

## CHANGES IN MOTOR FITNESS IN THE POLISH SCHOOL POPULATION (1965-95)

Joachim Raczek\*

## SPREMEMBE MOTORIČNIH SPOSOBNOSTI ŠOLAJOČE MLADINE V POLJSKI (1965-95)

### Abstract

The general tendencies of changes in Slesian school children's motor fitness were estimated on the ground of results of comparative research performed in 1965, 1975, 1985 and 1995. Evaluation of fitness comprised the same scope of research. The comparative analysis included data of over 10000 school children aged 8-18. The results are unique due to the 30 year observation period, the number of children tested and the range of information obtained. The increasing secular tendencies of somatic development were established, while the level of motor fitness decreased. Negative tendencies in the development of motor fitness pertained mostly to conditional abilities and were more significant among girls. Progression of coordinational motor abilities was not significant.

Negative trends in the development of motor fitness in population of school children are nowadays highly alarming. The observed regression has many different causes, with the main one being unquestionably the continuous decrease in physical activity of children. The results of the presented research indicate a necessity for undertaking firm actions to ensure the desirable biological and psychical state of present children's generation.

*Keywords: motor fitness, school children, tendencies, comparison, Silesia, Poland*

### Izvleček

Splošne značilnosti sprememb v motoričnih sposobnostih šolarjev v Šleziji so bile ocenjene na osnovi podatkov primerjalnih študij izvedenih v letih 1965, 1975, 1985 in 1995. Podatki so bili zbrani na več kot desettisoč učencih med osmim in osemnajstim letom starosti. Ti podatki so zaradi tridesetletnega opazovalnega obdobja, števila izmerjenih otrok in pestrosti izbranih informacij edinstveni. Ugotovljen je bil naraščajoči sekularni trend v somatskem razvoju, medtem, ko se je raven motoričnih zmožnosti znižala. Negativni trendi se nanašajo predvsem na vzdržljivost in so bolj izraziti pri dekletih. Napredek pri koordinaciji ni bil statistično značilen.

Negativni trendi v razvoju motoričnih sposobnosti v šolski populaciji danes, so zelo zaskrbljujoči. Ugotovljeno nazadovanje ima več vzrokov, glavni pa je brez dvoma stalno zmanjševanje telesne aktivnosti otrok. Dobljeni rezultati kažejo na potrebo po resnih ukrepih, da bi zagotovili željeno biološko in psihično stanje današnje otroške generacije.

*Ključne besede: motorične zmožnosti, učenci, učenke, trendi, primerjava, Šlezija, Poljska*

\*Department of Theory of Human Motor Behaviour, Academy of Physical Education, Katowice, Poland

## Introduction

The changes occurring in the successive young generations, observed for many decades, indicate a necessity of evaluation and analysis of this phenomenon. Studying the tendencies of change, establishing their propensity, character and causes plays a significant role in an objective evaluation of the biological and social value of the population. It also creates the proper basis for the control of the physical development of young generation.

The main goal of this research project is the analysis of the trends of motor development changes based on results of comparative fitness studies of the Silesian school population from 1965, 1975, 1985 and 1995.

## Methods

The problems under consideration were studied by means of comparative evaluation of motor fitness of the school children population in Upper Silesia performed in 1965, 1975, 1985 and 1995. The diagnostic procedures remained unchanged during the whole course of research. It included measurement of basic somatic features. Comparative analysis comprised the data of 10015 pupils aged from 8 through 18 (5000 girls and 5015 boys). Endurance and coordinational motor abilities were evaluated by means of fitness tests. Additionally basic somatic changes were registered. To determine the direction and range of changes the results of the 1995, 1985 and 1975 decades were normalized to those obtained by the 1965 school population. The level of motor fitness has been evaluated in relation to body height and expressed in the form of a percentile indicator. Such a presentation enabled to emphasize the dependences or discrepancies between somatic and motor development.

## Results

Unprecedented range and rapidity of industrial and urban changes in Upper Silesia, as well as its ecological consequences imposed a significant influence on the biological state and health of the young population in this region. Closer analysis of considered problems does not fill one with optimism. The results obtained (Fig. 1, 2, 3 and 4) reveal the positive trend in the intergeneration secular changes, while the development of motor fitness exhibits a generally negative trend: thus the lowest level of motor fitness was observed in 1995.

The regression is most evident when relative results of motor fitness are considered. The regressive tendency concerns the whole population, yet females and children with a low level of motor fitness are more affected. The regression is most pronounced

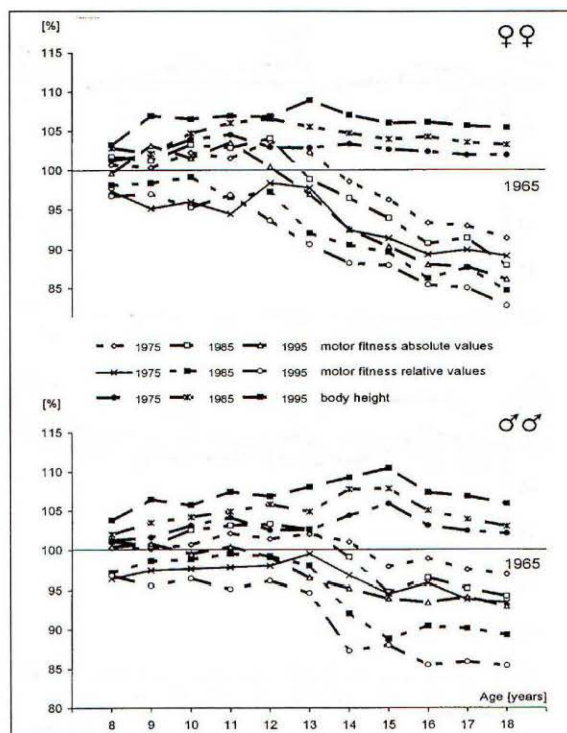


Fig. 1 Profiles of motor fitness and body height of the school population in 1975, 1985 and 1995 in relation to the 1965 population (100%)

in relative fitness abilities: the intergeneration differences are noticeable and reach up to 20%. Successive research established a remarkable increase of discrepancies between somatic development and motor fitness level. Progressive tendencies in the development of coordination were not observed. This phenomenon pertains to both sexes but more to females. It affects first of all the population of youth aged more than 12-14. A remarkable phenomenon is that the moment of rapid drop of motor fitness shifts towards younger and younger age groups.

The time changeability of particular motor abilities is differentiated: it is lower in respect to speed and agility and very noticeable in respect to endurance and strength (Fig. 2). The deepest regression pertains then to those abilities which in human motorics play a rudimental role and one on which to a great extent health is dependent.

Changes in coordinational abilities do not reveal significant regressive or progressive trends (Fig. 3). As the expectations according to this sphere of human motorics are ever greater, one cannot evaluate univocally such trends as positive. Negative developmental trends of motor fitness pertain to the whole school population, it is however more clear in the group of pupils with low fitness and is age dependent (Fig. 4).

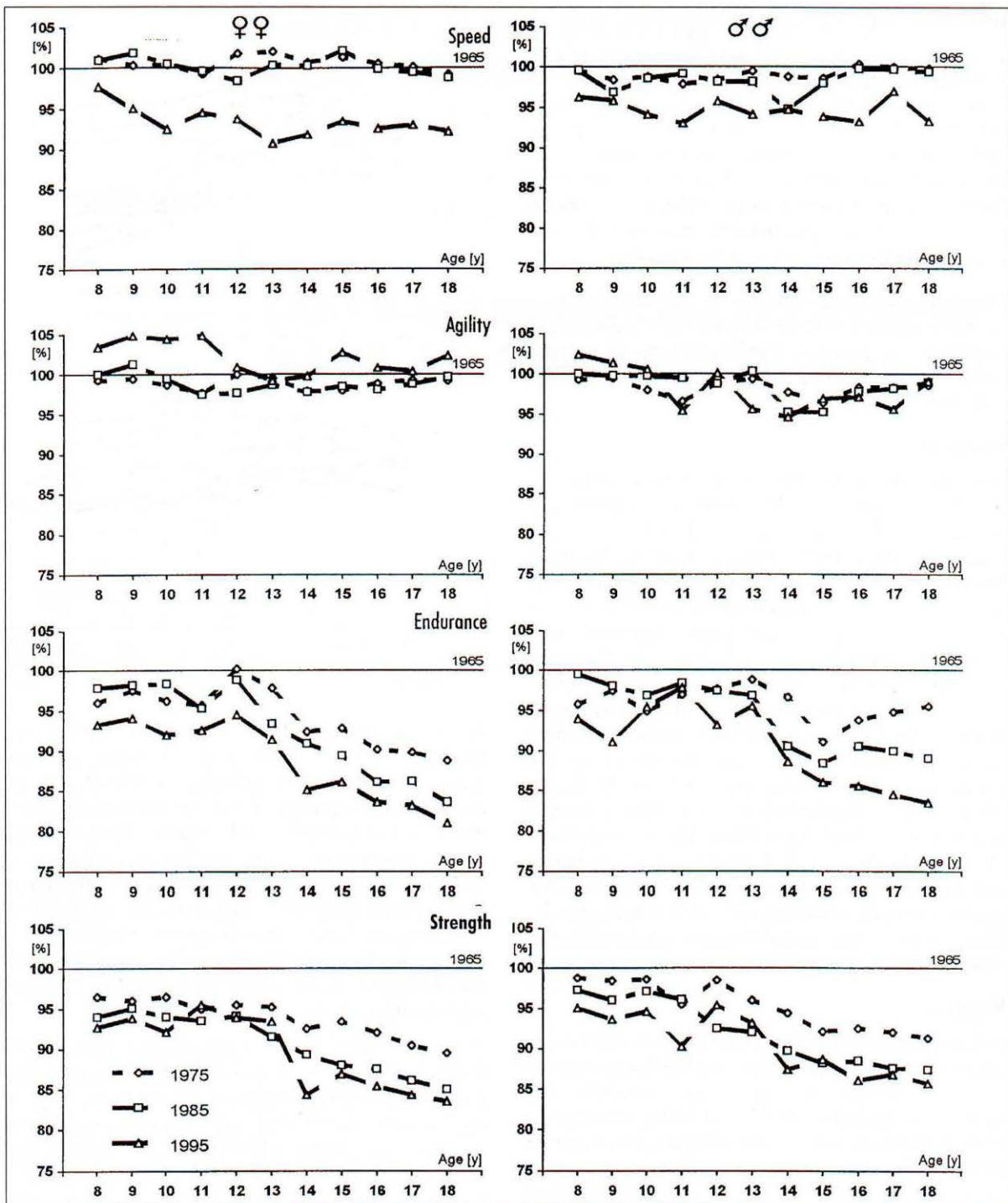


Fig. 2. Profiles of relative efficiency in selected motor abilities of the school population in 1975, 1985 and 1995 in relation to 1965 population (100%)

## Discussion

The results of the research presented indicate that negative intergeneration changes of the motor system in the period of growth become even more significant. The regression in motor fitness and growing discrepancies between somatic and motor develop-

ment are alarming both for biological and social reasons (1,2,3). It reduces the adaptive abilities of the organism, necessary for normal growth, health and quality of life (4).

The somatic and motor development discrepancies are influenced by many factors (2). The motor fitness

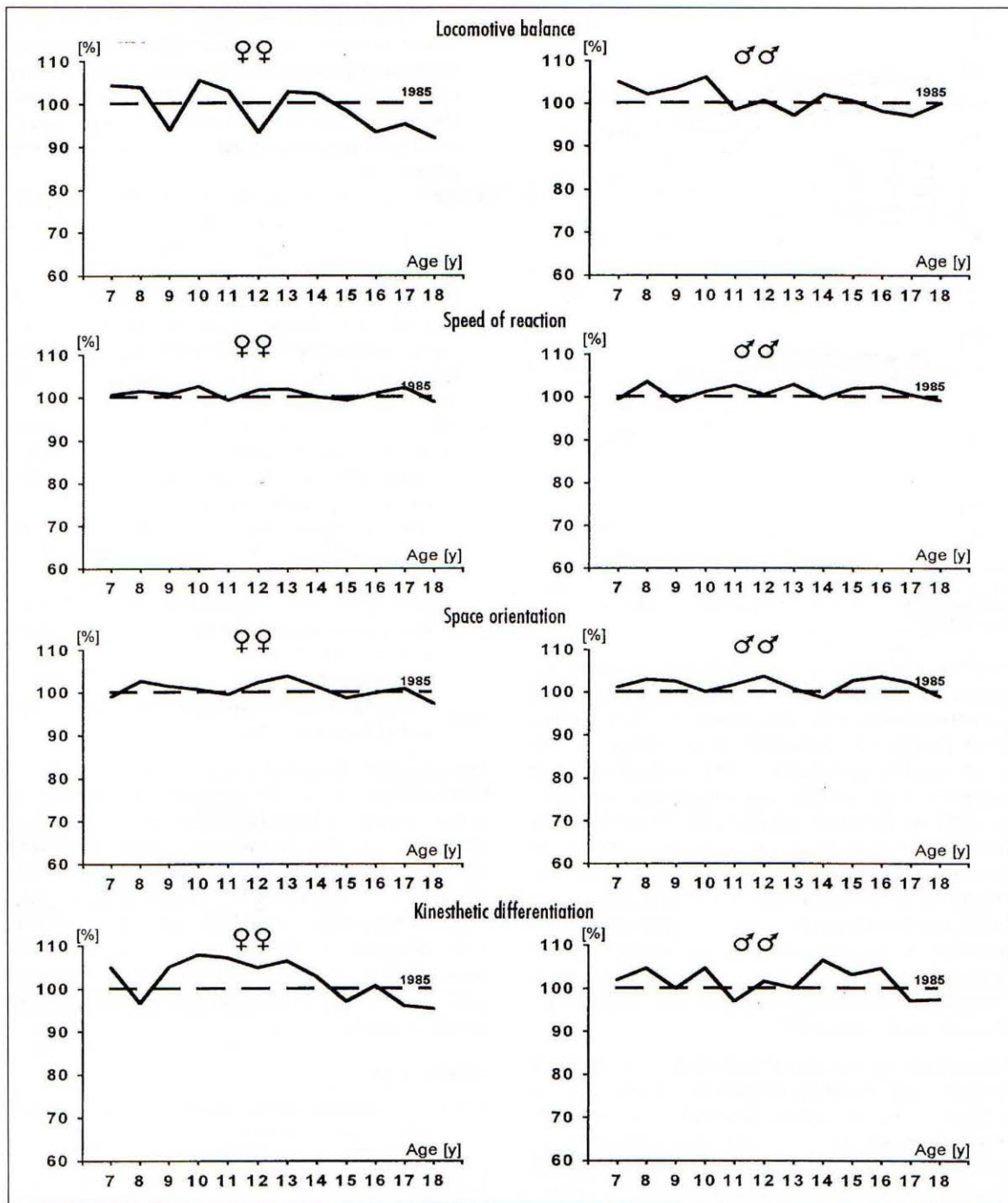


Fig. 3. Profiles of fitness in selected coordinational abilities of the school population in 1995 in relation to the 1985 population (100 %)

regression is a consequence of the changes in life - style, interests and manners of the young generation, but is also a result of increasing devastation of the natural environment (4).

However, the decreasing of motor fitness of adolescents is influenced mainly by the reduction of physical activity of youth (5). Irrational urbanization and

degradation of the natural environment evokes a large-scale hypokinesia in the Silesian school population. Over 85% of the children under research do not take part in any sport-recreational activities besides obligatory lessons of physical education. Present-day youth adapts passively to such a level of effort load, that it meets permanently in everyday

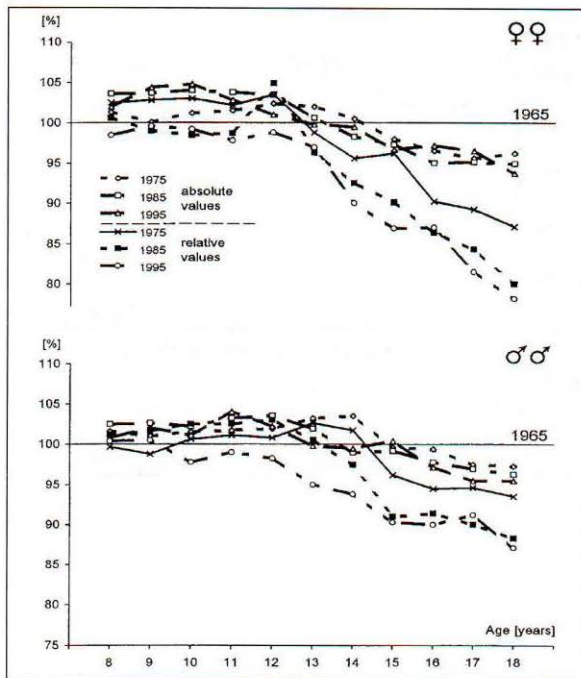


Fig. 4. Comparison of profiles of different level of motor fitness obtained in 1975, 1985 and 1995 in relation to the 1965 population (100%)

practice, using only very rarely its full „adaptive potential” and capabilities resulting from higher advancement of somatic development. There exists a great danger of „biological degradation” of the whole modern population. The biological nature of a growing organism does not tolerate motor inactivity with no negative results (2,5). Therefore, the problem of increasing the movement activity of youth becomes especially important. It is a sheer necessity of the normal development of youth.

In this respect the school plays an inglorious role. Its material insufficiency, overloaded programs, high demands and rigours very effectively expulse the necessary movement activeness from everyday life of a contemporary pupil.

One cannot ignore, also, the weakness of the school physical culture system in preventing and counteracting the negative developmental trends in youth motor development. It pertains both to the program and methodical concepts and creating an optimal organizational-material basis for the development.

### Conclusions and proposals

1. Negative trends observed in motor fitness development of present-day school population indicate the remarkable functional handicap and vitiation of natural motricity of young generations, or at least the premature onset of involution. Such unfavourable changes influence the biological condition of youth.

2. Mechanisms and conditions of the regression of fitness, as well as developmental disharmonies of the young generation are surely influenced by many factors. There are no doubts, however, that the main reason is the increased hypokinesia of youth and growing devastation of the natural environment.
3. An awareness of the facts presented, demands the necessity for radical changes of the strategy of realisation of the general concept of education and health protection of youth in the present-day life. It has to take into account to a greater extent the role of physical activity as a necessary element for ensuring the optimal biological and psychical state, so building up the health of the young generation.
4. The optimization action to be taken should comprise some closely connected aspects, namely:
  - using effective methods and means of stimulating the growing organism,
  - intensifying the actions motivating and shaping a healthy life style with much physical activity,
  - joining the means regulating movement manners of youth with the context of real social-cultural conditions,
  - creating optimum organizational and material conditions for realisation of the goals a universal physical culture.

The situation observed and the trends of generational changes unveil the necessity of continuation of the research, which should be aimed not only at recognition of the phenomena and its manifold grounds, but above all at making a basis for optimising actions, at modelling the proper relation man-environment. This is especially actual topic due to intensive technical-civilization transformations. The results of the research should make a basis for social policies aimed at protection and building up the health of youth.

### References

1. Raczek J, Tendencje przemian w rozwoju sprawności motorycznej populacji szkolnej. In: Raczek J, ed. *Motoryczność dzieci i młodzieży*. Katowice, 1986, 257-264.
2. Raczek J, Probleme und Methoden der Motorikforschung im Kindes- und Jugendalter. *Leistungssport* 1987; 3:45-48.
3. Raczek J, Aktywność ruchowa, sprawność motoryczna a zdrowie dzieci i młodzieży. *Roczniki Naukowe* 1989; 17: 9-44.
4. Raczek J, Children's and adolescent's health in consideration of the changes and general tendencies in motor fitness. In: *Physical activity in the lifecycle*. 1st ed. Wingate Institute, 1993, 94-102.
5. Raczek J, Hypokinesia and its influence as a problem of contemporary civilization. In: *nauki o kulturze fizycznej wobec wyzwań współczesnej cywilizacji*. AWF Katowice, 1995, 29-55.