. 8
The centile chart of the girls' standing long jump



DISCUSSION

The centile charts make it possible to observe the process of the development of the examined characteristic, to answer the question as to whether an individual is at the level which is characteristic of a certain age, and, in case of aberrations, to come to a conclusion that the process of growth is disturbed (Stupnicki et al., 2003).

While determining the centile position one can become familiar with the level of development of an individual against calendar individuals of the same age. The value of C50 determines the calendar age of an individual.

CONCLUSION

The results of the empiric research show that the curve of individual development of a child "wanders" within some channels, which is quite normal and does not mean a distortion of development (Cieślik et al., 1994). The developmental standard is a biological point of a reference which is used to determine the physical development of the population at the developmental age. The present evidence is a part of broader research into somatic and motor development of children and teenagers from the Kujawsko-Pomorskie district.

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CENTILOVÉ STUPNICE MOTORICKÉHO VÝVOJE U DÍVEK VE VĚKU 7,5–19,5 ROKU Z KUJAVSKO-POMOŘSKÉHO KRAJE

(Souhrn anglického textu)

Cílem výzkumů bylo představit motorický vývoj pomocí centilových stupnic, kdy centilové křivky určují jisté části populace: 3, 10, 25, 50, 75, 90 a 97 percentil.

Výzkumy byly prováděny na jaře roku 2001. Týkaly se 11 803 dívek ve věku mezi 7,5 a 19,5 lety z různých typů venkovských a městských škol kujavsko-pomořského kraje. Centilové stupnice umožňují sledovat proces vývoje zkoumaných charakteristik, zodpovědět na otázku, zda se jednotlivec nachází na úrovni charakteristické pro určitý věk a – v případě odchylek – dospět k závěru, že proces růstu je narušený. Při stanovování centilové pozice je možno poznat úroveň vývoje jednotlivce ve srovnání s jednotlivci téhož kalendářního věku. Kalendářní věk jednotlivce určuje hodnota C50. Výsledky empirických výzkumů ukazují, že křivka individuálního vývoje dítěte se klikatí v mezích určitých kanálů; to je však normální a neznamená to deformaci vývoje.

Klíčová slova: motorická zdatnost dívek, centilové stupnice.

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