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## The Factors Influencing Sports Talent Development in the Opinion of Rhythmic Gymnastics Coaches

### Abstract

The purpose of this study was to investigate how rhythmic gymnastics coaches perceive the factors influencing sports talent development. Participants (30 female coaches) were administered a demographic survey, an open-ended questionnaire (a structured interview), and the Talent Development Environment Questionnaire (TDEQ PL). Mixed strategies (quantitative and qualitative) were used in the analysis. The research revealed two types of facilitators (essential vs. favorable), and two types of inhibitors (preclusive vs. disruptive). Within the essential facilitator factors, coaches most often indicated long-term motivation. Social support was perceived as a main favorable talent development factor. The child's inadequate approach to training and inadequate parental involvement were indicated as the main preclusive talent development factors. Difficult situations (e.g., health problems) were enumerated as a major disruptive factor. The studied group of coaches recognized the Individualized Approach to Athlete (M=4.24) as the most important environmental factor that positively influences the development of talented athletes.

**Keywords:** sports talent, talent development, rhythmic gymnastics, coaches.

### Czynniki wpływające na rozwój talentu sportowego w opinii trenerek gimnastyki artystycznej

#### Abstrakt

Celem badań było poznanie opinii trenerek gimnastyki artystycznej na temat czynników wpływających na rozwój talentu sportowego. W badaniach z udziałem 30 trenerek wykorzystano ankietę demograficzną, pytania otwarte (wywiad ustrukturyzowa-

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Article received: 29.09.2022; accepted: 6.12.2022.

ny) oraz polską wersję Kwestionariusza Środowiska Rozwoju Talentów (TDEQ PL). W analizie wyników zastosowano strategie mieszane (ilościowe i jakościowe). Badanie ujawniło dwa rodzaje facylitatorów (niezbędne oraz sprzyjające) i dwa rodzaje inhibitorów (uniemożliwiające oraz zakłócające). W ramach czynników niezbędnych trenerki wskazywały najczęściej długoterminową motywację. Wsparcie społeczne było postrzegane jako główny czynnik sprzyjający rozwojowi talentów. Nieodpowiednie podejście dziecka do treningów oraz nieodpowiednie zaangażowanie rodziców zostały wskazane jako główne czynniki uniemożliwiające rozwój talentu. Sytuacje trudne (np. problemy zdrowotne) zostały wymienione jako główny czynnik zakłócający. Trenerki uznały zindywidualizowane podejście do zawodnika za najważniejszy czynnik środowiskowy, który pozytywnie wpływa na rozwój utalentowanych gimnastyczek artystycznych.

**Słowa kluczowe:** talent sportowy, rozwój talentu, gimnastyka artystyczna, trenerzy.

## Introduction

Correctly identifying talent is only one of the key factors deciding about success in competitive sports. However, recognizing a person's predispositions does not guarantee outstanding achievements. The road from potential to its realization is long (Farrow, Baker, MacMahon 2008). Many different factors decide whether a person's abilities transform into full-grown talent confirmed by high level of competences (Bloom 1985; van Rossum, Gagné 2006; Gagné 2016). In the case of sports talent, researchers focus primarily on searching for individual features of elite athletes (Gould, Dieffenbach, Moffett 2002; van Rossum 2009) and on recognizing those abilities and features that help in developing talent confirmed by accomplishments (Dohme et al. 2019). Relatively little attention has been paid to identifying environmental factors which influence the development of those features in an optimal way (Martindale, Collins, Abraham 2007; Siekańska 2012a).

Models that reflect contemporary trends in research on the development of abilities and at the same time consider the various types of abilities and the specificity of chosen areas of activity (e.g. sport) include The Differentiated Model of Giftedness and Talent (DMGT 2.0) (Gagné 2016; Gulbin et al. 2010; Siekańska 2013).

Among the key elements of the model are so-called catalysts which, depending on their presence or lack thereof, positively or negatively influence the process of transforming abilities/predispositions into mature talent. There are two types of catalysts: intrapersonal and environmental. The first are relatively fixed individual features (physical or mental) which act as "filters" deciding on the influence of the environment. Environmental catalysts also directly influence the developmental process. They consist of three aspects: the broadly understood environment (*milieu*), significant persons, and different types of provisions.

The DMGT 2.0 model is used in the psychology of sport. It formed the theoretical basis in research studies which concentrated on organizing existing knowledge on

the specificity of sports talent (e.g. van Rossum, Gagné 2006) and in studies on this topic (np. Gulbin et al. 2010; Siekańska 2013).

The authors pointed to the need to conduct further explorations, taking into account not only the indirect influence of particular elements (level and type of ability, individual traits, environment) on the process of talent development, but also on different types of interactions between these elements. It also suggest paying more attention to the specificity of particular sport disciplines and corresponding paths of development (e.g. early vs. late specialization) (Côté, Baker, Abernethy 2003).

In the last decade, research on the issue of early specialization in sport and its consequences for the career of athletes has been developing very dynamically (Capranica, Millard-Stafford 2011; Myer et al. 2015, 2016). Scholars have formulated detailed arguments and recommendations which demonstrate that early specialization carries the risk of many undesirable consequences (e.g. early resignation, burnout, increased risk of injury). Particular caution should accompany those sports disciplines in which peak achievements happens – or could happen – even before reaching adulthood (e.g. rhythmic gymnastics) (Law, Côté, Ericsson 2007). This means that preliminary selection – based e.g. on an evaluation of general predispositions (flexibility, speed, strength, agility) and giftedness in sports – concerns 6-7 years old girls, and participation in the competition begins at the level of youngsters, i.e. children up to 9 years old, whereas players who turn 16 in a given year can compete in international events (champion rank) in the senior category (Polski Związek Gimnastyczny PZG 2017: 8). In schools, early specialization begins in classes 1-3, which also includes shaping specific mental traits in children such as interest in sports, motivating them to practice gymnastics and to participate in sports competitions, as well as teaching them how to compete and work systematically (PZG 2017: 11).

Due to how early they begin specialization training, female gymnasts have a relatively short stage of sampling (Côté, Baker, Abernethy 2003), or exploration (Siekańska 2013), which are characterized by deliberate play and the possibility to participate in various sports (Côté, Fraser-Thomas 2008; Côté, Lidor, Hackfort 2009). Studies among female rhythmic gymnasts representing the international level, and among participants of the Olympic Games, have revealed that not only is their training clearly structured from the beginning and focused on improving their performance, but also that the activities undertaken by them before the start of training are not very varied and remain closely related to their discipline, e.g. ballet or rhythmic (Law, Côté, Ericsson 2007).

An analysis of research studies on the key factors influencing the development of gifted athletes shows that not only the quantity, but most importantly the quality of training has positive impact on development, as does the coach and general motivation. A list of negative factors includes: parents' behavior inadequate to the child's needs, injuries, and difficulties resulting from the need to combine training with school responsibilities (van Rossum 2009).

Studies on the impact of early specialization on the level of accomplishments achieved before adulthood, conducted among 1006 athletes from different disci-

plines, have revealed a relation between the number of sports practiced by children aged 11, 13 and 15 and the level of sports competition by children aged 16–18. People who practiced three sports under the age of 15 were more likely to compete at a higher level (i.e. corresponding to national, not club level) at the age of 16–18 than those who only practiced one sport (Bridge, Toms 2013). On the other hand, studies conducted over ten years among a 1000 gifted Dutch athletes (including female gymnasts) yielded different results, i.e. showing that professional athletes have their own unique paths of development (Elferink-Gemser et al. 2011).

In the light of available data, it seems both important and thought-provoking to study the opinions of female coaches who have direct and significant influence on the development of female athletes, focusing on the factors that might influence the development of sports talent. Particularly interesting, and important from the practical point of view, is to examine the specific conditions for development in a discipline characterized by an increased risk of injury, premature resignation from practicing sports, or other consequences unfavorable to the harmonious and comprehensive development.

## Method

The methodological basis for the conducted study consists of: a description of procedures and ethical issues, a characterization of the study participants, a presentation of tools employed in the study, and information on qualitative analysis.

### Procedure and ethical issues

The participants were recruited for the study with the help of institutions that organize training sessions for gymnastics coaches. The study was conducted outside of regular training hours. People who met the following criteria were invited to participate in the study:

- at least one year experience working as a coach;
- were previously identified as having predispositions for practicing rhythmic gymnastics;
- have practiced rhythmic gymnastics in the past.

The research study was conducted by the author of this article during a group session which lasted approx. 30 minutes. It consisted of two parts: quantitative and qualitative (Gibbs 2008). The data was collected using a demographic survey, a structured interview questionnaire, and a standardized psychological questionnaire. Each study participant had to fill out the same questionnaire and answer identical questions in identical order. This type of standardization made it easier to analyze the collected data. The answers obtained this way were easy to compare (Tenenbaum, Driscoll 2005).

The study was carried out in accordance with the Declaration of Helsinki. The researcher did not know any of the participants beforehand. The aim of the study and the procedure and ethical issues (i.e. voluntary participation in the study, possibility of resigning from the study at any moment, confidentiality and anonymity in data processing and presentation of results) were presented during an introductory meeting.

## Participants

The study was conducted among female rhythmic gymnastics coaches (N=30) who themselves practiced the discipline in their past. The average age was  $M_{age}=24,13$  years (min.=19 years, max.=44 years). All participants had at least one year of coaching experience, on average  $M_{experience}=5,43$  years (min.=1 years, max.=23 years). Based on a question regarding their biggest achievements in sports, three groups were created:

- group with successes on regional level (e.g. medal at the provincial championships) (n=5);
- group with successes on national level (e.g. medals at Polish championships) (n=12);
- group with successes on international level (e.g. membership in Polish national team, participation in European or World Championships, successes in international championships) (n=13).

Based on information about their biggest successes in coaching, four categories were established:

- female coaches who consider as a success the development of their female athletes and forming good relations based on communication (n=6;  $M_{age}=20,2$  years;  $M_{experience}=2,2$  years);
- female coaches who declare that they did not have any significant success in their work (n=12;  $M_{age}=22,84$  years;  $M_{experience}=4,23$  years);
- female coaches whose athletes achieved success in their respective age categories in national championships (n=9;  $M_{age}=26,11$  years;  $M_{experience}=7,22$  years);
- female coaches whose athletes achieved success in their respective age categories in international championships (n=3;  $M_{age}=30,33$  years;  $M_{experience}=10,67$  years).

## Tools

The following tools were used in the research study:

1. a survey with questions referring to the basic demographic characteristics of the study group (i.e. age, seniority);
2. an open-ended questionnaire (structured interview), consisting of questions about the biggest achievements in sports and in professional life; there were four

questions about factors which according to the study participants influence the development of talent:

- What is necessary for developing sports talent?
- What can prevent the development of sports talent?
- What helps in the development of sports talent?
- What can hinder talent development?

3. A Polish adaptation of the Talent Development Environment Questionnaire (Siekańska, Wojtowicz 2017), used to diagnose environmental factors conducive to the development of sports talent (Martindale, Collins, Daubney 2005; Martindale, Collins, Abraham 2007; Martindale et al. 2010).

The original version of the TDEQ questionnaire consisted of 68 items, among which 59 create 7 scales. The analyzes conducted as part of the Polish adaptation of the tool have demonstrated that the six-scale model (53 items) is the best fit, and that in this form it can be used both for scientific purposes and for individual assessment of the environment of a particular athlete. The TDEQ PL scale allows to determine to what degree and in what aspects does the sports environment assist in a person's long-term development. The reliability coefficient of individual scales ranged from 0.66 to 0.88.

The following scales were selected:

1. Communication – refers to both a coach's communication with others working with an athlete (physiotherapist, psychologist of sport, nutritionist, fitness trainers etc.), as well as their parents and the athletes themselves (e.g. discussing progress, formulating goals and planning the training program together).
2. Lack of interest and involvement of the environment – refers to negative (unfavorable) aspects and those behaviors of a coach that demonstrate a lack of interest and involvement in the athlete's development (e.g. not finding time to talk with athletes or her close ones, no guidance on how to deal with pressure, planning possible tactical solutions, supporting fitness training with mental training, maintaining balance between sports activity and leisure time).
3. Access to a suitable network of support – refers to the assistance of the environment: the coach, parents, peers, classmates, but also to the feeling of safety that in case of any obstacle (e.g. an injury) the athlete can count on different forms of support, including financial.
4. Individual approach to the athlete – refers to situations when the training is tailored to the specific needs of the athlete, and considers their predispositions, skills and level, but also to creating conditions for diversified training sessions enabling to develop different abilities and offering a positive challenge.
5. Understanding the athlete – refers to the degree in which the individual needs of the athlete are recognized, both by the coach and by the educational environment (school/university), allowing to combine professional sports practice and education.

6. Basic elements of long-term development – refers to the influence of the environment on the long-term development in sports, that is, developing skills (technical, tactical, physical, mental, connected to regeneration) and shaping personality traits that can help in achieving success in a long-term perspective (e.g. sacrifice, determination, persistence in developing skills), but also understanding various aspects of development in sports.

The questionnaire consisted of a title page and 53 items the participant had to refer to, selecting an answer on a 6-degree Likert scale (from 6 – strongly agree to 1 – strongly disagree). Due to the different number of items included in the individual scales, the results are given for each scale separately as the average for the items (min.=1, max.=6).

The female coaches participating in the research study could express their opinion on the significance of selected behaviors and characteristic features of the environment on the athlete's development in sports (e.g. "Everything related to the athlete's development is a realistic, from her point of view, day schedule"; "The coach allows the athlete to learn from her mistakes"; "The athlete has access to different specialists who assist her in development, e.g. a physiotherapist, sport psychologist, fitness trainer, nutritionist"; "The athlete is encouraged to practice different sports and to participate in different training sessions"; "The training sessions are planned in such a way as to allow the athlete long-term development").

### **Qualitative analysis**

The analysis of open-ended questions was conducted in the following stages:

- two competent judges (i.e. certified sport psychologists) were acquainted with the participants' answers;
- after reading the answers twice, the judges, working independently, proposed initial categories of factors influencing sports talent development; when selecting the categories, attention was paid to observed similarities between answers in the same category, or to differences between categories (Gibbs 2008); the procedure was identical for both facilitators and inhibitors;
- after establishing a consensus on the categories, the judges proceeded to organize the answers;
- in order to increase the reliability of data analysis, the selection of categories was repeated after a month's break (third stage).

Mixed strategies were used in the analysis of open-ended questions (Gibbs 2008). In addition to selecting specific categories, their description was also written. A number and percentage of the respondents whose at least one answer was assigned to a given category was also compiled.

## Results

The research study allowed to recognize those factors which – according to the female rhythmic gymnastics coaches – influence sports talent development. These factors were divided into two groups. The first were so-called facilitators – factors that have a positive influence on the full realization and development of the athlete's potential. Essential factors (table 1) and favorable factors (table 2) were distinguished among the facilitators.

Table 1. Categories considered as essential factors for the development of sports talent and their characterization

Category	Description	Answers	Number of respondents	Percentage of respondents
motivation	volitional and individual characteristics of the athlete, forming the basis for long-term motivation and development	<ul style="list-style-type: none"> <li>- diligence (13)</li> <li>- involvement/disposition (11)</li> <li>- strength and mental resilience (9)</li> <li>- determination (6)</li> <li>- ambition (4)</li> <li>- perfecting one's skills (4)</li> <li>- self-discipline (4)</li> <li>- persistence (3)</li> </ul>	23	77%
parents	different forms of support by parents and appropriate level of involvement	<ul style="list-style-type: none"> <li>- support of parents (9)</li> <li>- practical help of parents (3)</li> <li>- parents' belief in the child's potential (1)</li> <li>- parents' trust in the coach (1)</li> <li>- appropriate approach of a parent (1)</li> </ul>	14	47%
coach	the coach is prepared not only to train in rhythmic gymnastics, but also knows how to provide athletes with comprehensive assistance and how to cooperate with other team members or the athlete's closest environment	<ul style="list-style-type: none"> <li>- competent coach (5)</li> <li>- involved coach (1)</li> <li>- coach cooperating with parents (1)</li> <li>- good relations with the coach (1)</li> <li>- coach cooperating with the child and parents (1)</li> <li>- coach offering mental support (1)</li> </ul>	9	30%
conditions for training	access to a facility equipped with suitable equipment and creating opportunity for safe and comfortable training	<ul style="list-style-type: none"> <li>- conditions for training (5)</li> <li>- good equipment (1)</li> <li>- suitable exercise room (1)</li> <li>- good club offering possibilities for development (1)</li> </ul>	8	27%

(one person did not answer; respondents could mention any number of factors)

Source: own study.



Four categories were listed among the essential factors for talent development: motivation, parents, coach, and conditions for training. By far, the respondents most often pointed to the importance of volitional features and those individual properties that are associated with long-term motivation and development (77%). Almost half of the respondents (47%) mentioned parents as the main source of support that is not only practical, but also includes various forms of appraisal support.

Table 2. Categories considered as favorable factors for the development of sports talent and their characterization

Category	Description	Answers	Number of respondents	Percentage of respondents
social support	support, different types of assistance or interest not only from the closest environment, but also from the extended family, peers and friends	<ul style="list-style-type: none"> <li>- support from parents and close relatives (4)</li> <li>- support (3)</li> <li>- support from peers (2)</li> <li>- mental support from environment (1)</li> <li>- praises from other people (1)</li> <li>- good relations with family (1)</li> <li>- good approach of parents (1)</li> </ul>	11	37%
coach	a coach who knows her job, offering assistance and presenting an individualized approach to each athlete	<ul style="list-style-type: none"> <li>- good coach (3)</li> <li>- a coach's individual approach to the athlete (2)</li> <li>- assistance from coach (1)</li> </ul>	6	20%
athlete's individual predispositions	predispositions for practicing rhythmic gymnastics and volitional and individual features of the athlete, forming the basis for long-term motivation and development	<ul style="list-style-type: none"> <li>- good physical conditions (e.g. flexibility) (2)</li> <li>- openness to learning new skills (2)</li> <li>- interest (1)</li> <li>- tenacity (1)</li> <li>- diligence (1)</li> <li>- pleasure from practicing sports (1)</li> <li>- discipline (1)</li> </ul>	6	20%
material and logistic support	suitable means, place and conditions for training	<ul style="list-style-type: none"> <li>- suitable sports equipment (3)</li> <li>- good conditions for training money (2)</li> </ul>	5	17%
encouraging circumstances	circumstances that elicit well-being and strengthen motivation	<ul style="list-style-type: none"> <li>- good atmosphere in the club and in the exercise room (2)</li> <li>- success (1)</li> </ul>	3	10%

(five respondents did not answer; respondents could mention any number of factors)

Source: own study.

The factors that are favorable for the development of sports talent were divided into five categories: social support, coach, athlete's individual predispositions, material and logistic support, and encouraging circumstances (table 2). Within social support, which was chosen by the largest number of respondents (37%), participants emphasized not only the role of their closest family members, but also the importance of support and interest from the broader environment. Two other factors (coach and athlete's individual predispositions) were considered as favorable by 20% of respondents. Similarly as was the case with essential factors, respondents highlighted the significance of the coach's competences. The difference is that the coach's ability to cooperate and create good relations was considered essential (table 1), while the individual approach to the athlete and readiness to help were considered favorable (table 2). In the category of athlete's individual predispositions, in addition to determination and positive attitude to the practiced discipline, respondents also pointed to the importance of predispositions for practicing rhythmic gymnastics.

The respondents listed the following as factors preclusive to development of sports talent (table 3): child's individual features, which influence the effects of training and sports competition (43%), and the parents' involvement not corresponding to the child's needs (43%). Next, they mentioned difficult situations (27%) originating in the closest environment, and injuries. More often than a lack of suitable competences by the coach (17%), respondents listed lack of conditions for training and material support (20%) as an important preclusive factor for development.

Table 3. Categories considered as factors preclusive to the development of sports talent and their characterization

Category	Description	Answers	Number of respondents	Percentage of respondents
child's individual features	individual features determining approach to training and sports competition	<ul style="list-style-type: none"> <li>- lack of motivation for training and sports competition (8)</li> <li>- lack of self-confidence (4)</li> <li>- low self-esteem (2)</li> <li>- laziness (2)</li> <li>- lack of goals (1)</li> <li>- quickly giving up (1)</li> <li>- being too confident (1)</li> </ul>	13	43%
parents	the parents' involvement not corresponding to the child's needs	<ul style="list-style-type: none"> <li>- lack of support from parents (5)</li> <li>- parents' excessive and unrealistic expectations (2)</li> <li>- lack of cooperation between parents and the coach (2)</li> <li>- parents discouraging from development (1)</li> <li>- parents who do not have time e.g. to drive children to training (1)</li> <li>- overeager parents (1)</li> <li>- difficult family situation (1)</li> </ul>	13	43%

difficult situations	unfavorable external circumstances and stress-inducing situations for the child	<ul style="list-style-type: none"> <li>- pressure (3)</li> <li>- injuries (2)</li> <li>- other responsibilities (2)</li> <li>- strong rivalry (2)</li> <li>- problems with peers, at home or in the club (2)</li> </ul>	8	27%
lack of conditions	lack of access to a suitable club and financial problems	<ul style="list-style-type: none"> <li>- lack of suitable conditions for training (4)</li> <li>- lack of money (3)</li> </ul>	6	20%
coach	a coach who does not have suitable pedagogical qualifications and does not have competences to train athletes	<ul style="list-style-type: none"> <li>- improper approach of the coach (bad influence on the child's mental condition) (2)</li> <li>- unskilled staff (2)</li> <li>- reluctance of coaches (1)</li> </ul>	5	17%

(three respondents did not answer; respondents could mention any number of factors)

Source: own study.

Five categories were selected from the factors disruptive to the development of sports talent (table 4): difficult situations, communication, parents, a child's individual features, the coach. The first three factors were mentioned with similar frequency. Difficult situations (33%), similarly as it was in the case of factors preclusive to development, included various types of problems connected with sports (e.g. unhealthy rivalry, losses) as well as other areas (i.e. health, family, school). Ineffective communication (30%) primarily referred to any type of conflict situations or unconstructive ways of dealing with it (i.e. arguing). In the case of parents (27%), respondents pointed to their inadequate involvement and an unwillingness to cooperate with the coach. The respondents rarely mentioned the child's features or behaviors that would impede their development and perfecting abilities (17%), and a coach's inadequate approach to the athletes and the training process (17%).

Table 4. Categories considered as factors disruptive to the development of sports talent and their characterization

Category	Description	Answers	Number of respondents	Percentage of respondents
difficult situations	situations that are a source of stress, and which a child has no/very limited influence on	<ul style="list-style-type: none"> <li>- health problems and injuries (3)</li> <li>- unhealthy rivalry (3)</li> <li>- family problems (2)</li> <li>- personal problems (1)</li> <li>- school responsibilities (1)</li> <li>- failures/losses (1)</li> </ul>	10	33%
communication	conflicts with the coach, peers or parents; communication problems on the line athlete-parents-coach	<ul style="list-style-type: none"> <li>- conflict situation in closest environment (peers, parents, coach) (5)</li> <li>- arguments between athletes, coaches and parents (5)</li> <li>- unpleasant atmosphere in the club (2)</li> <li>- bad relations in the closest environment (family, peers) (2)</li> <li>- lack of communication between the coach and parents (1)</li> </ul>	9	30%
parents	parents' involvement inadequate to the child's needs, and unwillingness to cooperate with the coach	<ul style="list-style-type: none"> <li>- inadequate support (3)</li> <li>- lack of cooperation between the coach and the child (3)</li> <li>- high demands and pressure (3)</li> </ul>	8	27%
child's individual features	child's personal traits and behaviors impeding development and perfecting abilities	<ul style="list-style-type: none"> <li>- laziness (2)</li> <li>- lack of self-confidence (1)</li> <li>- lack of motivation (1)</li> <li>- being distracted (1)</li> <li>- not listening to advice (1)</li> </ul>	5	17%
coach	coach who does not have an appropriate approach to the athletes and the training process	<ul style="list-style-type: none"> <li>- discrimination (1)</li> <li>- bad communication with the coach (1)</li> <li>- bad coach (1)</li> <li>- coach's burnout and discouragement (1)</li> <li>- lack of suitable coaching team with an individual approach to each athlete (1)</li> </ul>	5	17%

(five respondents did not answer; respondents could mention any number of factors)

Source: own study.

Table 5 presents the results of six subscales of the Talent Development Environment Questionnaire. According to the respondents, an individual approach to each athlete (subscale IV) has the biggest impact on the development of sports talent, which is expressed not only in adjusting the training to the needs and possibilities of each athlete, her predispositions and level of skills, but also means providing challenges and creating conditions for wide-ranging development.

Other significant factors influenced by the environment are those which are a basis for long-term development (subscale VI), including the shaping of different skills related to the practiced discipline (i.e. technical, tactical, physical, mental) and psychosomatic recovery, as well as developing features conditioning the achievement of success in a longer perspective (i.e. by repetition, on the highest level of sports rivalry).

Table 5. Results of research study for each subscale of the Talent Development Environment Questionnaire (TDEQ)

Subscale TDEQ	Average for item	Minimum	Maximum	Median
I. Communication	3,64	2,33	4,83	3,71
II. Lack of interest and involvement of the environment	3,50	2,00	4,42	3,50
III. Access to a suitable network of support	4,04	2,37	5,87	3,94
IV. Individualized approach to an athlete	4,24	3,18	5,56	4,13
V. Understanding the athlete	3,74	2,71	4,86	3,78
VI. Basis for long-term development	4,20	2,67	5,67	4,00

Source: own study.

## Conclusions

The aim of the research study was to learn about the opinions of female rhythmic gymnastics coaches – who themselves practiced the discipline in the past – on factors which influence the development of sports talent. In particular, it addressed the following questions: what factors are essential and conducive for development and the use of a potential, as well as – what factors preclude or disrupt the full development of talent.

The conducted research study demonstrated, among other things, that according to respondents, individual features are crucial for talent development, since they are most often listed both as an essential factor (77%), and as a factor preclusive to development (43%). In both cases, the most important features are those connected to long-term motivation and will (e.g. diligence, determination, persistence). Inter-

estingly, the features of female athletes also appeared among the favorable factors as well as factors disruptive to development, although they were mentioned much less frequently ( $\leq 20\%$  of respondents). It was also observed that in the case of essential factors, respondents specifically emphasize those features which are related to the pursuit of achievements, skill improvement, and long-term commitment, while those features which are particularly important for young athletes (van Rossum 2009) and form the basis of developing motivation in later stages of the career (e.g. curiosity, happiness, enjoying sports) only appear among the list of favorable factors.

Another important factor is the support of parents who – similarly like the individual features – are listed in all four categories that impact sports talent development. The respondents pointed much more frequently to parents than to coaches as figures who play a significant role in sports talent development. Parents are perceived as a source of various forms of support needed at every stage of development. Other research studies show that their inadequate involvement (insufficient or excessive) may lead to a preliminary resignation from practicing sports, injuries, or even burn-out (see: Siekańska 2012b).

When it comes to the role of the coach, which was also listed among every category of factors, respondents emphasized not only their skills and competences in training, but most importantly the quality of the relationship with the athlete and her environment, as well as the importance of an individualized approach. Similar results were obtained in the study using the TDEQ PL questionnaire, therefore demonstrating that when it comes to the role of the environment, the most crucial factor for sports talent development is an individualized approach to the athlete.

The results regarding logistics and financial issues also seem interesting. Based on the answers of the respondents, it can be concluded that a suitable space for training and material support are more often considered as positive conditions for sports talent development, whereas any deficiencies in this area are less frequently indicated as obstacles.

However, the situation is different when it comes to the category “difficult situations.” According to respondents, it is the most frequent disruptive factor and often a common cause for stalling development. While it is understandable that so-called negative non-normative changes (e.g. health problems, severe failures or losses) can be the cause of serious crises and contribute to premature career termination (see Siekańska 2013), it is still surprising that the so-called positive non-normative changes (e.g. unexpected success, receiving an award, establishing a beneficial cooperation) are mentioned much less frequently as favorable circumstances for development, and that so-called normative changes are completely ignored, although they have significant influence on an athlete’s development and sports career, according to experts (Stambulova et al. 2009).

While non-normative changes, which can be compared to the role of the chance factor in the DMGT 2.0 model (Gagné 2016), are subject to little control, and are difficult to predict or plan – which means it is more difficult to deal with them – normative changes related to the transition to the next stages of sports development are rela-

tively predictable and, in a sense, concern every athlete (e.g. specialization, transition from junior to senior level). Changes related to transitional periods are an additional challenge for every athlete. They require e.g. deciding how to limit commitments to other areas of activity, for instance education or relationships with peers.

Perhaps due to the specific nature of rhythmic gymnastics which is characterized by a quick transition to specialized training, skipping the sampling stage (focused on exploration and deliberate play), it is difficult for the female coaches to observe clear stages of the development process or transitional periods (see Model DMSP Côté, Baker, Abernethy 2003), and therefore – to notice the risk related to the increasing intensity of training in a situation when the form of participating in sports does not change.

The research study provides new information on facilitators and inhibitors for talent development. On the one hand it confirms the importance of such factors as athlete's features connected with motivation, or the role of parents and coaches. On the other hand, it shows that – contrary to the analysis and conclusions presented by van Rossum (2009) – the importance of individual factors is not explicitly positive (athlete's motivation, the coach) or negative (parents), and therefore neither of these key factors can be recognized as solely being a facilitator or inhibitor, while they should be definitely taken into account when analyzing the conditions for sports talent development.

The classification of the factors of sports talent development, which forms the basis for the presented research study, refers to the concept of holistic development from the perspective of positive sports (Blecharz 2015), according to which an effective support for an athlete requires answering the question: "What conditions are sufficient, necessary, alternatively necessary and conducive both for good preparation for the competition and for stimulating the development of the athlete through sports practice?" This concept is based on Kocowski's classification (1978: 103), which states that in order to achieve long-term implementation of any overarching goal, it is important that: all immediate necessary conditions were met, no disabling conditions exist, major disturbances are effectively addressed, and major enabling conditions are met. Scholars distinguish two types of essential conditions in sports practice: absolutely essential and those which are essential only in certain situations (e.g. during competition). A correct recognition and definition of the set of these conditions in the context of a given discipline, stage of development, form of participation in sports, and individual features and needs of an athlete, are crucial for effective performance in sport and successful supporting of an athlete's development. It seems that the knowledge gained from the research study can be useful in working with female rhythmic gymnasts, as it allows for a better identification of the conditions that positively impact their development in a long-term perspective.

The homogeneous group of respondents and the choice of discipline can be considered a strength of the research study, although the latter – due to the necessity to introduce specialist training at an early stage – is connected with a greater risk of threats to comprehensive and harmonious development. It is also important to high-

light that the study not only considered facilitators, which is an approach that dominates in studies on positive conditions for sports talent development (see Dohme et al. 2009), but also collected information on inhibitors.

Further scholarship should focus on the role of experience in the work of coaches in the context of factors influencing sports talent development, and on presenting a comparative study of these factors also in other sport disciplines, e.g. individual sports *versus* team sports.

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## To cite this article

- Siekańska M. (2023) *The Factors Influencing Sports Talent Development in the Opinion of Rhythmic Gymnastics Coaches*, „Nauki o Wychowaniu. Studia Interdyscyplinarne”, no. 1(16), pp. 108–125, <https://doi.org/10.18778/2450-4491.16.07>.