

**ANALYSES OF PRINCIPAL FACTORS OF SUCCESS
IN WRESTLING**

Doctoral thesis

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INTRODUCTION

Combination of lots of component are needed for peak performance (Brown, 2001). The first step on the way to success is to find that sport discipline what suits for the physical, mental and psychological abilities, also social conditions of the child (Sallis et al., 2000). It is important for the future to have those abilities what the chosen sport discipline requires. That is why it is important who practice influence on the choices of children. It is expected from PE teachers, coaches and parents to orient children to a sport discipline in which they are interested in and can achieve successes (Bicsérdy, 2002; Coakley, 2004; Hassandra et al., 2003). Publications – national and international as well – are analyzing which factors influence the sporting habits of children (Bagoien and Halvari, 2005; Bicsérdy, 2002; Harsányi, 2004; Lindner and Kerr, 2001; Pluhár et al., 2003; Vernacchia et al., 2000). Although not too many of them are analyzing how children get to a sport discipline (Földesiné, 1999; Pápai and Szabó, 2003).

However effective choosing of a sport discipline is not enough for final success. Further factors like successful talent selection and talent care are also necessary. The available literature in wrestling are very limited on characteristics pertaining to wrestling talent, selection, success and talent care. There are more publications available on psychological skills of wrestlers (Lewthwaite and Scanlan, 1989; Russell and Cox, 2002; Scanlan and Lewthwaite, 1986), body composition, body fat percentage and the issue of weight loss (Alderman et al., 2004; Baum, 2006; Housh et al., 1996).

Many factors impact the success of an athlete, but the coach-athlete relationship has definite constant and significant influences in the training

process (Mageau and Vallerand, 2003). The coach-athlete relationship in wrestling is still waiting for investigation from different points of view.

PURPOSES

Our purpose was to examine three main influencing factors of the sport success: 1) main components of choosing a sport discipline, 2) talent and sport selection, 3) coach-athlete relationship.

1. Our purpose was to investigate how upper elementary school students entry into a sport discipline in order to get more information about the influencing role of PE teachers and coaches in the process.
2. Our purpose was to compare the anthropometrical parameters and physical tests results of wrestlers who were proven to be highly successful during their sports career with those who did not achieve outstanding results, in order to investigate if there are certain anthropometrical parameters, general and sport-specific physical tests which are suitable for predicting results in wrestling.
3. Our purpose is to get more information about the coach-athlete relationship in wrestling.

HYPOTHESIS

1. We assume that most of the upper elementary students pursue sports 3-4 times per week.
2. We assume that the need to live a healthy life is not an important motivation for sport in this age, more to have fun or the need to be an elite sportsman.
3. We assume that parents and PE teachers have the most important role in pupils' choosing of sport discipline.
4. We assume anthropometrical parameters show less importance in light, and medium weight categories, while in heavy weight category show significant differences between successful and non-successful wrestlers.
5. We assume there are significant differences between successful wrestlers and those who did not achieve outstanding results in power tests in heavy weight category.
6. We assume those sport-specific tests, which are not based on technical elements show significant differences between the groups in light and medium weight categories.
7. We assume sport-specific tests including technical elements show significant differences between successful and non-successful wrestlers in light and medium weight, and show less importance in the heavy weight category.
8. We think the coach-athlete relationship is well planned and leaded by the coach.
9. We assume the coach-parent relationship has importance in preparation in childhood.

METHODS

Components of choosing a sport discipline

For the research we asked upper primary school students from eight different places of living and schools through questionnaire (N=1604). All the places and schools were chosen randomly.

Results of the whole group of pupils and those ones who pursue wrestling are shown as well. We defined regular sport activity with minimum 3-4 training sessions per week. Those pupils were defined as competitors who participate not only on school competitions.

Answers were categorized and coded, for data analyses SPSS 14.0 for Windows statistical program was used. Beside basic statistical analyses, Factor Analyses were used in the research.

Talent and sport selection

In 1980 the National Physical Education and Sport Office of Hungary introduced a new system of assessment methods, which also provided as an opportunity for comparison and was used for decades. The Office along with the Hungarian University of Physical Education and experts working for sports associations organized these assessments in different sports disciplines. They measured anthropometrical data, general and sport-specific motor tests of young athletes in different sport disciplines. Based on those measurements we analyzed the anthropometrical parameters, general and sport-specific physical test results of 13-14-year old wrestlers from 1984.

During the course of the research we used the following anthropometrical parameters: body height [cm], body weight [kg], chest circumference at rest [cm], chest circumference upon inhalation [cm], chest circumference upon

exhalation [cm], arm circumference bent [cm] and extended [cm], forearm, thigh and calf circumferences [cm].

We also analyzed results of the 30m run [s], Cooper-test [m], Sargent-test [cm], medicine ball throws forward [cm] and backward [cm] from among the general purpose tests.

There were a few sport-specific tests: the sum of the values of 10 technical elements (holds, lifts, take down, gut wrench, throws) [points], number of hip throws/30 sec. [reps], supple/30 sec. [reps], gut wrench with waist lock/30 sec.[reps], from standing position falls down in bridge and back/30 sec. [reps] and skillfulness-test [sec] (SKILL). A few other tests were also categorized and analyzed as sport-specific ones: push-ups with legs up/30 sec. [reps], squat thrusts/60 sec. [reps], scissors/30 sec. [reps], pull-ups [reps].

The wrestlers were categorized into three weight categories (light, medium and heavy). The different stages and successes of the sports careers of all wrestlers along with the successes achieved were tracked and noted. In our study those wrestlers were considered successful who achieved ranking position at the national championships or in point earning positions at most prestigious international events more than once during their career.

In order to carry out the study in the three weight groups, we compared results of successful and unsuccessful competitors both based on anthropometrical parameters as well as general and sport-specific tests. For the comparison we used multiple variable statistic method and Discriminant Analysis. We used SPSS 14.0 for Windows as the statistical program for data processing.

The coach-athlete relationship

This qualitative study was based on the experiences and viewpoints of successful coaches (N=5). A purposeful sampling procedure was adopted to ensure that each participant was nationally recognized for his achievement as coach. In-depth face-to-face individual interviews were conducted with all the participants. The interview guide was modified based upon Jowett and Meek's study (2000). The context of closeness (emotional tone of the relationship), co-orientation (aims and communication) and complementarity (leading style and motivation) has been operationalized through relationship constructs.

Three types of coding were used for verification, reliability, and credibility: open coding, axial coding and selective coding.

RESULTS

Components of choosing a sport discipline

Results show that 6,4% of pupils have never been involved in regular physical activities (PE lessons are not included). 6,2 % of those ones who pursue sport do it more than once per day, 16,1% daily, 34,2% 3-4 times in a week, 40,2% 1-2 times per week, 2,7% once or twice in a month and 0,6% once or twice in a year. Significant differences between boys and girls were not found. 50% of those children who pursue wrestling go on training daily, while 50% 3-4 times in a week. There are no significant differences between boys and girls.

For the question „why do/did you pursue sport?“ pupils could choose more than one answers. We found that media and the effective education by parents and teachers have important role in motivation. 48,3 % of the children are doing sport because they want to live a healthy life. Beside health care other motivational factors also appeared in students'

answers. 46,7 % do sport in order to have fun, 34,9 % because of peers, 30,4 % to spend freetime and only 21,6 % because they want to be elite sportsmen. Significant differences between genders were found in the answer of health care, what seemed to be more important motivation for girls ($p < 0,001$) and in the wish to be an elite sportsman, what was signed by significantly more boys ($p < 0,001$). Through Factor Analysis we were able to investigate how important role the motivational factors play in children's sporting habits. The statistical analysis showed two main factors: 1) Social factors and 2) Deliberate thinking. Having fun, friends and spending free-time are determining social factors. Health care and the need to be an elite sportsmen are the results of deliberate thinking.

16,7% of wrestlers entered into the sport discipline in order to have fun, 22,2% wanted to spend free-time, 38,9% because of friends, while 72,2% for health care. 38,9% of them want to be an elite sportsman. The wish to be an elite sportsman appeared in 54,5% in the answers of wrestlers who used to participate on competitions.

It was important for us to know who had influence on children in choosing the sport activity, because based on their answers we could get information about the activity of parents, PE teachers and coaches in this area. Children could choose more than one from the answer alternatives in this question as well. PE teachers (8,4%) and coaches (5,5%) had the less influence on children. Significantly more girls think that the PE teacher helped them in their decision ($p < 0,01$), while more boys say the same about their coaches ($p < 0,01$). Surprisingly most of the elementary school students (78,2 %) think that choosing of sport discipline was based on their own decision and wish. 22,8 % of pupils got help from the parents to choose, while friends had less importance in the process (19,6%). Factor Analysis was used to analyze the authority of the different influencing factors.

Two factors can be divided to: 1) Family decision and 2) Extrinsic factors. In the first factor the self decision and the role of family can be found. In the second factor coach, PE teacher and peers are influencing. There were no wrestlers who would be helped by PE teacher and the role of the coach was also very low.

2. Talent and sport selection

In light weight category 10 tests showed a significant differentiating impact. The first significant difference between the two groups was found during the pull-ups test, than by importance range the test falling down in bridge and back, pushups with legs up, skillfulness-test, hip throws and 30m running. From anthropometrical parameters arm circumference bent, chest circumference upon inhalation, calf circumference and body-mass index showed significant differences.

In medium weight group only 9 tests cause a statistical difference among which the most significant one is the scissors. Apart from the total points awarded from the 10 technical elements, chest circumference upon inhalation, forearm circumference, gut wrench, body weight, push-ups with legs up, pull-ups and the squat thrusts proved to make a significant difference.

In the case of wrestlers, competing in the heavy weight group 16 tests produced a discriminating impact among those successful and non-successful. Of these 16 tests 7 had relevance to the anthropometrical parameters and from among the general tests 4 (medicine ball throw backwards, Sargent-test, 30m running and Cooper-test) and from the sport-specific tests 5 (pull-ups, squat thrusts, gut wrench, supple and scissors) have shown a substantial differentiating impact in terms of compliance, success.

We stated that in the case of those competing in the light weight category, tests directly or indirectly related to the pull strength of the arm and the tests measuring coordination abilities necessary for rapid execution primarily play an important role in differentiating those successful and unsuccessful athletes. In the medium weight category tests performed over a certain period of time showed a significant effect, being the ones aimed at measuring local muscle endurance. Beside that tests measuring the effectiveness of technique show importance. The heavy weight category shows rather complex picture. In this category, anthropometrical parameters have the largest significance along with tests for power.

The coach-athlete relationship

It was a general point of view that trust, commitment, expectation, belief, respect and intimacy are extremely important for successful cooperation and therefore for high level achievement. It became clear, however, love and friendship are taken into less account in the relationships.

It is notable that a high level of social skills in both coaches and athletes side can lead to fruitful coach-athlete professional and personal relationships. Based on our interviews, we can state that age, gender, characteristics, and intrinsic motivation all play a significant role in the quality of coach-athlete interaction. It seems certain that the main aspects in coach-athlete relationship are based more on the characteristics and needs of individual athlete. The role, tasks, methods of coaches are depended on the age and personality, also the quality of the wrestler.

Coaches expect a high level of intrinsic motivation from their athletes and, of course, coaches have an easier task when the athlete is intrinsically motivated. However, they are aware that no athlete can be intrinsically motivated at all times. Even if wrestling is an individual sport,

coaches try to emphasize the importance of “team spirit”, hoping the social support helps the sportsmen being motivated. Combat sports are categorized as the so called collaborating sports (Nagykálldi, 1998), where cooperation of sportsmen is not required, but can develop individual achievements.

The coach-athlete-parent triad plays an important role primarily in the childhood years, when the child is depended on parental support in social, affective, moral and financial ways. After adolescence, parents have less direct impact on children’s regular behavior, attitude and decisions.

Based upon our results we stated, that coach-athlete relationship consists of 1) human and 2) professional conditions, although sharply separating them can be made only in a theoretical way.

DISCUSSION AND CONCLUSIONS

Components of choosing a sport discipline

Based upon the results we can state that the role of sport in children’s life is getting to be optimal, while only 6,4 % of them have never been participated in after-school sports. Although we don’t know the reasons for their inactivity. Whether those pupils did not want to pursue any sports or had no opportunity? We assumed that most of the pupils pursue sports 3-4 times per week. Our hypothesis can not be supported, while our results show that most of the children pursue sport only 1-2 times in a week.

In order to know if sporting habits of children are based upon deliberate thinking or not, we investigated their motivation for sport. We assumed that the need to live a healthy life is not a motivation for sport in this age, more to have fun or the need to be an elite sportsman. Our hypothesis is not supported by results, while most of the children (48,3%) pursue sport because they want to live a healthy life. This result can be partly thanked for parents and teachers who try to make children understand

the importance of health care. On the other hand probably here appears the effect of „fashion” broadcasting through media.

In our opinion it is expected from parents and the well educated PE teachers and coaches to establish the sporting habits of children, to help children to find the sport discipline suitable for their abilities and interest. Unfortunately results show that PE teachers and coaches are not as active in the process as it is expected. We assumed that parents and PE teachers have the most important role in pupils' choosing of sport discipline. The hypothesis is not supported. While most of the pupils think the choice was their own decision, sports pursued formerly by parents – partly because they know more about these disciplines – are attractive for children. Results show the important role of parents in establishing sporting habits as well as entry into a sport discipline.

Altogether we stated that PE teachers and coaches have still enough to do in order to teach the new generation that sport has to be the part of their lives, also to solve the problems of youth sport. Solving the problems need cooperation of PE teachers, coaches and parents, which is based on communication.

Talent and sport selection

We stated that in light and medium weight categories anthropometrical parameters do not show importance in differentiating successful and non-successful wrestlers. In these weight categories tests measuring local muscle endurance and coordination, technical preparedness are influencing success. In heavy weight group anthropometrical parameters have big influence on achievement, beside tests measuring power shows importance.

We assumed anthropometrical parameters in light and medium weight categories show less, in heavy weight categories shows significant differences between successful and non-successful wrestlers. Our hypothesis is supported, while results show that in light weight 4, in medium weight 3 and in heavy weight 7 anthropometrical parameters showed significant differences between groups.

We assumed there are significant differences between successful wrestlers and those who did not achieve outstanding results in power tests in heavy weight category. We supported our hypothesis. Power test showed significant differences only in heavy weight category.

We assumed those sport-specific tests which are not based on technical elements show significant differences between the groups in light and medium weight categories. Our hypothesis is partly supported by the results, while these tests showed significant differences in light and medium weight, also in heavy weight category.

We assumed sport-specific tests with technical elements show significant differences between successful and non-successful wrestlers in light and medium weight, and show less importance in the heavy weight groups. The hypothesis is supported. In light weight category those tests appeared as differentiating on the second, fourth and eighth place, in medium weight category on second and fifth, while in heavy weight category only on seventh and fifteenth places.

The different importance of anthropometrical parameters and motor tests in weight categories proved that there is no one definition of talent in wrestling for all the sportsmen competing in different age and weight categories. We are on the opinion that for a successful selection, tests used should be such that yield valuable data for the future especially in terms of coordination abilities. We suggest using of those tests that are

more suitable for wrestling and the measurement of abilities required for a swift and efficient execution of technical elements. Since final selection takes place after a longer period spent in the sport discipline itself (Nádori, 1985), we consider an assessment system containing a few tests based on technical elements related to the skills of the given age group to be enough to obtain the required information. Similarly to our results, researchers emphasized the importance of sport-specific tests during selection in other disciplines as well (Lidor et. al., 2005; Melrose et al., 2007).

The coach-athlete relationship

Our hypothesis that the coach-athlete relationship is well planned and leaded by the coach is supported. Coaches treat every sportsman different, in the way the sportsman's characteristics needs. They try to know as much as it is possible about their feelings and thoughts in order to work out an effective cooperation.

We assumed the coach-parent relationship has importance in preparation in childhood. The hypothesis is supported, while coaches stated that for the preparation of the child it is need to work out a balanced, friendly, but distance keeping relationship with parents.

We stated coach-athlete relationship shows importance in peak performance of the sportsman. For social support, team cooperation is needed as well. The base of the coach-athlete relationship is trust, commitment, expectations, belief, respect and intimacy. In youth sport the cooperation with parents is also required. The used leading style, pedagogical methods depended on gender, age, situation and the characteristics of the coach and athlete as well. We support Mageau and Vallerand (2003) model of the coach-athlete relationship, which demonstrates a motivational sequence in which the coach's behavior and

attitude greatly influences the athlete's intrinsic and extrinsic motivation by impacting the athlete's perceptions of autonomy, competence, and relatedness.

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