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Abstract. Sports is a dynamic field in a continuous expansion state. The factors influencing the success of a sports organization are indeed related to the internal organization, but there are also external factors playing a big part in it. The allocation of insufficient funds from the state budget to sports organizations is a problem in the development of the sports industry. Sponsorship appears in this context to be a convenient solution, it is a marketing strategy at the same time and can benefit both sports organizations and sponsors. Such benefits include profiting from sales at sporting events, promoting their image through the beneficiaries or having some fees exempted by the state in the context of sponsorship. The sponsorship law in Romania is not at all attractive, neither for those on the receiving end, nor for the sponsors themselves. This article proposes a review of the current state of sponsorship in sport and the regulatory issues that govern it, both at national and international level.

Keywords: sport, sponsorship, legislation.

Introduction

Sponsorship investments in sport have grown in recent years (Walraven, Koning & van Bottenburg, 2012). Private or state-owned sports companies are exploring new forms of funding, and sponsorship is considered a new way to get funds, and is also a marketing strategy. There are many articles that address the idea of sponsorship in the sport field, published back in 1989 (Stotlar & Johnson, 1989). The sponsor's motivation is always influenced by the profit that sponsors can get, as well as by the legal environment that can either favor the sponsorship process by benefiting both parties, the provider and the beneficiary, or harm both of the parties involved.

Topic addressed

Sponsorship at a global scale

So far, most articles published on sponsorship have been focused on developing management practices or on sponsorship effectiveness and evaluation. There are not many studies that address legal sponsorship considerations or comparative studies between different countries’ legislation for sponsorship. The most representative study on sport from a legislative perspective is "Study on national sport law in Europe" by Chacker André-Noël, published in 1999.

The first Conference of European Ministers responsible for sport took place in 1975 and the subject of sponsorship was reached, but at a very general level, a discussion materialized in the creation of Article 5 of the European Sports Charter, which states that sought methods to protect sports and sportsmen from political, commercial or financial gains. During the third conference, the issue of sponsorship was addressed directly and this was solved by creating a code that provides guides for governmental and non-governmental organizations to conclude sponsorship contracts. Subsequently, in 1986, a document titled "New partnerships in sport" was produced that provided directions for stakeholder collaboration to provide funds to sports organizations. In 1992, Article 3 (5) was adopted, containing information on sponsorship, conclusions and observations (Chacker, 1999, pp. 90-97).

Revenue from sponsorship varies from country to country, based on legislation. For example, in Denmark and Germany only certain sports disciplines benefit from substantial sums, and most of the sponsorships derived by the National Olympic Committee under the legislative protection are allocated to the elite sport. From governments’ point of view, only some organizations need financial assistance.

For most European sports organizations, the implementation of the financial provisions of the European Sport Charter is a difficult process. In the US sponsorship in sports is the only form of income for central sports organizations. Italy also does not fund sports organizations but supports them by controlling and managing sports lotteries (Chacker, 1999, p. 90).
In Hungary, the corporate tax law on sports sponsorship entered into force on July 1, 2011, and companies can deduct the amount of tax under a sponsorship certificate issued by eligible sponsor entities. The certificate also indicates the amount of financial support (Kovacs & Doczi, 2018, p. 16).

Globally, sponsorship is considered a profitable marketing technique for sponsors, the basic principle is that sponsorship is a more profitable alternative to other means of promotion, such as TV commercials or other forms of advertising (on-line campaigns, ads, posters). For example, attending a sports event directly generates additional sales for a sponsor (Quester & Thompson, 2001).

Overall sponsorship values in Europe have increased by 27% since 2000, according to Rines report in 2007 (Rines, 2007, p. 20). In the eurozone, economic growth between 2000 and 2005 was slow especially in France and Italy, which is why many companies have reduced their marketing budget. In 2006, however, the economic growth of the eurozone was estimated at 2.7% (from 1.4% in 2005), and Germany's hosting of the 2006 FIFA World Cup favored the increase in sponsorship spending.

<table>
<thead>
<tr>
<th>Country</th>
<th>Value in 2000 (€ 000)</th>
<th>Value in 2007 (€ 000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>83</td>
<td>108</td>
</tr>
<tr>
<td>Finland</td>
<td>64</td>
<td>82</td>
</tr>
<tr>
<td>France</td>
<td>770</td>
<td>1001</td>
</tr>
<tr>
<td>Germany</td>
<td>1982</td>
<td>2600</td>
</tr>
<tr>
<td>Ireland</td>
<td>48</td>
<td>62</td>
</tr>
<tr>
<td>Italy</td>
<td>750</td>
<td>1100</td>
</tr>
<tr>
<td>Netherlands</td>
<td>450</td>
<td>585</td>
</tr>
<tr>
<td>Spain</td>
<td>346</td>
<td>430</td>
</tr>
</tbody>
</table>

An analysis of Europe’s sponsorship industry according to market share shows that Germany is still dominant. The graph compares the relative GDP of the countries.

The most representative sponsorship model is the American one, where sponsorship is considered a socio-economic policy of sport (Thompson & Doherty, 2006). According to statistics from Sponsorship Research International, it is estimated that global sponsorship reached $ 17.4 billion in 1998 (Lloyd, 2000) and $ 25 billion in 2000 (Tripodi et al., 2003).

According to a study by the Events Group (IEG), “What Sponsors want & where dollars will go in 2018”, the global sponsorship investment has risen from 43 billion in 2008 to 65 billion in 2018 (Dos Santos, 2019, p. 2).

In Turkey, sponsorship was very poorly supported until 2004, when the Turkish government decided to formulate a special law on sport support, regulating some laws and tax issues from 1986. The new 2004 sponsorship law gives companies the opportunity to get relief from payment of some taxes. Legislative change has brought many benefits to Turkey, after 2004 there were sponsorship revenues of EUR 5.8 million in 2005, EUR 11 million in 2006, and EUR 11 million in 2007 (Ekmekci, 2011).


Sponsorship in Romania

The first talks about the introduction of a sponsorship law began in 1992 when a bill was proposed by the Ministry of Finance, but it was not very satisfactory because of the vision it approached, which involved the existence of an authority that would profit from sponsorship. The mechanisms for sponsorship have also not been taken into account. Subsequently, in 1994, the Law no. 32, was issued in May. However, the sponsors were dissatisfied because the benefit consisted only in promoting the name, brand or image of the beneficiary and in reducing the taxable base with the equivalent of sponsorship by 5% of the taxable income. Several additions and modifications have been made over the years, but the numerous amendments and abrogations of articles have not led to the creation of a balanced law for sponsorship, legislative proposals are still underway in this regard.

In Romania, in 2000, the amounts coming from sponsorships reached 246,449,000,000 lei (Nițulescu, 2004, p. 26). According to the National Institute of Statistics, the figure that could have been reached from sponsorship in 2017 in Romania could have been approximately 2.28 billion euros. However, because the law regulating sponsorship is not attractive for companies, the amount dedicated to sport reaches only 50 million euros. Under current conditions, multinational companies and small companies declare as little profit as possible, due to increased taxes and since there is no incentive for sponsorship (Iacobini & Voinea, 2016).

The law in force regulating sponsorship is mainly characterized by Law no. 32 of 19\textsuperscript{th} May 1994, Law no. 571 of 2003 and Law no. 572 of 22\textsuperscript{nd} December on the Fiscal Code, Law no. 227/2015 and the Broadcasting Law no. 504 of July 11\textsuperscript{th}, 2002 (M. Of. 892/2006). The sponsorship law and the tax code allow companies to sponsor and benefit from tax incentives under certain conditions, ie sponsorship costs are deducted from the corporate tax due within the limits of the Fiscal Code and the values of these limits are 0.5% turnover and 20% of corporate tax.

In April 2019, a draft was submitted for the amendment of the tax code by introducing the obligation for companies to allocate deductible amounts from the 30% tax on profit to sponsorships. The legislative proposal would modify and complete Law no. 227/2015 on the Romanian Fiscal Code, Article 25, on expenditure, paragraph 4, point i). In the case of micro-enterprises, the amount of the sponsorship will be deducted from the income tax of the micro-enterprises up to the value of 30% of the tax.

Amounts that are not deducted from income tax are reported over the next 7 consecutive years (Iordache, 2019, p. 3). In the explanatory statement to the legislative proposal it is suggested to fill in as follows: "the value calculated by applying 0.5% of the turnover for situations where the applicable accounting regulations do not define the turnover indicator, this limit is determined according to the norms" (Iordache, 2019, p. 2).

This legislative initiative also aims at developing sport school and sport universities, including the creation of 100,000 jobs in the School Sports Associations and Sports Associates and sports industry through production, transport and TV broadcasting rights (Iordache, 2019)

Conclusions

There is a need for more published articles addressing sports sponsorship in terms of legislation, given that sponsorship is already operating effectively in other European countries. In Romania there are impediments due to legislation and taxation - which are not in line with the economic reality and the needs of sports organizations -, which lead to a poor development of the sports industry. The government should support sports organizations to develop and meet their goals by regulating sponsorship through legislation, such as in the US or the EU, where governments believe sport is a vehicle of nationalism, economic development or social development.

References


PREDICT DEFENSE AGAINST SHOOTING ACCORDING TO THE AGILITY AND TRANSITION SPEED OF BASKETBALL JUNIOR PLAYERS

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Abstract. Basketball is one of the most popular team sports. In basketball, it is important to predict defense against shooting. The purpose of the research is to predict the level of the effect of the agility and of the transition speed in the basketball defense against shooting for juniors. The objective of the research is to identify the relationship between the variables transition speed and agility and basketball defense against shooting for juniors. The study aims to create a predictive equation for the basketball defense against shooting for juniors according to the transition speed and agility variables with effective contribution. The research is based on the following hypothesis - there is a significant correlation between the variables of transition speed and agility and basketball defense against shooting for juniors. It is possible to predict the basketball defense against shooting for juniors according to their transition speed and agility. The subjects of this research are basketball players aged between 14 and 16 years. The present study included 60 participants, junior basketball players, submitted to two tests: 30 M transition speed test and agility test. Through statistical analysis we obtained the equation BDAS= 23.936 – 0.876 (Agility). Statistical methods employed are arithmetic mean, standard deviation, Pearson correlation coefficient, r-squared (r²). The experiment took place in Iraq, al-Qadisiya city, with the teaching equipment of the stadium.

Keywords: predict, defense, agility, 30 M transition speed.

Introduction

Basketball is one of the most common team sports, especially with the youth. This sport involves a set of skillful and intermittent movements and it is very dynamic. The complexity of the sport is given by the fact that it requires a complex mixture of aspects, from tactics, motivation, team play and individual abilities (Trninić & Dizdar, 2000). The movements involved in a basketball game are quite varied and they involve jumping, running, shuffling and dribbling. These movements are generally very intense, with short duration, and are unidirectional or multidirectional (Crisafuli et al., 2002).

Speed and agility are two psychomotor skills that imply the movement of the body as fast as possible. They are key elements in team sports (Verchoshansky, 1996). Agility implies changing the direction, as compared to speed. Generally, speed is considered the shortest time necessary for the movement of an object along a certain distance. In this respect, it might be viewed the same as velocity, but without considering the direction (Harman & Garhammer, 2008). Over the entire distance, speed can be broken down into three phases, as it is not constant. These phases are, according to Plisk (2008), acceleration, maintenance of maximum speed and deceleration. Altug, Altug and Altug (1987) define agility as the capacity of fast direction change, which can be performed in several ways, such as basic footwork or completely changing the body movement direction during high speed run.

There are many definitions of prediction like "The prediction is a logical thinking based on assumptions put by the coach as a result of experience and study and the prediction occurs as a result of accumulated experience of man when studying the phenomena and past and present and linked in a scientific way and predicts future development and study as a phenomenon" (Al-Wardi, 1990, p. 56). Marwan Abdul Majid defined it as a prediction that makes assumptions regarding future events (Ibrahim, 2000, p. 105).

The purpose of the research is to predict the level of the effect of the variables - agility and transition speed in the basketball defense against shooting for juniors.

The study has the following objectives:

• Define the relationship between the variables transition speed and agility and basketball defense against shooting for the juniors.
• Create a predictive equation for the basketball defense against shooting for juniors, according to transition speed and agility variables with effective contribution.

The hypotheses of the study are formulated below:

• There is a significant correlation between the variables transition speed and agility and basketball defense against shooting for juniors.
• It is possible to predict the basketball defense against shooting for juniors based on transition speed and agility.
Materials and methods

Participants

The subjects of this research are basketball players, aged between 14 and 16 years. The present study comprised 60 participants, junior basketball players.

Procedure

Description of tests and devices used:
- 30 M transition speed test, when the travelled distance is recorded;
- agility test (zig-zag).

Equipment required: marker cones 5, stopwatch, assistant and non-slip surface.

How to conduct the test:
- the junior athlete have to run around a number of cones as fast as possible; the athlete should warm up for 10 minutes;
- the assistant marks out a rectangle 10 X 16 feet with one more cons placed in the center;
- the assistant should announce GO and starts the stopwatch;
- the athlete starts the test with ‘Start & Finish’ cone and follows the coloured route which indicated in the diagram (Figure 1);
- the assistant should stop the stopwatch and put down the time when the athlete's body crosses the “Start & Finish” cone.

The statistical methods used are arithmetic mean, standard deviation, Pearson correlation coefficient, $r^2$. The experiment took place in Iraq Al-Qadisiya city, with the teaching equipment of the stadium.

Results

Table 1. Mean, standard deviations, Pearson correlation and significance for transition speed and agility variables in basketball defense against shooting

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>Pearson Correlation</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defense against shooting (dependent variable)</td>
<td>16.500</td>
<td>3.254</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>30 M transition speed</td>
<td>4.306</td>
<td>0.427</td>
<td>0.246</td>
<td>0.029</td>
</tr>
<tr>
<td>Agility</td>
<td>8.486</td>
<td>0.944</td>
<td>-0.254</td>
<td>0.025</td>
</tr>
</tbody>
</table>
According to the results available in Table 1, there is a significant correlation between basketball defense against shooting with Transition speed and agility variables (independent variables). The mean of the defense against the shooting is 16.50 and the standard deviation is 3.25.

The transition speed variable has a 4.306 mean and 0.427 standard deviation. The Pearson correlation is 0.246. The level of significance is 0.029 and it is acceptable, as it is below 0.05.

The relationship between transition speed and defense against the shooting indicates a positive relation significant, in the sense that increasing the effectiveness of the defense requires an increased transition speed in performance and move. The player with fast moves is most likely to have higher impact in defense.

The relationship between agility and basketball defense against shooting shows a significant, moral and inverse relationship. Increasing the agility leads to shorter time of performance of the defense player and prevent granting opportunities for the striker to move on the expense of the defender.

The level of significance is 0.025. The agility variable has a mean of 8.486, the standard deviation is 0.944 and the Pearson correlation is -0.254. The level of significance is 0.025 and it is acceptable because it is below 0.05.

Table 2. Multiple correlation coefficient and variables contribution to the basketball defense against shooting

<table>
<thead>
<tr>
<th>Variable</th>
<th>R</th>
<th>R Square</th>
<th>Degrees of freedom</th>
<th>F</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agility</td>
<td>0.254</td>
<td>0.065</td>
<td>1</td>
<td>4.014</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Table 2 shows that the value of (F) is high and acceptable at the level of significance (0.05). In a good test, the value of (F) is large because it is a measure of the improvement that the model has made in predicting, indicating that the proportion of the contribution was significant to a sufficient degree.
Table 3. Contribution of agility in basketball defense against shooting

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>Dependent variable - Basketball defense against shooting</td>
<td>23.936</td>
<td>3.734</td>
<td>6.41</td>
<td>0.00</td>
</tr>
<tr>
<td>Agility</td>
<td>-0.876</td>
<td>0.437</td>
<td>-0.254</td>
<td>-2.003</td>
</tr>
</tbody>
</table>

Basketball defense against shooting \( e = 23.936 - 0.876 \text{(Agility)} \)

Table 3 presents the analysis and discussion of the contribution percentages of agility in basketball defense against shooting. The predictive equation is obtained through the statistics in table 3. Table 3 contains two variables. The first variable is the dependent variable, the defense against the shooting, while the second variable is independent (agility). The rate of the contribution of the first variable is 23.936, standard error is 3.734 and T value is 6.41. Thus, it can be predicted that the contribution rate of agility in basketball defense against shooting is 0.876. The results also indicate that the standardized coefficient of agility is -0.254 and T value is -2.003, standard error is 0.437. The level of significance is 0.05 and it is regarded as acceptable.

Through the results of statistics, the predictive equation obtained in Table 3 is:

Basketball defense against shooting = 23.936 – 0.876 (Agility)

Discussions and conclusions

The final results of the research indicate the need to implement interventions focused on improving agility. This is achieved through drills that target foot movement and body position because these two factors will decide how quickly the players change direction.

Agility is important in the movement of defenders and it is possible to propose values to build a model of an effective defense that helps change the level of defense effectiveness against the shooting.

Through the results of the research we found the great effect of the agility on the defense against shooting, more than the effect of speed. Agility is the most important characteristic in all movements and skills such as dribbling, pass and rebounds. Rooney (2005) indicates that many motor characteristics as motor programs (technique), motor coordination (timing), relative strength (compared to the body mass of the athletes), balance (stability) and linear speed are the basis of agility.

In spite of the available research that focused on defense performance analysis, information concerning the effects of all manipulating defensive systems during the time of the game is very rare. Therefore different defense systems should be developed by focusing on the characteristic of agility.

Coaches should design the training curricula to overcome the weaknesses revealed by the results of the study and develop some of the attributes associated with agility. It is also important to pay attention to the variables that have achieved high contribution rates by focusing on them during training.

References


PREDICTION OF THE PROFESSIONAL ORIENTATION OF STUDENTS WITH VOCATIONAL PROFILE

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Abstract. Globally, it has been found that young people are doing less and less driving in an organized or free way. The consequence being the ease of elimination requirements. Through this work we want to carry out anthropometric and motor measurements and to establish a series of muscular force tests for the main muscle groups, the mobility of the main joints, as well as the segmental coordination. The purpose of this work is to determine the profile of the student from the vocational education, Physical Education and Sport, and Physical Therapy. This paper is a quasi-experimental one, attended by several hundred students of the first year from two universities, a vocational profile. The research methods used are: study of bibliographic material, observation method, statistical-mathematical method, and graphic method. Research findings: By the calculated indicators we can say that there are significant differences between the students in the vocational profile education, Physical Education and Sport, and Physical Therapy. Following the interpretation of anthropometric and motor data in this study, we can reasonably anticipate the career orientation of future specialists, from a somatic and motor point of view.

Keywords: motor skills, anthropometrics data, physical education and sport, physical therapy.

Introduction

Globally, it has been found that young people are doing less and less driving in an organized or free way. Technological development contributes fully, reflecting the whole society. In recent years, we have found that sedentarism is being established in the population at an increasingly low age. Gags, social media, movie watching, and gaming take up an increasing amount of time in a detrimental day. So young people give up many of their physical activities, such as play, activities that they once practiced. We also find that from year to year the candidates enrolling in the admission contest are less endowed in terms of motor skills and abilities, the consequence being the ease of elimination requirements.

By testing the skills acquired over the years by former students, current students (Leonte et al., 2018), emphasize the accumulations of the students in the higher education of Physical Education and Sport and Arts.

It is very true that these basic qualities and basic motor skills and applicative utility develop differently at different ages and stages of preparation. Each student comes with a different motorcycle baggage. In view of this, it is necessary to consider and take into account the previous activities and experiences, as well as the social environment and the geographical area of origin.

The age of the students involved in our quasi-experiment is over 18 years. Experiences so far show us the level of accumulations in the Physical Education and Sports lessons or the optional activities of the participants in the experiment (Neagu et al., 2018).

Most of the indices are shown to characterize power capacities of female students. Herewith, the higher power indices in one of exercises the higher they are in others. Rufie index, positively correlated with leg extensor power, is of special importance. The higher the index of this test the lower the assessment of heart work is. Moreover, the result of Rufie test is positively correlated with benchpress (r = 0.549), testifying to undesirability of exercises for development of maximum dynamic power of hand and leg extendors in girls with overweight on the classes of physical culture (Yakimovich & Musina, 2011).

Participation in professional development activities is important for teachers to continuously improve their knowledge and skills (Kunst, van Woerkom, & Poell, 2018).

For this work we aim to determine the profile of the student from the vocational education, Physical Education and Sport, and Physical Therapy. Through this work, we want to make anthropometric measurements and also to establish a series of muscular force tests for the main muscle groups, to check the mobility of the main joints, as well as the segmental coordination.

We consider that there are significant differences between the anthropometric and the motor data of the students from the vocational education, Physical Education and Sports and Physical Therapy.
Materials and methods

Participants

In our study participated a number of 330 subjects. All of them are students in the first year, at two vocational universities in Bucharest. These are: the National University of Physical Education and Sport, respectively, the Faculty of Physical Education and Sports, which we will further name FEFS, with a number of 139 students, and the Faculty of Physical Therapy (96 students), which we will name further KT. Also, there were 95 students at the National Art University, which we will call Arte.

Procedure

For the assessment of the students we have established a series of measurements and tests. Participants targeted a total of 5 anthropometric measurements and set a series of 3 muscular strength tests for the main muscle groups. In order to verify the mobility of the main joints, we have set a number of 4 tests. We used also a test for segmental coordination. All subjects had identical test conditions, and this was done between 05-16.01.2018.

Height - The subject stands on the sole, back to the wall, with the spine lined up on the metric band, the elbows close, the extended knees, the hands next to the body, the straight back, the forward look; the 90 ° angle is positioned on the crown of the head. Evaluate the value obtained in cm.

Weight - The naked subject, wearing lightly, climbs on the scale with both feet symmetrically positioned. The value in kg is evaluated.

Span - The subject standing with the back to the wall, looking ahead, close heels, 90 degrees abduction arms, is measured with the metric band on the wall distance between the middle fingers of the subject.

Chest perimeter in inspiration and expiration - The subject in the stand position with slightly abdominal arms passes the lateral metric band under the axes, posterior to the lower angles of the scapulae, and anteriorly to the breasts in the boys and overmamar to the girls; with one hand the evaluator fixes the 0 end of the metric band to the stern, with the other hand sliding the metric band's mobile end depending on the student's chest's breathing and mobility. Ask the subject to make a maximum inspiration and identify the value, then a maximum expiration, and write down the value. The difference between these two values is the total thoracic elasticity of the subject under assessment. Repeat 3 times and score the best value.

Antero posterior thoracic diameter - Subject in stand position. The evaluator applies the anatomical compass horizontally with one end at the xifoid appendix with the other end at the thoracic spine. Maximum inspiration is required, then maximum expiration and the values obtained on the compass spring. The difference between them is the antero-posterior elasticity of the subject's chest. Repeat 3 times and score the best value.

The mobility index for flexion - The subject in the stand position on a bench attached to the wall, close heels, extended knees, as straight as possible, perform the anterior torso flexion on the lower limbs with arms extended palms with fingers to the ground before the feet. If the subject touches the backyard in front of the feet with the tips of the middle fingers, note the value 0. If the subject does not reach the bib with the fingers, it is measured with the metric band from the middle fingers to the minus bin. If the subject is overlaid with the fingers, it is measured with the metric band from the middle fingers to the plus bank.

Lateral Mobility Index - The subject in the stand position with close heels, extended knees, forward look, wall tapering, hands on the median line of thighs with extended fingers. Ask the subject to execute left-right side bending, keeping hands on the thigh, feet on the ground, looking ahead and head on the wall. It measures with the metric band from the middle to the ground, the left right and the differences between them.

Scapulo humeral mobility - From the stand position with a gymnastic string hanging tightly in the arms, we turn our arms back with their elbows stretched out. Measure the smallest distance between rope punches held in the hands after turning the arms. Mobility in extension of the spine - On the back, lying in the attic with arms and legs stretched out. The minimum distance between hand and foot is measured.

Mobility in bending of the spine - From the stand position with your arms up on a gym bench, the toes of the legs at the edge of it. Make a bending forward with your legs stretched out. It measures with positive values, distance to legs and with negative values, those bends that fall below the foot.

Abdominal Muscle - On the back, a partner holds his ankles. Lift in the seat. Maximum number of reps in 30 seconds.

Back muscles - On a stomach lying on the back of the neck, a partner holds his feet. Extension- Maximum number of reps in 30 seconds.
Muscle of lower limbs - Standing with bent and crossed arms. Maximum bending and stretching of the legs. Maximum number of reps in 30 seconds.

Coordination - An 8-stroke coordination exercise is performed once, where the position of the arms and lower limbs changes in different planes and axes at each time.

The coordinated actions/movements are characterised by the presence of an appropriate muscle tension, rhythm, direction and speed, involving the anticipation capacity and attention concentration (Predoiu et al., 2018).

Results

Tables 1-8 show the results of the descriptive statistics, namely, the mean and the standard deviation, for all the tests for both girls and boys.

Table 1. Descriptive statistics for anthropometric data – girls

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Mean</th>
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<tr>
<td>KT</td>
<td>48</td>
<td>20.98</td>
<td>3.13</td>
<td>165.20</td>
<td>6.58</td>
<td>163.43</td>
<td>6.98</td>
<td>58.99</td>
<td>8.05</td>
</tr>
<tr>
<td>Arte</td>
<td>65</td>
<td>21.92</td>
<td>6.97</td>
<td>164.97</td>
<td>8.01</td>
<td>164.02</td>
<td>7.91</td>
<td>61.23</td>
<td>13.89</td>
</tr>
<tr>
<td>FEFS</td>
<td>38</td>
<td>19.39</td>
<td>2.15</td>
<td>163.34</td>
<td>7.41</td>
<td>162.88</td>
<td>7.45</td>
<td>59.34</td>
<td>8.97</td>
</tr>
<tr>
<td>Total</td>
<td>151</td>
<td>20.99</td>
<td>5.09</td>
<td>164.63</td>
<td>7.42</td>
<td>163.54</td>
<td>7.47</td>
<td>60.04</td>
<td>11.12</td>
</tr>
</tbody>
</table>

Table 2. Descriptive statistics for anthropometric data – boys

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>KT</td>
<td>47</td>
<td>21.43</td>
<td>3.52</td>
<td>180.85</td>
<td>7.51</td>
<td>180.26</td>
<td>8.80</td>
<td>76.67</td>
<td>13.36</td>
</tr>
<tr>
<td>Arte</td>
<td>31</td>
<td>20.74</td>
<td>2.62</td>
<td>176.19</td>
<td>8.93</td>
<td>177.68</td>
<td>9.81</td>
<td>70.19</td>
<td>13.57</td>
</tr>
<tr>
<td>FEFS</td>
<td>101</td>
<td>19.82</td>
<td>2.36</td>
<td>178.84</td>
<td>7.04</td>
<td>181.34</td>
<td>8.68</td>
<td>76.89</td>
<td>12.72</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>20.40</td>
<td>2.82</td>
<td>178.91</td>
<td>7.62</td>
<td>180.42</td>
<td>8.97</td>
<td>75.67</td>
<td>13.20</td>
</tr>
</tbody>
</table>

We can see from Tables 1 and 2 that the average age of the students from the National University of Arts is higher than the students from the Faculty of Physical Therapy and from the Faculty of Physical Education and Sports; Students from KT are taller but smaller in size than Arte, but have the lowest average in terms of weight.

Students from KT are older and higher than the other students included in this test, but have a smaller size and weight than FEFS students.

Table 3. Descriptive statistics for force samples – girls

<table>
<thead>
<tr>
<th></th>
<th>Abdomens</th>
<th>Extensions</th>
<th>Pushups</th>
<th>Squats</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mean</td>
<td>Std. Deviation</td>
<td>Mean</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>KT</td>
<td>48</td>
<td>19.98</td>
<td>4.84</td>
<td>32.56</td>
</tr>
<tr>
<td>Arte</td>
<td>65</td>
<td>17.60</td>
<td>5.59</td>
<td>31.05</td>
</tr>
<tr>
<td>FEFS</td>
<td>38</td>
<td>23.11</td>
<td>3.67</td>
<td>40.53</td>
</tr>
<tr>
<td>Total</td>
<td>151</td>
<td>19.74</td>
<td>5.37</td>
<td>33.91</td>
</tr>
</tbody>
</table>

Table 4. Descriptive statistics for force samples – boys

<table>
<thead>
<tr>
<th></th>
<th>Abdomens</th>
<th>Extensions</th>
<th>Pushups</th>
<th>Squats</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Mean</td>
<td>Std. Deviation</td>
<td>Mean</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>KT</td>
<td>47</td>
<td>25.49</td>
<td>5.03</td>
<td>40.00</td>
</tr>
</tbody>
</table>
From Tables 3 and 4 it can be noticed that FEFS students have the highest averages in all 4 samples of force, followed by students from KT. As for the boys, the students from KT lead to all 4 samples, being followed by FEFS students.

Table 5. Descriptive statistics for mobility samples – girls

<table>
<thead>
<tr>
<th></th>
<th>Shoulders</th>
<th>Anterior flexion</th>
<th>Right bending</th>
<th>Left bending</th>
<th>Bend over backwards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>KT</td>
<td>48</td>
<td>69.96</td>
<td>15.20</td>
<td>2.33</td>
<td>3.35</td>
</tr>
<tr>
<td>Arte</td>
<td>65</td>
<td>75.43</td>
<td>18.19</td>
<td>5.78</td>
<td>9.20</td>
</tr>
<tr>
<td>FEFS</td>
<td>38</td>
<td>55.92</td>
<td>22.70</td>
<td>12.92</td>
<td>11.16</td>
</tr>
<tr>
<td>Total</td>
<td>151</td>
<td>68.78</td>
<td>20.05</td>
<td>6.48</td>
<td>11.68</td>
</tr>
</tbody>
</table>

Table 6. Descriptive statistics for mobility samples – boys

<table>
<thead>
<tr>
<th></th>
<th>Shoulders</th>
<th>Anterior flexion</th>
<th>Right bending</th>
<th>Left bending</th>
<th>Bend over backwards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>Std. Dev.</td>
<td>Mean</td>
<td>Std. Dev.</td>
</tr>
<tr>
<td>KT</td>
<td>47</td>
<td>80.80</td>
<td>32.65</td>
<td>-3.21</td>
<td>10.98</td>
</tr>
<tr>
<td>Arte</td>
<td>31</td>
<td>81.06</td>
<td>22.26</td>
<td>5.13</td>
<td>8.63</td>
</tr>
<tr>
<td>FEFS</td>
<td>101</td>
<td>85.60</td>
<td>17.14</td>
<td>3.74</td>
<td>10.21</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>83.56</td>
<td>23.01</td>
<td>2.16</td>
<td>10.62</td>
</tr>
</tbody>
</table>

In Tables 5 and 6 it can be noticed that FEFS students have the best results in the case of the 4 samples: the scapular-humeral joint and the spine (forward bending and right and left lateral bending). At the bridge (spine mobility in extension), 12 students were unable to perform, 3 from KT and 9 from Arte; the best results at this test were obtained by the KT students.

In boys, KT students have the best mobility of the scapular-humeral joint and spine in the extension (bridge), and Arte students have better spine mobility when testing right and left bending forward and lateral. Note that the bridge could not be executed by 16 students, 14 KT and 2 Arte.

Table 7. Descriptive statistics for thoracic mobility and coordination issues – girls

<table>
<thead>
<tr>
<th></th>
<th>Coordination</th>
<th>Thoracic diameter</th>
<th>Thoracic perimeter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>KT</td>
<td>48</td>
<td>1.98</td>
<td>2.82</td>
</tr>
<tr>
<td>Arte</td>
<td>65</td>
<td>3.26</td>
<td>3.09</td>
</tr>
<tr>
<td>FEFS</td>
<td>38</td>
<td>2.79</td>
<td>2.92</td>
</tr>
<tr>
<td>Total</td>
<td>151</td>
<td>2.74</td>
<td>3.00</td>
</tr>
</tbody>
</table>

Table 8. Descriptive statistics for thoracic mobility and coordination tests – boys

<table>
<thead>
<tr>
<th></th>
<th>Coordination</th>
<th>Thoracic diameter</th>
<th>Thoracic perimeter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>KT</td>
<td>47</td>
<td>1.21</td>
<td>2.02</td>
</tr>
<tr>
<td>Arte</td>
<td>31</td>
<td>1.81</td>
<td>2.02</td>
</tr>
<tr>
<td>FEFS</td>
<td>101</td>
<td>2.20</td>
<td>2.81</td>
</tr>
<tr>
<td>Total</td>
<td>179</td>
<td>1.87</td>
<td>2.52</td>
</tr>
</tbody>
</table>
We see in Tables 7 and 8 that Arte students have both better chest mobility and coordination. In boys, the FEFS students had the best results in mobility, and those at KT had higher chest mobility.

Tables 9-12 show the results of the ANOVA and Levene test to see if differences between groups are statistically significant, i.e., group homogeneity.

Table 9. ANOVA test for anthropometric data

<table>
<thead>
<tr>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Height</td>
</tr>
<tr>
<td>Levene Statistic</td>
<td>9,073</td>
</tr>
<tr>
<td>Levene sig.</td>
<td>0,000</td>
</tr>
<tr>
<td>ANOVA F</td>
<td>3,034</td>
</tr>
<tr>
<td>ANOVA sig.</td>
<td>0,051</td>
</tr>
</tbody>
</table>

The results of the Levene test show that for $p > 0.05$, the groups are homogeneous (if $p < 0.05$ results that the groups are not homogeneous).

The ANOVA test shows that differences between groups in age, boy height, and boys measurements (weight) are statistically significant, as $p < 0.05$. At the other measurements $p > 0.05$, which means that the differences between the groups are not statistically significant.

Table 10. ANOVA test for force samples

<table>
<thead>
<tr>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abd. Extensions</td>
<td>Pushups</td>
</tr>
<tr>
<td>Levene Statistic</td>
<td>1,289</td>
</tr>
<tr>
<td>Levene sig.</td>
<td>0,279</td>
</tr>
<tr>
<td>ANOVA F</td>
<td>15,021</td>
</tr>
<tr>
<td>ANOVA sig.</td>
<td>0,000</td>
</tr>
</tbody>
</table>

According to the results of the Levene test, in the sample that follows the back muscles, the groups are not homogeneous because $p = 0.021 < 0.05$.

All other evidence demonstrates that the groups are homogeneous.

Differences between groups in the sample of abdominal muscles (boys) are not statistically significant, $p = 0.140 > 0.05$.

In the other samples, $p < 0.05$ thus resulting that the differences between groups are statistically significant.

Table 11. ANOVA test for mobility samples

<table>
<thead>
<tr>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulders</td>
<td>Anterior flexion</td>
</tr>
<tr>
<td>Levene Statistic</td>
<td>2,339</td>
</tr>
<tr>
<td>Levene sig.</td>
<td>0,100</td>
</tr>
<tr>
<td>ANOVA F</td>
<td>13,361</td>
</tr>
<tr>
<td>ANOVA sig.</td>
<td>0,000</td>
</tr>
</tbody>
</table>

The results of the Levene test show that for $p > 0.05$, the groups are homogeneous in terms of: scapulo-humeral joint mobility - girls, mobility of the spine (all samples) - boys.

The ANOVA test reveals that the differences between the groups in the measurements concerning the mobility of the spine and of the scapulo-humeral joint - girls, are statistically significant, since $p < 0.05$. In the sample of scapulo-humeral joint mobility - boys, $p = 0.401 > 0.05$, which means that the differences between groups are not statistically significant.
Table 12. ANOVA test for thoracic mobility and coordination

<table>
<thead>
<tr>
<th></th>
<th>Girls</th>
<th>Boys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene Statistic</td>
<td>1.383</td>
<td>1.564</td>
</tr>
<tr>
<td>Levene sig.</td>
<td>0.254</td>
<td>0.213</td>
</tr>
<tr>
<td>ANOVA F</td>
<td>2.589</td>
<td>6.526</td>
</tr>
<tr>
<td>ANOVA sig.</td>
<td>0.078</td>
<td>0.002</td>
</tr>
</tbody>
</table>

The results presented in the above table in the Levene test show that in the coordination samples and the mobility of the chest cavity in the girls, the groups are homogeneous, for \( p > 0.05 \). For the same samples performed in boys, \( p < 0.05 \), the groups were not homogeneous.

In the coordination samples - girls (\( p = 0.078 \)), boys (\( p = 0.084 \)), antero-posterior thoracic diameter - boys (\( p = 0.723 \)) and thorax perimeter - boys (\( p = 0.684 \)) the differences are not statistically significant.

In the measurements performed in girls, the thoracic antero-thoracic diameter (\( p = 0.002 \)) and the thorax perimeter (\( p = 0.003 \)), the differences between groups are statistically significant because \( p < 0.05 \).

Conclusions

In order to accomplish the purpose of this work, following the study we determined the following profile of the student to the vocational education, profile Physical and Sports and Profile Arte: FEFS student is 19 years of age, height 170 cm, arm width 171.5 cm, and weight 68 kg.

Girls prove a very good preparation of motor skills, unlike boys who record good data. At coordination, the girls have a good level and the boys are very good.

The student at KT is 21 years old, 173 cm high, 171.8 cm wide and 67.8 kg weight. Girls prove a good preparation of motor skills (force), modest mobility and coordination, unlike boys who record very good data, modest mobility and coordination.

The Arte student is 21 years old, 170.6 cm high, 170.8 cm wide, and weighing 65.7 kg. The girls prove a modest preparation of the motor skills (strength), good mobility and very good coordination, while boys have a modest physical training, very good mobility and good coordination.

As a result of the anthropometric measurements, tests of muscular force, joint mobility and segmental coordination, statistically significant differences were found between the students from the vocational education, Physical Education and Sports and Physical Therapy.

Using the ANOVA test, we consider that the hypothesis of the research - "We believe there are significant differences between some of the anthropometric and motor data of the students from the vocational education, Physical Education and Sports and Physical Therapy", is confirmed.

Authors’ contributions

All authors contributed equally to this study and should be considered as main authors.

References


WAYS OF IMPROVING THE VERBAL, NONVERBAL AND PARAVERBAL COMMUNICATION WITH ATHLETES

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2 “Vasile Alecsandri” University of Bacău, Faculty of Movement, Sport and Health Sciences, 157 Calea Mărgăuși, Bacău, Romania
*Corresponding author: radu_predoiu@yahoo.com

Abstract. In its broadest sense, communication at the level of communication agents (athletes, coach) consists in improving the adaptation to the environment. The reception of the information by the recipient of the message (for example, the athlete) corresponds to the process of assimilation, explaining the informative aspect of the communication. The data that reaches the receiver are processed at different levels by it. As a result, he/she is forming new schemes or restructuring the already existing schemes. This corresponds to the process of accommodation (from the theory of cognitive development of J. Piaget), explaining the formative aspect of communication. Through the dynamic interaction of these processes (assimilation and accommodation), as a result of the internal and intrasystemic communication (of the subject with itself), more efficient adaptation to the environment is achieved and the personality develops more complex. Self-regulating mechanisms (for example feed-back) have, also, an informative and formative effect on the transmitter (for example, the coach). The information provided by the specialist has antientropic characteristics, reducing the uncertainty within the transmitter-receiver circuit (coach-athlete). Considering the coach-athlete dyad we must talk about communication responsibility, the words being able to block or support athletes during competition. Thus, successful coaches pay attention to what, how and when they communicate.

Keywords: verbal communication, nonverbal, paraverbal, athletes.

Introduction

The analysis of communication is a very complex task, involving: the investigation of its mechanism, of how the psychic phenomena of the transmitter (for example, the coach) generates communication and the investigation of the mental states of the receiver (for example, the athlete) considering how it receives communication.

The communication process has four fundamental elements: the transmitter; information; the information transmission channel and the receiver (Van Cuilenburg, Scholten & Noomen, 2000, p. 25). Also, the cited authors consider that, in fact, the communication does not end with the information being taken over by the receiver, because the information and its reception have an effect on the receiver (Figure 1).

Figure 1. The fundamental model of communication (Van Cuilenburg, Scholten & Noomen, 2000)

Between coaches and athletes there are exchanges of an informational-energetic nature. Through communication, coaches transmit goals, expectations, standards, but also emotions. It is important that the relationships established between the parties to be free of tension (to have positive relationships), otherwise the process of transmitting information (regarding technical elements, tactics, recovery, hydration, nutrition, recreational activities, sex life, etc.) is affected.

We can talk about communication responsibility (Borțun et al., 2012). Words can block (words "accidentally escaped" and at inappropriate times can have long-term negative consequences for athletes), or support athletes in their activity (words have a healing potential). Therefore, coaches need to be careful: what, how and when they communicate. Improving communication with athletes is a subject that requires multiple approaches, taking into account the infinite complexity of the human being (adapted after Geambașu, 2018, p. 11).
Particularly important is also the next dimension of communication - metacommunication. "When A talks to B, whatever the words are used, they will have two aspects: they will talk to B about A, bringing information (...) and they will be a cause or the basis for B's further action. (...). When A communicates with B, the mere fact of communicating may involve the implicit statement: we are about to communicate. In fact, this statement may be the most important message that has been issued or received" - Waltzawick, Helmick-Beavin and Jackson (1972, cited by De Visscher & Neculau, 2001).

**Topic addressed**

We present a series of recommendations to coaches, as transmitters, considering the athletes’ training process (Burton & Raedeke, 2008; Bîltac & Călin, 2008):

- the coach should not say anything he/ she does not believe in, and under a quantitative report to provide the necessary and sufficient information - it is recommended to avoid information overload (when too many information are provided to the athletes), but also the situation when athletes does not have sufficient knowledge (for example, regarding technical-tactical elements, related to nutrition, hydration, recovery etc.);
- the specialist will make his message intelligible, taking into consideration the level of development of the athletes and will use additional presentation materials, which will facilitate understanding; to know the specific characteristics of a certain age and in order to optimize the activity of communication with athletes, we propose to go through, at least, the following links:
  - https://www.youtube.com/watch?v=TRF27F2bn-A - cognitive development theory (J. Piaget);
  - https://www.youtube.com/watch?v=7Im_GrGrVA - the Zone of Proximal Development (L. Vygotsky);
  - https://www.youtube.com/watch?v=aBFnDu00Jg - specific aspects of psychosocial development (E. Erikson);
- the verbal message must be direct, clear, concise, and the information significant for the moment and context in which the communication is realized;
- athletes will not be humiliated, ridiculed and will not be provoked against one another; sarcasm, negative comparisons or threats do not find their place;
- favoritism must be eliminated;
- the coach, when transmitting a message to the athletes, must pay attention to the possible disturbing factors from the external environment (for example, inappropriate use of some equipment, making noise or the location of the court); the purpose is to minimize the risk of impairing the communication process;
- the information provided to the athletees must be repeated, more precisely, the key aspects of the message must be refreshed (but pay attention to the number of repetitions - do not forget that there is an optimum in terms of the number of repetitions, both under-learning and over-learning not being able to promote long-term retention of important data);
- coaches must verify if the information has been understood by the athletes (different players may be asked, randomly, to verbalize the information of interest - verbalization is the condition of awareness);
- it is recommended to avoid double messages - of acceptance and rejection (today one thing is valued by the specialist, and tomorrow, another);
- the feedback is positive when a desired performance or behavior is achieved; it is advisable for the coaches to encourage the effort of the athletes and the quality of their game (the performance of athletes is reported/ compared to the previous situation and not with the performance of opponents or colleagues);
- the coach must provide immediate feedback when inappropriate behaviors of the athletes are observed (however, if the emotional load is strong, another moment can be chosen);
- *silence* is integrated into the communication process, and the coach can use it order to: signal a disagreement, underline the information transmitted or to capture the attention of the athletes;
- the verbal aspects must be in accordance with the paraverbal and nonverbal ones (intonation, rhythm, mimicry, gestures etc, otherwise the credibility of the source - the coach - may be affected).

Besides words, coaches influence athletes by tone, rhythm of the speech, the inflections of the voice or even through the breaks between words. Also, specialists must pay attention to mimicry and pantomime (we include bodylanguage and attitudes). All these aspects, specific to nonverbal and paraverbal communication, can help or, on the contrary, block the athletes in competition or in the training process. Since 1971, studies have mentioned that any message is 7% verbal, 38% paraverbal and 55% nonverbal (Mehrabian, cited in LeUnes, 2008). Table 1
offers some useful data for coaches (and not only) in order to improve the nonverbal and paraverbal communication with athletes.

Table 1. Nonverbal and paraverbal aspects through which coaches influence (voluntarily or involuntarily) the athletes (Predoiu, 2019, p. 71):

<table>
<thead>
<tr>
<th><strong>Nonverbal communication and the efficient transmission of information to athletes</strong></th>
<th><strong>Paraverbal communication and the efficient transmission of information to athletes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facial expressions</strong> - attention to the lack of expressiveness, because, generally, weakens communication with athletes (in the competition, however, the impact may be quite different - less pressure felt by the athletes, but ... there are, of course, differences depending on the athlete and the sports branch practiced). Visual contact - it is recommended for the coaches to maintain eye contact with the athletes, which allows them to pay attention to their manifestations. The interest of the athletes is higher when the coach is not immobile and transmits that he is passionate of his/ her work.</td>
<td>By manipulating the speed of speech, the coach can influence athletes. In this context, when the data provided are new to athletes, a slower pace is recommended (however, it is advisable for specialists to be flexible, as slow talk can get boring). Attention to volume, how loud we talk (there are situations, in certain branches of sports, in which the existence of disturbing factors in the environment requires the specialist to raise the tone, in order to be heard by the athletes). The inflections of the voice can underline the key aspects of the message and make it less boring.</td>
</tr>
</tbody>
</table>

When we aim to effectively transmit information to athletes, it is important, therefore, the emotional impact that different messages have on the players. But let's not forget that athletes also communicate non-verbally, and as specialists, if we understand the non-verbal messages of our players, we can actually get to know them better.

*Time* and *space* are two resources of activity and performance (Table 2).

Table 2. Time and space as forms of communication - recommendations in working with athletes (Gamble & Gamble, 1993)

<table>
<thead>
<tr>
<th><strong>Time</strong></th>
<th><strong>Space</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoiding interruptions - caused, for example, by friends, phones, etc. Avoiding unrealistic estimation of time (training, rest, etc.) Avoiding postponements Avoiding getting started too many activities</td>
<td>Too close to athletes when information is transmitted generates discomfort and lack of friendship – we must not forget the intimate distance, about which E. Hall said that it is from the surface of the body to an arm long.</td>
</tr>
</tbody>
</table>

Athletes will inevitably win in competitions, but they will also be defeated. Thus, the coaches are in the situation to praise the players, but also to criticize them. Often, the critical analysis following a match in which the athletes were defeated lasts much longer than the analysis (in terms of technical-tactical elements, physical and mental condition) made in the case of a success. However, more important than the length of the session is the manner in which the coach makes the athletes understand the problem from his perspective. In an open and relaxed atmosphere, the athletes must analyze their own behaviors and their consequences, not limiting to justifying their actions (eventually defending themselves). Specialists must be aware of the fact that athletes practicing contact sports (taekwondo, karate, kempo, handball and football) show a significantly higher result for the aggressive communication style and a gain-loss approach of solving conflicts, compared with the non-practitioners (Predoiu & Radu, 2013).

Criticism, if not used in a positive way, can "feed" a conflict: between specialist and athlete, between coach and parents or between athletes (making an athlete guilty in front of teammates, transforming him/ her into a problem-person generates embarrassment, shame and an attitude of revolt). Specialists (but also parents) should not forget that the verbal factor can have profound and lasting effects. There is a coach-athlete dyad, and the words cannot be "thrown" randomly.

Thus, it becomes very important for the coach to know, when transmitting data to the athletes, ways to use criticism in a positive way (Figure 2 - adapted after Pânișoară, 2008):
Expressing ideas and feelings will therefore be done assertively. Assertive communication implies "a very fine balance between combativity and abandonment [...], a considerable level of awareness, internal flexibility, courage, self-confidence and confidence in the other, a good understanding of the context" (Nuţă, 2004, p. 112).

The assertive expresses directly, firmly his thoughts, ideas, feelings, but without harming other people. The assertive accepts compromises, but without giving up his dignity. He/she speaks and listens, negotiates, staying open to what the interlocutor feels, thinks or wants.

In a confrontation, the assertive coach (Predoiu, 2016):

- does not accuse or insult;
  - "Me" type messages are preferable and not "You" type messages, which are more aggressive;
  - "Me" type messages – "I disagree with ...", "I feel upset when ...", "I feel uncomfortable when you leave your equipment in the gym", "I feel upset when you do not respect what we have spoken" etc.
  - "You" type messages – "You are wrong when ...", "You annoy me when ...", "You are a careless athlete", "You bother me when you do not respect what we discussed" etc.
  - "Me" type messages do not incite defensive reactions, do not blame the other, while "you" type messages, even if they are correct (the specialist is right when he/she is saying a certain thing), usually accuse, "hit" the other, and communication is not advances.
- refers to the conflict as a problem that needs a common solution, one does not expect the interlocutor to read his/her thoughts;
- does not refer to the actions of the athlete in general (the coach refers to a specific behavior, manifested in a certain spatio-temporal context);
is not expected that the responsibility for solving the problem to fall solely on the shoulders of one of the parties involved in the conflict - each is asked to describe how it can contribute in order to solve the problematic situation.

The assertive coach does not ask for change (a coercive measure that can make the athlete feel "attacked"). He must be in partnership with the athletes, asking them to come up with ideas, to find a solution favorable to both parties.

We recommend the assertive training (Table 3), as an effective technique for developing the communication skills of coaches (and having positive effects at the level of the whole personality). It is a program (can be applied individually or in a group) that aims at learning/developing the skills of expressing feelings, diminishing and controlling social anxiety, changing dysfunctional thoughts, emotions and behaviors, rejecting or modifying irrational beliefs. Being part of the cognitive-behavioral psychotherapy, it starts from the premises that people's actions, behaviors and emotions are determined by their way of thinking and interpreting the events around them. As a result, what makes these actions, behaviors and emotions dysfunctional are not the events themselves, but the person's way of judging, evaluating and interpreting these events. It aims: awareness of the social rights of the subject; operating the difference between assertiveness, non-assertiveness and aggression; the development of appropriate verbal, nonverbal and paraverbal communication skills (Mitrache, Tüdös & Predoiu, 2018, p. 45).

Table 3. The stages of assertive training (David, 2003, pp. 48-50):

<table>
<thead>
<tr>
<th>The stages of assertive training</th>
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<tbody>
<tr>
<td>1. Analyze the style in which you interact with others;</td>
</tr>
<tr>
<td>2. Select situations in which it would be useful to behave assertively;</td>
</tr>
<tr>
<td>3. Focus and analyze a certain event from the past;</td>
</tr>
<tr>
<td>4. Analyzes, notes and evaluates your own behavior according to the following criteria: Eye contact; Gestures; Body posture; The volume and tone of the voice; Fluency of speech; Content and credibility of the message;</td>
</tr>
<tr>
<td>5. Analyzes and evaluates the assertive behavior of several persons according to the above criteria;</td>
</tr>
<tr>
<td>6. Make a list of several assertive behavioral variants, useful in various situations;</td>
</tr>
<tr>
<td>7. Close your eyes and imagine yourself behaving assertively and selecting the most useful behaviors;</td>
</tr>
<tr>
<td>8. Practice the role-play for the alternative chosen with someone else;</td>
</tr>
<tr>
<td>9. Practice steps (7) and (8) until you develop an assertive way of interacting with others;</td>
</tr>
<tr>
<td>10. Apply the alternative chosen in a real life situation;</td>
</tr>
<tr>
<td>11. Reflect on the results of your efforts;</td>
</tr>
<tr>
<td>12. “Expect to some success after these first efforts, not at a complete personal satisfaction. Expressing one's own personality, effective interaction with others are lifelong learning processes” (David, 2003, p. 50).</td>
</tr>
</tbody>
</table>

For the purpose of effectively transmitting data to the athletes, we present, also, the following recommendations (Crişan & Dobrescu, 2012):
- Emotionally charged events determine results over a longer period of time (the coach can use games, simulations and role-playing activities that bring the emotional elements necessary for the successful acquisition of the information by the athletes);
- The specialist offers the athletes opportunities to ask questions/questions about the answers received - the active answers produce a more efficient learning than the passive listening or reading;
- The moments when the athletes can be amazed are carefully planned - a demonstration is conducted or a fact is presented that the athletes will find surprising, to make them curious;
- The information is provided according to the competences (since, inevitably, some athletes are better prepared than others). In order to check if the athletes have understood what to do, they can be asked to answer in writing, speaking, drawing or playing a role (as we have already stated throughout this article, in the process of awareness, verbalization occupies a very important place);
- Athletes are required to practice based on information received from the coach, which provides (constantly) relevant feedback to the players;
- The attention of the athletes is monitored to verify if a change is needed or not - the change makes the athletes more careful (for example, the coach can modify the working speed).
Conclusions

Communication is the psychic activity through which coaches and athletes can understand each other and influence each other through the continuous exchange of information, variously coded. As the body-mind issue, the communication between coach and athletes is complex and far away to be solved - we can talk about communication according to cerebral preferences, depending on the representation systems of athletes (visual, auditory, kinesthetic), communication according to temperament etc. (Predoiu, 2016; adapted after Geambaşu, 2018).

The coach must be a specialist in “behavioral surgery” being aware that the words “thrown” randomly can have long-term negative consequences on the athletes. On the other hand, words can support the athletes in the training process, recovery or during the competition, that is why the specialists have to be careful: what, how and when they communicate.

In the training process and also in competition, coaches have to make decisions based on the flow of information received, stimulate the cooperation and involvement of members in achieving the objectives and evaluate the achievement of the results (adapted after Mihăilă, 2018). In order to effectively communicate with the athletes and to achieve the goals set, the coaches must show assertiveness, be empathetic and active listeners. In empathic listening, the coach pays attention to the verbal message, to the nonverbal aspects, but also to the emotions, the feelings that the athlete expresses, trying to understand things from athletes’ perspective. The ability to be an empathic listener develops if the specialists become active listeners (participate, get involved and not just hear what is being discussed). In order to become an efficient active listener are recommended (Egan, 1990; DeVito, 1988; Ross, 1986): cessation of other activities and focusing the psycho-nervous energy (attention) on the person speaking; a relaxed posture and maintaining visual contact (with a positive impact at non-verbal level); open and clarification questions (questions which suppose the “yes” or “no” type of answer are not recommended); resume the content of important messages (paraphrasing is very useful in order to minimize the risk of misunderstandings).

As Botta said (1998, p. 74), “the quality of our life is ultimately the quality of our communication.”

Authors’ Contributions

All authors contributed equally to this study and should be considered as main authors.

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FUNCTIONAL RECOVERY AFTER TOTAL KNEE ARTHROPLASTY

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Abstract. The knee joint is frequently exposed to injuries, due to being superficially located. In time, its composing elements suffer degeneration, leaving space to the formation of gonarthrosis. Gonarthrosis is caused by an imbalance between the resistance of the structural components and the pressure put on them. In case the disease reaches its final stage, total knee arthroplasty is the only viable solution in order to offer the patient functional independence. After the surgical intervention, the physical therapist along with the entire team of specialists (doctor, social worker and the clinical psychologist) have to make the patient’s body approve the implant and get back to the activities he used to do before surgery. The functional recovery is based on a six months recovery protocol, divided in three stages (acute, subacute and chronic), with the following objectives: preventing decubitus syndrome, countering pain, increasing the range of motion and the muscular strength, regaining functional independence.

Keywords: gonarthrosis, total knee arthroplasty, recovery protocol.

Introduction

The knee joint is frequently exposed to injuries, due to being superficially located, immediately beneath the tegument. In time, its composing elements suffer degeneration, leaving space to the formation of gonarthrosis.

Gonarthrosis is considered one of the most common non-inflammatory arthropathies, which determine a visible decrease in the quality of life, caused by the diminished mobility and the presence of pain. These combined cause motor disabilities in a relative short time.

Gonarthrosis is caused by an imbalance between the resistance of the structural components and the pressure put on them.

It is more common in women, aged between 40 to 70 years old having a multi-factorial etiology (Cretu, 2003).

In advanced stages of gonarthrosis (Figure 1), the only option of treatment is partial or total knee arthroplasty.

Figure 1. Bilateral gonarthrosis - Stage IV (X-Ray front and side view)

From 1999 to 2008, the number of total knee arthroplasties have doubled globally and trebled for people aged between 45 to 64 years old (Losina, 2012).

From surgical point of view, total knee arthroplasty can be done in two ways: classic, with an interior incision, approximately 20 cm long, which ensures a sufficient exposure of the knee, or it can be done in a modern way, through a minimally invasive arthroplasty, which implies a smaller incision, approximately 10 cm long. This way reducing the post-operative pain and the time needed for functional recovery.

In the case of minimally invasive total arthroplasty, due to the smaller incision, which doesn’t affect the quadriceps muscle, lesser blood loss compared with the classic total arthroplasty and by eliminating the procedure of patella eversion, leads to faster functional recovery.

Total knee arthroplasty (Figure 2) has the main objectives of eliminating pain, increasing the patient’s functionality and his quality of life.
This procedure is recommended in the following cases: severe articular pains in upright position or during motion, excessive destruction of the articular cartilage, important deformations of the knee in varus or valgus, a visible stability loss and amplitude of motion, but also by failing to pan out through non-invasive techniques.

The relative contraindications of total knee arthroplasty are represented by: obesity, muscle stiffness in flexion, subluxation of the tibial-fibular joint and very old age.

In the first post-operative stage, complications may arise, such as: local infections, pulmonary embolism, deep vein thrombosis, lymphedema, damage to the peroneal nerve, muscular imbalance, especially at the quadriceps level and fractures of the articular bones (Maxey, 2013).

The clinical and functional examination of a knee which suffered a total arthroplasty is a 'sine-qua-non' condition in order to track the progress made by the patient, the kinetic program and the length of the milestones.

This examination allows a personalization of the means and objectives of recovery, based on each patient.

Periodical examinations are required before and after the total knee arthroplasty.

Moreover, they have to be done before starting the functional recovery program, during the program, before moving to the next phase of recovery and last but not least, after the six months recovery.

The clinical examination comprises inspection, palpation, anthropometrical measurements (the perimeter of the hip and calf, the perimeter of each knee, in the middle of the ball joint, the length of the inferior limb, the length of the hip and of the calf), testing the articular mobility.

The functional examination is based on a set of five tests realized by the International Society of Osteoarthritis Research (ISOR), described below: the test of 30 seconds chair upswing, the climbing and descending from a set of stairs, the 40m fast-paced walking (4×10m), the “stand-up and walk” test and the 6 minutes walking test.

**Topic addressed**

The functional recovery in case of total knee arthroplasty has to be initiated as early as possible, due to the recovery protocol’s length of 6 months, split in three phases (acute, subacute and chronic). The recovery protocol has as general objectives the following: preventing decubitus syndrome, countering pain, increasing the amplitude of motion and brawn and regaining functional independence.

One of the most important objectives of the post-operative recovery after total knee arthroplasty is represented by reeducating the walk (Figure 3).

Burdening the inferior prosthetic limb has to be done in a progressive matter, considering the age and weight of the patient, his bone density, how the prosthesis’s been fixed (cemented or not) and which surgical technique’s been used (classic or minimally invasive).

In the case of cemented prosthesis, burdening the limb is allowed immediately after the surgical intervention, with the aid of crutches or frames, which leads to the full recovery of the walk after 6 weeks.

In the case of non-cemented prosthesis, walking with partial lean against the operated limb is allowed after a few days from the surgical intervention, while full lean against it is allowed 3-4 weeks after the surgical procedure.

The walking is assisted, with the use of crutches or walking frames.

Moreover, it is advised applying an orthesis with the goal of stabilizing the knee until total recovery of the patient’s stability.
In addition it is advised using the cane until the patient has fully recovered his walk, and it is forbidden walking outside, until the patient reaches an active extent, which tends to maximum and an adequate force of the quadriceps muscle.

In the acute phase, the physiotherapist has to focus mainly on diminishing the pain and inflammation, done by cryotherapy, by applying ice three times a day for 15-20 minutes.

Secondly, the physiotherapist has to focus on increasing the articular amplitude, which is done by continuous passive mobilization, ideally realised with the help of the Kinetec (Figure 4).

From day two, the therapist can start the exercises in bed and on the edge of the bed.

Are used anti declivity postures, with a pillow held at the level of the ankle, with the purpose of raising the last extension degrees in the knee, to control edema and to enhance the venous return, the passive, passive-active and active mobility in the dorsal decubitus, in the ankle, knee and hip, with the end goal of increasing the mobility and stability of the knee (Țaga, 2018).

In addition, isometric exercises are used at the level of quadriceps muscle, gluteus and hamstrings, in order to prevent muscular atrophies and the knee flexum reflex.

This phase, which last for maximum four days, in which the patient must benefit of physiotherapy twice a day, ends from the functional recovery point of view, when the patient has degree of flexion of 80-90º, can independently move from the decubitus (dorsal, lateral and ventral) in seated and from seated to decubitus, but also seated at the edge of the bed in orthostatism and vice versa and can walk assisted between 15-50 steps (Magee, 2006).

In the subacute phase, the means from the previous phase are continued with progressively increased intensity.

Moreover, walking has to be enhanced, it is tried progressive waiver of the walking frame and crotches, the cane being used instead, the transfer from seated to standing is made by modifying the height of the support surface. Increasing the strength of the flexor and extensor muscles of the knee can be done in this phase, both in open kinematic chain, but also in closed kinematic chain, the latter being proved to be more efficient in recruiting the fibers of the wide lateral and medial muscle.

In addition, exercises for posture and balance can begin with the purpose of enhancing the dynamic stability of the knee and the motor control of the involved muscles, the means used being the board, the pillow and the “hard walking”.

Figure 3. Walking recovery (Maxey, 2013)

Figure 4. Kinetec
In the chronic phase, the previous program is continued, but with an increase in the number of sets and the weight lifted in case of exercising against a resistance.

Articular amplitude must reach the maximum allowed by the prosthesis, in order to carry on the exercises. To increase the articular amplitude, besides free active mobilizations and against a resistance, in this phase the physiotherapist can work on stretching.

Stretching can be executed purely passive, by applying an external force to the prosthetic limb (physiotherapist, the patient’s own weight, portable objects) or active, by slow movements, voluntary or FNP techniques (Bratu, 2011).

In this phase, the training for increasing the strength become more specific, by using the „weightlifter technique”. This way it is calculated the maximum strength and it starts with 10% of it until it reaches a 40%-60%, by progressively increasing the weight each week, taking into consideration the patient’s capabilities.

In addition, in the case of knee arthroplasty, the weakest muscle is the quadriceps, thus, during a session this muscle is worked on two times more than any other muscles of the knee, the report being 2/1.

After a recently conducted study, it was shown that subjects with knee prosthesis gained 12-13 kg and the body fat rose by 4%-6% after a year from the total knee arthroplasty, thus the patients have to have a balanced diet and the recovery plan has to take into consideration an aerobic training, which consists of walking on the rolling mat, cycle against a minimum resistance and physioterapeutic swimming.

Studies show that after a year from the total knee arthroplasty, the pain vanishes and there are notable improvements at functional level, but with a deficit in strength and amplitude compared with the functionality of people with the same age, but without degenerative conditions (Ferraresi, 2015).

Thus, the physiotherapist must instruct both the patient and the carrier regarding the continuity of physical therapy, regarding the behavior of conducting daily activities, of the general measures of transfer and in regards with the orthopedic hygiene of the knee.

In order to realise daily activities after total knee arthroplasty, the patient must gain minimum 90° flexium, in the case of unilateral prosthesis and between 115°-117° in the case of the bilateral one.

Conclusions

Total knee arthroplasty and the post-surgery rehabilitation represent the way in which the patients with gonarthrosis, in advanced stages, can enhance their quality of life.

The clinic and functional examination of the knee which suffered a total arthroplasty is a prerequisite condition in order to track the progress made by the patient, the kinetic program and the length of the milestones, the means and objectives of recovery being individually assessed based on these examinations. This examination allows a personalization of the means and objectives of recovery, based on each patient.

Periodical examinations are required before and after the total knee arthroplasty. Moreover, they have to be done before starting the next phase of the recovery and after the six months of recover as well.

The functional recovery in case of total knee arthroplasty has to be initiated as early as possible, due to the recovery protocol’s length of 6 months, split in three phases (acute, subacute and chronic).

The recovery protocol has as general objectives the following: preventing decubitus syndrome, countering pain, increasing the amplitude of motion and brawn and regaining functional independence.

To achieve this objectives, the physiotherapist has to focus on: cryotherapy, continuous passive mobilization with the help of the Kinetec, passive mobilization of the patella, anti-declivity postures, passive, active and active with a resistance mobilization in the ankle, knee and hip, isometric exercises at the level of quadriceps muscle, gluteus and hamstrings, exercises for posture and balance, active and passive stretching.

Studies show that after a year from the total knee arthroplasty, the pain vanishes and there are notable improvements at functional level, but with a deficit in strength and amplitude compared with the functionality of people with the same age, but without degenerative conditions.

Thus, the physiotherapist must instruct both the patient and the carrier regarding the continuity of physical therapy, regarding the behavior of conducting daily activities, of the general measures of transfer and in regards with the orthopedic hygiene of the knee.
Authors’ Contributions

All authors contributed equally to this study and should be considered as main authors.

References

A REHABILITATION PROTOCOL FOR ATHLETES DIAGNOSED WITH SHOULDER DISLOCATION

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Abstract. The purpose of this study was to design and implement a specific rehabilitation programme based on physical exercises adapted to individual particularities and needs, but also on massage, manual therapy, electrotherapy and Kinesiology (Kinesio) Taping. The programme aimed at the functional rehabilitation of the investigated subjects and indirectly their return and reintegration into sport activities in the shortest time possible. The research subjects were 30 male athletes diagnosed with shoulder dislocation, with ages ranging from 19 to 30 years. The sports practiced by the 30 subjects were: handball (10), tennis (8), shot put (6), swimming (4) and volleyball (2). Also, of the 30 subjects diagnosed with shoulder dislocation, 22 presented this condition at the right shoulder, and 8, at the left shoulder. The research was carried out over 8 months, namely from April 2018 to November 2018. The results of the research indicate that the rehabilitation programme has reached the proposed objectives, thus confirming the research hypothesis.

Keywords: kinesitherapy, shoulder dislocation, rehabilitation, athletes.

Introduction

Shoulder dislocation is a common injury especially in young athletes practicing repetitive overhead sports such as tennis or swimming, contact or collision sports such as wrestling or football, or some athletic events such as the shot put or javelin throw. In such sports, the shoulder joint is forced to exceed its physiological limits particularly during competition, which may result in severe injury (DeFroda et al., 2018).

The large amount of mobility of the shoulder joint allows powerful overhead movements, but puts the shoulder at risk of injury because of its inherently poor stability (Wilk, Meister, & Andrews, 2002). Therefore, a delicate balance between mobility and functional stability is required to prevent shoulder injury in athletes (Wilk et al., 2009).

Jaggi and Lambert (2010) claim that approximately 10% of all athletic injuries affect the shoulder, 96% of shoulder dislocations are caused by a traumatic event, and 4% are non-traumatic due to minor injury or repetitive use.

The pain, swelling, weakness and inability of the shoulder to move properly are important causes that hinder the athlete from participating in sports for up to 6 months. So, after the shoulder dislocation reduction and immobilization, several therapeutic methods are available.

Rehabilitation aims to reduce the muscular and proprioceptive restraints that prevent the shoulder joint from moving normally (Hayes et al., 2002).

Rehabilitation may facilitate return to sport within 3 weeks, but there is still a moderate risk of recurrence (Owens et al., 2012). However, the rate of recurrence is higher after primary anterior shoulder dislocation, considering that this is the most common direction of instability after a traumatic event (Kane et al., 2015).

A full rehabilitation programme for athletes with shoulder dislocation must include mobility, strengthening and functional or sports-specific exercises (Walden, 2019).

According to Hegg (2017), the rehabilitation process involves passive exercises (for regaining mobility of the arm), stretching exercises (that consist in gently rolling the shoulders forward and then backward), pendulum exercises (that consist in gently moving the arm backward and forward like a pendulum) and exercises with resistance bands (namely, flexion and abduction exercises that involve performing gentle movements against resistance).

Gaballah et al. (2017) conducted a study based on a 6-week physical rehabilitation programme using the elastic band and resistive exercise with progressive loads for athletes diagnosed with first-time shoulder dislocation. The evidence-based results showed that the programme has been effective for improving strength and range of motion in the injured shoulder, and therefore it can be successfully applied to athletes needing rehabilitation of the shoulder joint.

The current study

Premise. Kinesitherapy, associated with massage, manual therapy, electrotherapy and Kinesio Taping, has favourable effects on people diagnosed with shoulder dislocation.
Purpose. To establish and implement specific rehabilitation programmes adapted to individual particularities and needs, depending on the practiced sport and the type of dislocation, with a view to achieve functional rehabilitation and reintegrate the injured athlete into sport activities.

Objectives. To develop and implement rehabilitation protocols for people diagnosed with shoulder dislocation.

Tasks. To establish the objectives, select the group of subjects, perform the initial evaluation of subjects, record and summarise the data, implement specific rehabilitation programmes, perform the final evaluation of subjects, analyse and interpret the obtained data.

Hypothesis. The implementation of rehabilitation programmes adapted to individual particularities and needs in order to improve range of motion, muscle strength and muscle tone is very efficient for subjects diagnosed with shoulder dislocation.

Material and Methods

Participants

The research subjects were 30 male athletes diagnosed with shoulder dislocation, with ages ranging from 19 to 30 years. The sports practiced by the 30 subjects were: handball (10), tennis (8), shot put (6), swimming (4) and volleyball (2). Also, of the 30 subjects diagnosed with scapulohumeral dislocation, 22 presented this condition at the right shoulder, and 8, at the left shoulder.

Period and Location

The research was carried out over 8 months, from April 2018 to November 2018, at the Physiotherapy Hospital, Orthopaedics Department, in Bagdad (Iraq).

Evaluation

After the period of immobilisation of the damaged limb segment, an initial evaluation of the range of motion was performed in order to determine both the remaining functional potential and functional impotence. Range of motion was tested in both the initial phase and the final phase with the help of a classical goniometer, tracking the shoulder movements of flexion, extension, abduction, adduction, internal rotation and external rotation.

It is worth mentioning that, in normal conditions, the flexion movement reaches 180°, the extension movement reaches 60°, the abduction movement reaches 180°, the adduction movement reaches 90°, the internal rotation movement reaches 90°, and the external rotation movement reaches 80°.

As regards the therapeutic rehabilitation plan, it was divided into three phases, namely: 1. acute phase – weeks 0-4; 2. intermediate phase – weeks 5-8; 3. advanced strengthening phase – weeks 9-12.

Phase 1 aimed to decrease pain, reduce inflammatory processes and maintain muscle tone, muscle strength and range of motion, with the main precaution of forbidding the abduction movement associated with the external rotation movement and/or arm extension.

Phase 2 aimed to decrease pain, reduce inflammatory processes, improve joint stability, improve muscle tone, strengthen periscapular stabilisers and improve joint mobility.

Phase 3 aimed to establish full range of motion, improve joint stability, fully regain muscle strength, tone and endurance, as well as reintegrate athletes into sport activities.

To note that the literature claims that these phases do not have specific timetables and there are no clearly established demarcations when moving from one phase to the next; therefore, the programme progression is not time-based, but depends on the achievement of the evaluation goals (Austin et al., 2009).

The athlete is allowed to return to unrestricted sport activities after completing an appropriate rehabilitation programme and a successful clinical examination including full range of motion, strength, dynamic stability and neuromuscular control (Wilk, Macrina, & Reinold, 2006).

Rehabilitation Programme – Proposal

The three phases of the rehabilitation programme proposed by us for subjects diagnosed with shoulder dislocation are described below.

- Phase 1 – Description of the rehabilitation programme (weeks 1-4)
  1. Codman’s pendulums with no weight attached – 12 repetitions x 2 series
  2. Shoulder-blade retraction – 10 repetitions x 2 series
  3. Shoulders up-and-down – 12 repetitions x 2 series
4. Passive, passive-active, active-assisted and active-free shoulder mobilisation – flexion limited to 100°-130°, extension limited to 20°-30°, internal rotation limited to 60°, and external rotation limited to 30°
5. Facial therapy – IASTM (Instrument-Assisted Soft Tissue Mobilisation) – 5 minutes
6. Ultrasound – thermal and mechanical effect, 50 HZ – 5 minutes
7. Compex 8.0 – TENS (Transcutaneous Electrical Nerve Stimulation) programme – 20 minutes
8. Vacuum – 5 minutes
9. Tecar (Capacitive and Resistive Energy Transfer) (Indiba Active 7) – 5 minutes: capacitive energy transfer (40%), 10 minutes: resistive energy transfer (40%-70%), 5 minutes: capacitive energy transfer (21%)
10. Relaxation massage – cervical area; toning massage in the periscapular area – 15-20 minutes

Phase 2 – Description of the rehabilitation programme (weeks 5-8)
1. Arm flexion (150°), arm extension (35°), arm abduction (90°) with the gymnastics stick – 15 repetitions x 2 series
2. Arm flexion (150°), arm extension (35°), arm abduction (90°), arm internal rotation (80°), arm external rotation (70°) against the resistance of the elastic band – 15 repetitions x 2 series
3. Shoulder-blade retraction against the resistance of the elastic band – 15 repetitions x 2 series
4. Shoulder lifts with dumbbells (2 kg) in both hands – 15 repetitions x 2 series
5. Forearm flexion on the arm with dumbbell (2 kg) – 15 repetitions x 2 series
6. Forearm extension on the arm with dumbbell (2 kg) – 15 repetitions x 2 series
7. TRX (Total Resistance exercises), Forearm flexion on the arm – 15 repetitions x 2 series
8. TRX, Forearm extension on the arm – 15 repetitions x 2 series
9. TRX, Shoulder-blade retraction – 15 repetitions x 2 series
10. Codman’s pendulums – 15 repetitions x 2 series
11. Circular (circumduction) movements at the wall wheel – 10 repetitions x 2 series
12. Facial therapy – IASTM – 10 minutes
13. Ultrasound – thermal and mechanical effect, 75 HZ – 7 minutes
14. Vacuum – 7 minutes
15. Tecar (Indiba Active 7) – 6 minutes: capacitive energy transfer (40%), 12 minutes: resistive energy transfer (40%-80%), 6 minutes: capacitive energy transfer (40%)
16. Complex 8.0 – Muscle stimulation

Phase 3 – Description of the rehabilitation programme (weeks 9-12)
1. Codman’s pendulums (1 kg) – 15 repetitions x 2 series
2. Circular (circumduction) movements at the wall wheel – 15 repetitions x 2 series
3. Flexion, extension, abduction, adduction with the gymnastics stick – 15 repetitions x 2 series
4. TRX, Forearm flexion on the arm – 15 repetitions x 2 series
5. TRX, Forearm extension on the arm – 10 repetitions x 2 series
6. TRX, Arm flexion with extended elbows – 8 repetitions x 2 series
7. TRX, Arm abduction (90°) – 8 repetitions x 2 series
8. Circular (circumduction) movements with one hand on fitball – 15 repetitions x 2 series
9. Standing push-ups against the wall – 15 repetitions x 2 series
10. Kabat diagonals 1 and 2 (upper limb) – 12 repetitions x 2 series
11. Facial therapy – IASTM – 15 minutes
12. Ultrasound – thermal and mechanical effect, 100 HZ – 5 minutes
13. Compex 8.0 – muscular hypertrophy programme
14. Vacuum – 7 minutes
15. Tecar (Indiba Active 7) – 5 minutes: capacitive energy transfer (40%), 10 minutes: resistive energy transfer (40%-90%), capacitive energy transfer (40%)
Results

Table 1. Shoulder flexion movement – Descriptive and inferential data

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<thead>
<tr>
<th>Rehabilitation group</th>
<th>Initial testing (I)</th>
<th>Final testing (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Arithmetic mean</td>
<td>77.3°</td>
<td>175.5°</td>
</tr>
<tr>
<td>Difference (F-I)</td>
<td></td>
<td>98.2°</td>
</tr>
<tr>
<td>Median</td>
<td>80°</td>
<td>180°</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>5.5°</td>
<td>5.3°</td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>7.2%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Minimum</td>
<td>70°</td>
<td>165°</td>
</tr>
<tr>
<td>Maximum</td>
<td>85°</td>
<td>180°</td>
</tr>
<tr>
<td>Dependent t-test (I-F)</td>
<td>calculated t-value</td>
<td>76.726</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Regarding the flexion movement (Table 1), a positive evolution was found between initial and final testing. On average, there was an increase of 98.2°, from 77.3° to 175.2°; calculated t-value = 76.726, p = 0.000 (p < 0.05).

Table 2. Shoulder extension movement – Descriptive and inferential data

<table>
<thead>
<tr>
<th>Rehabilitation group</th>
<th>Initial testing (I)</th>
<th>Final testing (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Arithmetic mean</td>
<td>31.2°</td>
<td>48.0°</td>
</tr>
<tr>
<td>Difference (F-I)</td>
<td></td>
<td>16.8°</td>
</tr>
<tr>
<td>Median</td>
<td>30°</td>
<td>50°</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.4°</td>
<td>2.8°</td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>10.9%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Minimum</td>
<td>25°</td>
<td>40°</td>
</tr>
<tr>
<td>Maximum</td>
<td>35°</td>
<td>50°</td>
</tr>
<tr>
<td>Dependent t-test (I-F)</td>
<td>calculated t-value</td>
<td>19.123</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.000</td>
</tr>
</tbody>
</table>

For the extension movement (Table 2), a positive evolution was found between initial and final testing. On average, there was an increase of 16.8°, from 31.2° to 48°; calculated t-value = 19.123, p = 0.000 (p < 0.05).

Table 3. Shoulder abduction movement – Descriptive and inferential data

<table>
<thead>
<tr>
<th>Rehabilitation group</th>
<th>Initial testing (I)</th>
<th>Final testing (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Arithmetic mean</td>
<td>40.5°</td>
<td>176.3°</td>
</tr>
<tr>
<td>Difference (F-I)</td>
<td></td>
<td>135.8</td>
</tr>
<tr>
<td>Median</td>
<td>40°</td>
<td>180°</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.8°</td>
<td>4.7°</td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>9.4%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Minimum</td>
<td>35°</td>
<td>165°</td>
</tr>
<tr>
<td>Maximum</td>
<td>45°</td>
<td>180°</td>
</tr>
<tr>
<td>Dependent t-test (I-F)</td>
<td>calculated t-value</td>
<td>150.983</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Regarding the abduction movement (Table 3), a positive evolution was found between initial and final testing. On average, there was an increase of 135.8°, from 40.5° to 176.3°; calculated t-value = 150.983, p = 0.000 (p < 0.05).
Table 4. **Shoulder adduction movement – Descriptive and inferential data**

<table>
<thead>
<tr>
<th>Rehabilitation group</th>
<th>Initial testing (I)</th>
<th>Final testing (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Arithmetic mean</td>
<td>19.8°</td>
<td>33.8°</td>
</tr>
<tr>
<td>Difference (F-I)</td>
<td>14.0°</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>20°</td>
<td>35°</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.3°</td>
<td>2.2°</td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>16.9%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Minimum</td>
<td>15°</td>
<td>30°</td>
</tr>
<tr>
<td>Maximum</td>
<td>25°</td>
<td>35°</td>
</tr>
<tr>
<td>Dependent t-test (I-F)</td>
<td>calculated t-value</td>
<td>21.468</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.000</td>
</tr>
</tbody>
</table>

For the adduction movement (Table 4), a positive evolution was found between initial and final testing. On average, there was an increase of 14.0°, from 19.8° to 33.8°; calculated t-value = 21.468, p = 0.000 (p < 0.05).

Table 5. **Shoulder internal rotation – Descriptive and inferential data**

<table>
<thead>
<tr>
<th>Rehabilitation group</th>
<th>Initial testing (I)</th>
<th>Final testing (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Arithmetic mean</td>
<td>42.0°</td>
<td>89.7°</td>
</tr>
<tr>
<td>Difference (F-I)</td>
<td>47.7°</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>40°</td>
<td>90°</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>2.5°</td>
<td>3.5°</td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>5.9%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Minimum</td>
<td>40°</td>
<td>85°</td>
</tr>
<tr>
<td>Maximum</td>
<td>45°</td>
<td>95°</td>
</tr>
<tr>
<td>Dependent t-test (I-F)</td>
<td>calculated t-value</td>
<td>58.047</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Regarding the internal rotation movement (Table 5), a positive evolution was found between initial and final testing. On average, there was an increase of 47.7°, from 42.0° to 89.7°; calculated t-value = 58.047, p = 0.000 (p < 0.05).

Table 6. **Shoulder external rotation – Descriptive and inferential data**

<table>
<thead>
<tr>
<th>Rehabilitation group</th>
<th>Initial testing (I)</th>
<th>Final testing (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Arithmetic mean</td>
<td>43.8°</td>
<td>77.8°</td>
</tr>
<tr>
<td>Difference (F-I)</td>
<td>34.0°</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>45°</td>
<td>80°</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>3.9°</td>
<td>2.5°</td>
</tr>
<tr>
<td>Coefficient of variation</td>
<td>8.8%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Minimum</td>
<td>40°</td>
<td>75°</td>
</tr>
<tr>
<td>Maximum</td>
<td>50°</td>
<td>80°</td>
</tr>
<tr>
<td>Dependent t-test (I-F)</td>
<td>calculated t-value</td>
<td>48.934</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.000</td>
</tr>
</tbody>
</table>

As regards the external rotation movement (Table 6), a positive evolution was found between initial and final testing. On average, there was an increase of 34.0°, from 34.8° to 77.8°; calculated t-value = 48.934, p = 0.000 (p < 0.05).

**Conclusions**

After applying the proposed rehabilitation programme to people diagnosed with shoulder dislocation, it has been found an increase of 77.3° in the range of motion for the flexion movement, an increase of 16.8° in the range of motion for the extension movement, an increase of 40.5° in the range of motion for the abduction movement, an
increase of 14.0° in the range of motion for the adduction movement, an increase of 47.7° in the range of motion for the internal rotation movement and an increase of 34° in the range of motion for the external rotation movement.

We can conclude that kinesitherapy exercises, combined with massage, electrotherapy, manual therapy and Kinesio Taping, have led to the efficient rehabilitation of people diagnosed with shoulder dislocation.

The obtained results have validated the statistical data, thus confirming the research hypothesis.

References
BOCCE – SPORT DISCIPLINE PRACTISED BY THE MENTAL DISABLED PERSONS IN ROMANIA

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Abstract. Bocce is a sport game at which the driving ball towards the target is made by the launch. Nowadays, it is practised by many people both as a spare time activity and sport activity, too. This sport may be practised by the mental disabled persons, too because the motor abilities are very simple and the effort requested by playing is not intensive. In Romania, this sport discipline has been practised by the mental disabled persons since 2005 when the Special Olympics Romania Foundation organized a bocce competition into the Special Olympics Friendship Game. This paper proposed to present the development of the bocce games in our country. The analyse was based on the data from the bocce sport competitions organised between 2005 – 2018 and the information from the international competitions which the Romanian mental disabled athletes attended – World and European Summer Special Olympics Games. For that analyse we used the documentation, study case, mathematical and graphic methods. After our study, we could claim that at least a bocce competition was organized every year in Romania. That aspect was based both on the developing efforts that the Romania Special Olympics Foundation has realised since 2005 up to the present and because of the simple motor abilities which are very easy to be practised by the mental disabled persons. At the same time, the athletes from all our country had accessed at the bocce sport competitions because they were organized in different towns in Romania where an important athletes number attended.

Keywords: bocce, sport discipline, national and international competitions.

Introduction

Since ancient times, the game was used as a means of the education as it was practised by children and teenagers especially. The adults practised different games too, but they were integral parts of different specific rituals of the local community (Bota, 2006, p. 28). Nowadays, the game has become a popular activity which is practised both by children and adults, by persons who have different level of the motor abilities, by disabled and non disabled persons.

The launch of a ball is the oldest game known by mankind (Pagnoni, 2010, p. 6; World Bowls – WB, 2015). The Ancient Greeks learnt it from the Egyptians and spread it to Ancient Rome (Pagnoni, 2010, p. 7) from where the game was spread in to all the provinces governed by the Romans. In time, the initial game developed and every region in which the game was practised adapted it. At present, the launch of the ball is practised in different sports games (bowling, bocce, bocia, bowls, petanque, curling, a.o.) which have the characteristics of the sport games mentioned by the Colibaba-Evuleţ and Bota (1998, p. 12): the existence of the game object, the character of the complex competition, the uniformity and compulsory play rules, the strict rules in connection with the time of the game, official arbitration, a.o.

Bocce is a sport game which joins the games where the drive of the ball towards the target is realised with the help of the percussion, thrust or impact / launch (Colibaba-Evuleţ & Bota, 1998, p. 13). Nowadays, it is practised on a large scale both as a spate time activity and sport activity, too. This sport discipline is practised by the mental disabled athletes because the bocce motor abilities are easy and the requested effort is minimum. Moreover, this sport discipline is part of the timetable of the summer competitions.

The practiced of this sport discipline by the mental disabled athletes in Romania has appeared since 2005 when the Romania Special Olympics Foundation (RSOF) organised a bocce competition at the Friendship Games in Constanta. Since that competition, the bocce sport discipline has begun to spread all over Romania and is practised in different areas of the country: Bucharest, Oradea, Baia Mare, Targoviste, Tg. Mures, Bacau, Constanta, a.o.

An important support for this development has and has had the RSOF which has organised the bocce competitions into the local, regional and national sport events. At the same time, RSOF has supported its practice and the attendance of the athletes teams at the both European Games and World Summer Special Olympics Games since 2006.
Topic addressed

Target: our paper proposed to realise a presentation of the development of the bocce games in Romania on the basis of the information about the bocce competitions organised between 2005 – 2018 and the attendance of the mental disabled athletes at the international competitions - World Summer Special Olympics Games and European Games. Therefore, the research methods used were:

- documentation method permitted us to scan the hard and soft documents realised by the RSOF since 2005 and thus we could be informed about the sport competitions organised between 2005 – 2018 and the international sport events at which the Romanian mental disabled athletes attended;
- study case method permitted us to know much better (Epuran, 2005, p. 199) the bocce events organised by the RSOF both at the local, region and national competitions and the international level at which Romania attended;
- mathematics method permitted us to realise a quantitative study (Epuran, 2005, p. 116) for the bocce competitions organised and for the attendance of the athletes in the international sport competitions. At the same time, it was facilitated us to be able to use the graphic method to realise the quantitative data.

Aspects of the bocce practise

The sport events at which official bocce competitions organised in Romania (at the local, region and national level) are shown for underlining the development of the bocce game. At the same time, we presented the international sport events at which bocce Romanian mental disabled teams attended.

1. the bocce sport competitions organised at the local, region, national and international level in Romania:

- Special Olympics Friendship Games, organised in Constanta on the 25 – 27 September 2005. At this event the first bocce competition was organised in Romania at which the athletes from 9 countries attended. The Peace Corps Volunteers were impressed by the activity organised and, especially, by the special need athletes’ activity which showed the good qualities of the disabled persons for the bocce game (Buletin informativ - Bi, 2005, p. 4);
- Bocce National Tournament organised at Medias on the 6 – 7 August 2007. At that event attended more than 30 mental disabled athletes (Raport anual - Ra, 2007, p. 7);
- Special Olympics National Games organised in Constant on the 15 May 2008. At that event more that 300 athletes attended the bocce and track and field competitions (Ra, 2008, p. 8);
- a regional bocce competition was organised in Oradea on the 26 June 2008. At that event 40 athletes from 6 towns in the western part of Romania attended (Ra, 2008, p. 11);
- Special Olympics National Games organised at Buzau on the 3 – 6 June 2009. At that event 375 athletes attended. They competed in assisted football, unified football, assisted basketball and bocce (Ra, 2009, p. 8);
- Eunice Kennedy Shriver International Day organised in Bucharest on the 25 September 2010. At that sport event 60 athletes attended who completed in basketball, football and bocce sport disciplines (Ra, 2010, p. 16);
- Special Olympics National Games organised in Bucharest on the 4 – 7 June 2011. At that event 300 mental disabled athletes attended from 24 Romanian counties and from Bucharest, too. They competed in four sport discipline: track and field, bocce, swimming and gymnastics (Ra, 2012, p. 3);
- Special Olympics Regional Games organised in Cluj-Napoca on the 27 – 28 October 2011. At that event 140 athletes from the western part of Romania attended who competed in two sport disciplines: swimming and bocce (Ra, 2012, p. 3);
- Special Olympics Regional Games organised in Bacau on the 9 – 11 November 2011. At that event 120 athletes who competed in bocce, assistive swimming and swimming (Ra, 2012, p. 3);
- Special Olympics National Games organised in Iasi on the 1 – 4 June 2012. At that event 300 mental disabled athletes. The sport competition had three sport disciplines: track and field, bocce and swimming (Ra, 2012, p. 9);
- Eunice Kennedy Shriver International Day organised in Bucharest on the 22 September 2012. At that sport event 150 mental disabled and non-disabled athletes attended. They showed their motor abilities in more sport classes. Bocce was one of them where athletes competed in team competition (Ra, 2012, p. 14);
- Special Olympics Regional Games organised in Timisoara on the 8 – 10 October 2012. At that sport event 120 athletes attended. The organizing team offered the athletes following sport disciplines for competing in: gymnastics – utility motor abilities line, assistive swimming, swimming and bocce (Ra, 2012, p. 16);
- Special Olympics Regional Games organised in Ploiesti on the 7 – 8 November 2012. At that event 165 athletes who competed in gymnastics and bocce competitions (Ra, 2012, p. 17);
- Special Olympics National Games organised in Cluj-Napoca on the 31 May – 3 June 2013. At that event 300 athletes who competed in track and field, bocce and swimming (Ra, 2013, p. 12);
• Special Olympics Regional Games organised in Targoviste on the 13 – 14 November 2013. At that sport event 180 athletes attended. The sport disciplines at which they competed in gymnastics – utility motor abilities line, badminton, bocce and swimming (Ra, 2013, p. 14);
• Special Olympics National Games organised in Craiova on the 6 – 9 June 2014. The athletes (300 mental disabled persons) who attended track and field, bocce, badminton and swimming (Ra, 2014, p. 27);
• Special Olympics Regional Games organised in Oradea on the 22 – 23 October 2014. At that sport event 150 athletes attended. They competed in three sport disciplines: swimming, badminton and bocce (Ra, 2014, p. 31);
• Special Olympics Local Games organised at Calarasi on the 5 March 2014. At that sport competition 100 athletes attended. The sport disciplines at which they competed in were: gymnastics – utility motor abilities line, badminton and bocce (Ra, 2014, p. 32);
• Special Olympics Local Games organised in Brasov on the 5 November 2014. At that sport competition 80 athletes attended. They competed in gymnastics, badminton and bocce (Ra, 2014, p. 38);
• Special Olympics National Games organised in Targu-Mures on the 29 May – 1 June 2015. At the sport event 300 athletes attended. The sport disciplines at which they competed in were gymnastics – utility motor abilities line, bocce, badminton and swimming (Ra, 2015, p. 39);
• Special Olympics National Games organised in Arad on the 27 – 29 May 2016. At the sport event 300 athletes attended and competed in track and field, badminton, bocce and swimming (Ra, 2016, p. 11);
• Eunice Kennedy Shriver International Day organised in Bucharest on the 24 September 2016. At that sport event 100 athletes attended who competed in basketball, badminton, bocce, archery, aerobic gymnastics – Zumba (Ra, 2016, p. 13);
• Special Olympics National Games organised in Baia Mare on the 2 – 5 June 2017. At the sport event 310 athletes. They competed in four sport disciplines: track and field, bocce, swimming and basketball (Ra, 2017, p. 10);
• Eunice Kennedy Shriver International Day organised in Bucharest on the 21 September 2017. At that sport event 125 athletes attended. The sport disciplines at which sport competitions were organised were aerobic gymnastics, badminton, bocce and basketball (Ra, 2017, p. 14);
• Special Olympics National Games organised in Targoviste on the 25 – 28 May 2018. At the sport event 300 athletes attended. They competed in four sport disciplines: swimming, track and field, basketball and bocce (Ra, 2018, p. 8).

2. International sport events at which Romania attended with an athletes team in bocce competition

• Special Olympics European Youth Games organised in Roma on the 30 September – 5 October 2006. At that event 1400 mental disabled athletes attended. They were from 57 National Special Olympics Programme from Europe and Euroasia. The Romania team was made up of 29 athletes who attended gymnastics, basketball, unified football and bocce (Bi, 2006, p. 1);
• World Summer Special Olympics Games organised in Shanghai (China) on the 2 – 11 October 2007. At that event 7000 athletes from all over the world attended. Romania team was made up of 40 athletes who competed in football, unified basketball, track and field, gymnastics, bocce and table tennis (Bi, 2007, p. 5);
• National Summer Special Olympics Games organised in Germany – Karlsruhe on the 16 – 20 June 2008. At that event 3000 athletes attended. Romania team was made up of 8 athletes who competed in two sport discipline: track and field and bocce (Ra, 2008, p. 5);
• Old Ways towards New Roads organized in Italy – Sant’Antioco by the Italy Special Olympics Foundation on the 30 August – 6 September 2008. At the bocce competition two athletes from Romania attended (Ra, 2008, p. 6);
• Bocce European Tournament organised in Italy – Lodi on the 30 March – 5 April 2009. At the sport competition 160 athletes from 19 countries attended. The Romania team was made up of 6 athletes (Ra, 2009, p. 5);
• Old Ways towards New Roads organized in Italy – Sant’Antioco by the Italy Special Olympics Foundation on the 12 - 19 September 2009. At the bocce competition Romania team was made up of 4 athletes who competed in swimming, football and bocce competitions (Ra, 2009, p. 6);
• World Summer Special Olympics Games organised in Athena (Greece) on the 20 June – 5 July 2011. At that sport event 7000 athletes from 180 countries from all over the world attended. The Romania team obtained 21 medals at the follow sport disciplines: track and field, unified basketball, unified football, bocce, gymnastics and table tennis (Ra, 2012, p. 2);
• Summer European Special Olympics Games organised in Antwerp (Belgium) on the 9 – 20 September 2014. At that sport event 2000 athletes attended. They competed in ten sport disciplines. The Romania team had 4 athletes in the bocce competition (Ra, 2014, p. 22);
- World Summer Special Olympics Games organised in Los Angeles (USA) on the 25 July – 2 August 2015. At that sport event 6500 athletes from 170 countries attended. They competed in 25 sport disciplines. The Romania team had a pair (a girl and a boy) of mental disabled athletes which attended the bocce competition (Ra, 2015, p. 31).

Results

We arrived at the following results after we analysed the information:

![Figure 1](image1.png)

**Figure 1.** The number of the competitions at which bocce sport discipline was presented between 2005 – 2018 (according to Bi, 2005 – 2006 and Ra 2007 – 2018)

In Figure 1 we observe that more bocce competitions were organised at the national level since when bocce game was practised in Romania (14 years). At the same time, Romanian mental disabled athletes were presented at the 9 international bocce competitions.

![Figure 2](image2.png)

**Figure 2.** The towns in which bocce competitions were organised (according to Bi, 2005 – 2006 and Ra 2007 – 2018)

After analysed the Figure 2 it was observed that bocce competitions were organised all over Romania, 17 towns lodged at least one bocce sport events.
Figure 3. International sport events at which the Romanian athletes attended bocce competitions
(according to Bi, 2005 – 2006 and Ra 2007 – 2018)

The attendances of the athletes’ delegations at the great and important international sports competitions (Figure 3) organised both in the European area and on other continents confirmed that bocce games were practised in Romania.

Conclusions

On the bases of the data that we had we concluded that:

• bocce sport discipline is a sport game practised by the mental disabled persons as at least one competition is organised every year in Romania. This aspect is possible because the efforts that the RSOF has done to promote it during the years. At the same time, the interest for its practice it is due to the simple motor abilities which are requested by the practising of this game which is very easy to be practiced by the mental disabled athletes;

• at the sport competitions organised in the country, many mental disabled athletes were involved. This aspect is due to the organising of the sport events in different towns all over Romania at which the athletes from that area had access on a large scale.

Authors’ Contributions

The study was realised through the contributions of all the authors. From this cause, all have the quality of the first author.

Acknowledgements

The presented paper is an integral part of the project Erasmus+Sport Project – Sport together, active forever (590526-EPP-1-2017-1-RO-SPO-SSCP), project co-financed by the European Union. The content of the paper reflects only the author’s view and that Agency and the Commission are not responsible for any use that may be made of the information it contains.

We mention that we had the agreement of the Romania Special Olympics Foundation (RSOF) to take and analyse the data in connection with the bocce competitions organised in Romania and the information linked with the international sport events at which Romanian mental disabled athletes had attended since 2005 up to 2018. The authors of this articles thank the RSOF for its support and for the materials that offered.

References


STUDY ON RELATIONSHIP BETWEEN SELF-ESTEEM AND LEISURE ACTIVITIES IN TEENAGE SPORTSMEN

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Abstract. In this research we analyzed the relationship between self-image and leisure activities, their influence in adolescent who practice sports. Participants of the research are students from Mihai I Railway Technical College in Bucharest: 24 volleyball players (13 male, and 11 females), 26 footballers (18 males, and 8 females). The research was conducted in February 2019. As essential features of the method of research we have elaborated a questionnaire with 11 questions regarding time dedicated to leisure activities, the main reasons why students practice a particular sport, if the family environment was a defining factor in choosing the practice of that sport, as well as occupation that would give them the most professional satisfaction. We also used a 10 items questionnaire about the level of self-esteem developed by Rosenberg. Practicing exercises in various forms can be a sure source to maintain a psychosomatic balance for high school students. Social media has led emergence of new occupations which can be attractive for young people want to have after completing their studies, such as: cryptomonas miner, freelancer, blogger, vlogger. Main results aim to see which are the differences between adolescent football players and adolescent volleyball players regarding leisure activities, main reasons for practicing sports activities, future occupations, level of self-esteem in a society where internet, social networks, and mass media tend to occupy more and more a place in within students activities.

Keywords: students, leisure activities, sports, self-image, occupations.

Introduction

The purpose of our research is to see which are the differences between adolescent football players and adolescent volleyball players regarding leisure activities, which are the main reasons for practicing sports activities, future occupations, level of self-esteem in a society where internet, social networks, and mass media tend to occupy more and more a place in within students activities.

Epuran (2013, p. 329), speaking of leisure time as being a compensation for work and stress of life, a time when man does what he wants, including recreational physical activity and development. He also mentions the benefits of these activities: leisure time contributes to development (complementary to what is necessary for the profession), relaxation (with physical and psychological therapeutic effects), physical and mental pleasure by being active. So men achieves, through leisure time, a spiritual well-being accompanied by social and personal fulfillment.

Formation of a free time culture is a necessity by the fact that the activities carried out during this time can contribute to the formation of the personality, the solving of the social requirements and, last but not least, the impact of the unusual and inappropriate use of leisure time, especially on children and adolescents.

Teodoru emphasizes on the major changes that have happen in the Romanian society at the level of the social system. *“We note that Romania has gone through a long transition period and at this moment we can see that there have been important transformations in the economic, political, service, trades, education, family, which led to the emergence of a new societies. As far as the family is concerned, parents are interested about the leisure time of children, especially for those up to the age of 12 to 15’” (2018, p. 103).

The choice of free time activities depends on many variables, including social offer, status, cultural level, financial level, etc., which are factors that make the difference, for example, between those sitting on the bench in front of the court and those who go to theater, opera or hot countries. The educational factor is most important in the psychological development and formation of the human personality. The psychic development of man cannot be understood in its fullness if one does not take into consideration one of the basic psycho-behavioral dimensions of the personality - the play and the recreational and entertaining activities.

The term leisure comes from the Latin “licere” and signifies “what is permitted”. It is a part of time that someone can use, besides ordinary occupations, a spare time to create pleasure. In English, the term sounds leisure, and today it has become a universal program of human integration through interdisciplinary, cause and goal of diverse structures. In Romanian, the term comes from the French language of the adverbial loisir, which means "freedom, an unlimited time, a leisure time”.

Iacob and Iacob (2005, p. 45) see sports in leisure time as a manifestation of the life of a cultural human being that adapts strictly biologically to the deep play of the immense integration due to the movement.

Relating to teenagers, Zamfir and Vlaseanu (1993, p. 634) argue that competitive and recreational activities receive sports and leisure accents for adolescents. This makes free time a defining component of contemporary...
civilization, having a particular influence on economic and social development. The teenagers want performance and success, so they manifest the desire to know beyond their simple practice for the sports that attract them.

Games are considered by most psychologists as an activity characteristic of childhood growth. As is known, however, games accompany the whole evolution of man to old age; even if their manifestations change, the main characteristics are preserved, giving each age a particular flavor, responding specifically to natural and permanent human and natural needs and tendencies. Adolescence is the most complex age, precedes youth, which represents the fulfillment of the human personality.

Cârstea (1995, p. 143) quotes Weber regarding to “the two notions of "time and free" that make up the concept of free time express a certain amount of time in human life. In other words, free time is that period of life when the individual frees himself from any obligations and is free to choose certain activities or concerns (or free to have no concern)”.

Relating to the concept of self-image, Epuran (1976, p. 70) claims that it is dynamic in time as both structure and depth, given the successive passage of the years and the corresponding maturation it determines, as well as multiple and varied social influences.

Material and methods

Research Methods used: method of documentation, study of literature, observation, statistic-mathematical data analysis and interpretation, the graphic method. Were applied 2 questionnaires regarding time spent on leisure activities and a ten-item Likert type Scale: Self-esteem scale developed by the sociologist Morris Rosenberg. The research was addressed to 50 adolescents who practice football or volley-ball and who study in Mihai I College from Bucharest. The present research was conducted in February 2019. The answers were anonymous and targeted closed and open questions. The number of subjects used in the present research was 50 adolescents: 19 female, and 31 male, with age 16-18.

Results

Data obtained was analyzed, processed statistically and presented through the tables. Results and conclusions were drafted based on the findings analyzed through Microsoft Office Excel.

Table 1. The level of self-esteem related to sports practiced

<table>
<thead>
<tr>
<th>Sports</th>
<th>Number of athletes</th>
<th>Average level of self-esteem</th>
<th>High level of self-esteem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Football</td>
<td>26</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Volley-ball</td>
<td>24</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>Total= football + volley-ball</td>
<td>Total football + volley-ball</td>
</tr>
</tbody>
</table>

Regarding the level of self-esteem, in relation to the sports practiced by the participants in the study, we find that football and volleyball players have at least a medium level of self-esteem. Most of these participants have a high level of self-esteem (28 out of 50 participants).

Table 2. Level of self-esteem related to gender

<table>
<thead>
<tr>
<th>Gender Football + Volley-ball</th>
<th>Average level of self-esteem</th>
<th>High level of self-esteem</th>
</tr>
</thead>
<tbody>
<tr>
<td>F (n=19)</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>M (n=31)</td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

Regarding the level of self-esteem in relation to gender, we find that most female subjects have a high self-esteem (13 of 19 sports). In male subjects, the difference between athletes with an average self-esteem compared to those with high self esteem is only 1 subject. We can say that, in the present case, in adolescents participating in
this study, the practice of sports (football, volleyball) can influence the emergence of a high level of self-esteem only in terms of female subjects.

Table 3. Leisure activities related to male gender

<table>
<thead>
<tr>
<th>Leisure activities for male gender (n= 31)</th>
<th>Sum</th>
<th>Average</th>
<th>Ranking (1- most used activity, 8- least used activity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practicing sports activities (outside physical education classes)</td>
<td>97</td>
<td>3,13</td>
<td>1</td>
</tr>
<tr>
<td>Meeting with friends</td>
<td>99</td>
<td>3,19</td>
<td>2</td>
</tr>
<tr>
<td>Using social networks (facebook, instagram, whats app, etc)</td>
<td>108</td>
<td>3,48</td>
<td>3</td>
</tr>
<tr>
<td>Listening to music</td>
<td>118</td>
<td>3,81</td>
<td>4</td>
</tr>
<tr>
<td>Playing on computer or on the phone</td>
<td>129</td>
<td>4,16</td>
<td>5</td>
</tr>
<tr>
<td>Watching TV shows / movies</td>
<td>150</td>
<td>4,84</td>
<td>6</td>
</tr>
<tr>
<td>Reading books</td>
<td>190</td>
<td>6,13</td>
<td>7</td>
</tr>
<tr>
<td>Participating in cultural activities (theater, opera, concerts, cinema)</td>
<td>217</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

Concerning leisure activities related to male gender we find that these are the same as the average obtained by the 50 teenagers who have accepted to be part of this research.

Table 4. Leisure activities for female gender

<table>
<thead>
<tr>
<th>Leisure activities for female gender (n= 19)</th>
<th>Sum</th>
<th>Average</th>
<th>Ranking (1- most used activity, 8- least used activity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing on computer or on the phone</td>
<td>66</td>
<td>3,47</td>
<td>1</td>
</tr>
<tr>
<td>Using social networks (facebook, instagram, whats app, etc)</td>
<td>68</td>
<td>3,58</td>
<td>2</td>
</tr>
<tr>
<td>Watching TV shows / movies</td>
<td>72</td>
<td>3,79</td>
<td>3</td>
</tr>
<tr>
<td>Meeting with friends</td>
<td>74</td>
<td>3,89</td>
<td>4</td>
</tr>
<tr>
<td>Practicing sports activities (outside physical education classes)</td>
<td>75</td>
<td>3,95</td>
<td>5</td>
</tr>
<tr>
<td>Listening to music</td>
<td>81</td>
<td>4,26</td>
<td>6</td>
</tr>
<tr>
<td>Reading books</td>
<td>114</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Participating in cultural activities (theater, opera, concerts, cinema)</td>
<td>135</td>
<td>7,11</td>
<td>8</td>
</tr>
</tbody>
</table>

With respect to female respondents, we notice that computer, phone and the Internet occupy an important place in adolescent’s life. Sports activities are in the middle of the ranking for female gender. So, we notice important differences regarding leisure activities related to gender.

Table 5. Leisure activities related to sports practiced

<table>
<thead>
<tr>
<th>Leisure activities related to sports practiced:</th>
<th>Total score Football (n= 26)</th>
<th>Average Football (1- most used activity, 8- least used activity)</th>
<th>Total score Volleyball (n= 24)</th>
<th>Average Volley-ball (1- most used activity, 8- least used activity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting with friends</td>
<td>77</td>
<td>2,96 (I)</td>
<td>96</td>
<td>4 (III)</td>
</tr>
<tr>
<td>Participating in cultural activities (theater, opera, concerts, cinema)</td>
<td>81</td>
<td>3,12 (II)</td>
<td>91</td>
<td>3,79 (II)</td>
</tr>
<tr>
<td>Using social networks (facebook, instagram, whats app, etc)</td>
<td>90</td>
<td>3,46 (III)</td>
<td>86</td>
<td>3,58 (I)</td>
</tr>
<tr>
<td>Playing on computer or on the phone</td>
<td>95</td>
<td>3,65 (IV)</td>
<td>100</td>
<td>4,17 (VI)</td>
</tr>
<tr>
<td>Watching TV shows / movies</td>
<td>125</td>
<td>4,81(VI)</td>
<td>97</td>
<td>4,04 (IV)</td>
</tr>
</tbody>
</table>
Athletes who practice football and those who play volleyball prefer the same activities, but the ranking is slightly different: football players prefer to meet with friends (offline), and the volleyball players prefer to socialize online, via Facebook, Instagram, Whatsapp etc.

Table 6. Time calculated in hours / week dedicated to leisure activities

<table>
<thead>
<tr>
<th>Leisure activities</th>
<th>Hours/week</th>
<th>Average</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing on computer or on the phone</td>
<td>899</td>
<td>17.98</td>
<td>I</td>
</tr>
<tr>
<td>Using social networks (Facebook, Instagram, WhatsApp, etc)</td>
<td>874</td>
<td>17.48</td>
<td>II</td>
</tr>
<tr>
<td>Meeting with friends</td>
<td>815</td>
<td>16.3</td>
<td>III</td>
</tr>
<tr>
<td>Listening to music</td>
<td>648</td>
<td>12.96</td>
<td>IV</td>
</tr>
<tr>
<td>Practicing sports activities (outside physical education classes)</td>
<td>439</td>
<td>8.78</td>
<td>V</td>
</tr>
<tr>
<td>Watching TV shows / movies</td>
<td>278</td>
<td>5.56</td>
<td>VI</td>
</tr>
<tr>
<td>Reading books</td>
<td>98</td>
<td>1.96</td>
<td>VII</td>
</tr>
<tr>
<td>Participating in cultural activities (theater, opera, concerts, cinema)</td>
<td>54</td>
<td>1.08</td>
<td>VIII</td>
</tr>
<tr>
<td>Total number of hours/week spent on leisure activities</td>
<td>4105/50 = 82.1 hours/week</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Regarding the time spent in hours dedicated to leisure activities per week, we find that almost 18 hours a week are allocated to computer or telephone games (17.98h) and social networking (17.48h). In the top 3, there is socialization dealing with friends (16.3h/week). Less than 2 hours per week are allocated reading books (1.96h) and participation in cultural activities (1.08h).

Table 7. The presence of someone in the family who practices sports

<table>
<thead>
<tr>
<th>With relatives who practice sports</th>
<th>No relatives who practice sports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male gender</td>
<td>Female gender</td>
</tr>
<tr>
<td>23</td>
<td>14</td>
</tr>
<tr>
<td>n = 37 (74%)</td>
<td>n = 13 (26%)</td>
</tr>
</tbody>
</table>

Regarding the existence of another family member who was or still is athletes, most of the participants (37 out of 50) say that in their family, at least one person has practiced or still practices a sport, which makes us affirm that the existence of a member of the family who is an athlete may influence the appearance of another member to practice sports.

If we assume that participants in this study have correctly estimated these time periods and if we imagine that they sleep on average 8 hours per night (56 hours in total), stay at high school on average 30 hours per week, and allocate leisure time 82.1 hours. If we sum up the duration of these activities, we get a total of 168.1 hours per week. Sharing 168.1 hours / 7 days a week, we get a total of 24.01 hours.

Table 8. The influence on the choice to practice sport

<table>
<thead>
<tr>
<th>The influence on the choice to practice sport (n= 50)</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Someone in the family</td>
<td>31</td>
</tr>
<tr>
<td>I appreciate a famous athlete</td>
<td>8</td>
</tr>
<tr>
<td>I have friends who practice this sport</td>
<td>5</td>
</tr>
<tr>
<td>A teacher</td>
<td>3</td>
</tr>
<tr>
<td>Nobody, my choice belongs to me</td>
<td>3</td>
</tr>
</tbody>
</table>
Regarding the item about the influence of the choice of practicing sport, item to which we used 5 variants, most of the participants in this study (62%) say that they were influenced by someone in the family regarding the decision to practice sports. We can analyze these answers also because the age at which they started practicing sports (football or volleyball) was small, averaging 6.86 years (= the sum of the 343/50 respondents).

Table 9. Reasons to practice sports

<table>
<thead>
<tr>
<th>Reasons to practice sports (n= 50)</th>
<th>Sum</th>
<th>Average</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be in shape</td>
<td>272</td>
<td>5.44</td>
<td>I</td>
</tr>
<tr>
<td>To be appreciated</td>
<td>294</td>
<td>5.88</td>
<td>II</td>
</tr>
<tr>
<td>To have a good health</td>
<td>297</td>
<td>5.94</td>
<td>III</td>
</tr>
<tr>
<td>To become a famous athlete</td>
<td>343</td>
<td>6.86</td>
<td>IV</td>
</tr>
<tr>
<td>To be part of a sports group</td>
<td>349</td>
<td>6.98</td>
<td>V</td>
</tr>
<tr>
<td>To exceed my limits</td>
<td>351</td>
<td>7.02</td>
<td>VI</td>
</tr>
<tr>
<td>Balance</td>
<td>380</td>
<td>7.6</td>
<td>VII</td>
</tr>
<tr>
<td>To meet new people</td>
<td>381</td>
<td>7.62</td>
<td>VIII</td>
</tr>
<tr>
<td>To have a better view of me</td>
<td>386</td>
<td>7.72</td>
<td>IX</td>
</tr>
<tr>
<td>To relax myself</td>
<td>396</td>
<td>7.92</td>
<td>X</td>
</tr>
<tr>
<td>To meet with friends</td>
<td>397</td>
<td>7.94</td>
<td>XI</td>
</tr>
<tr>
<td>To get better rest</td>
<td>425</td>
<td>8.5</td>
<td>XII</td>
</tr>
<tr>
<td>To consume my energy</td>
<td>456</td>
<td>9.12</td>
<td>XIII</td>
</tr>
<tr>
<td>To get sports titles</td>
<td>543</td>
<td>10.86</td>
<td>XIV</td>
</tr>
</tbody>
</table>

Concerning the reasons for practicing sport, we find that the first three places are: the desire to be in shape, the desire to be appreciated as an athlete and the desire to have a good health. The desire to get better rest, to consumpt the energy, sports titles are the last places in the top of the reasons why the participants in the study practice sports.

It was not possible to make a statistic regarding the future job that these teenagers want because of the large number of people who did not respond to this item. We note, among those who have given an answer to this question, the following occupations that teens want, not all of them are in relation with sports, so not all of them think of a career in sports: a famous hairdresser, referee, football player, policemen, coach, company director, teacher, kinetotherapist, fitness instructor, volleyball player, nurse, engineer, race pilot.

Conclusions

Regarding the level of self-esteem in relation to gender, we find that most female subjects have a high self-esteem (13 of 19 sports). In male subjects, the difference between athletes with an average self-esteem compared to those with high self esteem is only 1 subject. In the present case, in adolescents participating in this study, the practice of sports (football, volleyball) can influence the emergence of a high level of self-esteem only in terms of female subjects. So, practicing physical activities and sports can influence the appearance of at least an average level of self-esteem. Having an optimum level of self-esteem, helps being confident in yourself, you can accomplish your goals, you are able to act in an appropriate manner in important situations and you can more easily manage stressful situations.

Adolescents who participated on this study reserve a lot of time for internet and phone, almost 18 hours per week are allocated to computer or telephone games (17.98h) and social networking (17.48h). So they spend more than 35 hours per week on internet. In the top 3, there is socialization dealing with friends (16.3 h/ week). Less than 2 hours per week are allocated reading books (1.96h) and participation in cultural activities (1.08h). These results (the fact that the adolescents who participated at this study spend more than 35 hours/ week on internet) makes us believe that we need to focus more on an efficient time management in a society in which everything happens and changes with great rapidity. Also adolescents need to know the danger regarding the dependence of internet and they need to try to avoid the risks of gaming disorder now that officially will be recognized as a disease and will be treated as a mental disease.

Time spent in front of computer and phone needs to be limited to having the time to live offline and not getting to the point of confusing real life with online life where you can be what you want to be, but where appearances can be misleading. We cannot help wondering what would happen would we do if we stay for a while without an
internet connection or a battery on the phone. Probably people would have to get used to communicate offline again.

Concerning the reasons for practicing sport, we find that the first three places are: the desire to be in shape, the desire to be appreciated as an athlete and the desire to have a good health. Adolescents participating in this study do not consider at least now that obtaining sports titles, an extrinsic reason is an important motif for doing physical activities and sports in their spare time.

We notice that regarding the existence of another family member who was or still is athletes, most of the participants (74%) say that in their family, at least one person has practiced or still practices a sport, which makes us affirm that the existence of a member of the family who is an athlete may influence the appearance of another member to practice sports. Most of the participants in this study (62%) say that they were influenced by someone in the family regarding the decision to practice sports, keeping in mind that they started practice sports at a small age, almost 7 years, we note the importance of the fundamental role played by the family in starting to lay the foundation for a healthy life from an early age by their members.

The fact that not all of the participants responded at the item regarding future career, makes us believe, that they have not think too much about their future options, but they still have time to discover what occupation would make them happy. Among those who have given an answer to this question, the following occupations that teens want, not all of them are in relation with sports, so not all of them think of a career in sports: famous hairdresser, referee, football player, policemen, coach, company director, teacher, kinetotherapist, fitness instructor, volleyball player, nurse, engineer, race pilot.

Authors’ Contributions

All authors contributed equally to this article and should be considered as main authors.

References

THE REAL CHALLENGE IN LONG-DISTANCE RUNNING

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Abstract. Athletics has always provided participants the opportunity to express their physical qualities and expand the limits of their bodies. The 5,000- and 10,000-m events, also known under the name of long-distance races, were influenced by exceptional champions who, in search of records, broke down many physiological and psychological barriers. Competing in both events in an attempt to win a double victory, runners (especially the African ones) have contributed to increasing the spectacular character of competitions due to the adopted strategies, often resulting in surprising turns of events. In major contemporary competitions, the first big final of long runs is (almost always) men’s 10,000 meters. Also, the starting lists for the 5,000-m event include, at each international competition, many of the names of those who have already participated in the 10,000 meters, which would assure their qualification in the final by running another race in the heats or the semi-final. At the Olympic Games, as well as the World and European Championships, long-distance races take place in a fairly dense configuration ranging from 9 to 5 days. Under these conditions, it is explicable, even for non-specialists, why a double winner is a rarity. This paper is a theoretical study that reveals the difficulty of winning two titles in long-distance races at the same major championship and also an attempt to highlight the most valuable runners in the world.

Keywords: long-distance races, double victory, major championships.

Introduction

Running is one of the simplest and most natural activities that man has ever practiced, in terms of both utility and pleasure. But many millennia had to pass until coding middle-distance, long-distance and ultra long-distance races as athletic events that have always been landmarks for human skills (especially for the armies of ancient times).

Athletics has constantly given participants the opportunity to express their physical qualities and push their limits. Since its birth as a sport, athletic performance has had a sinuous dynamics, with peak and/or stagnation moments, in line with the development of training methodology and material improvements.

Long-distance running refers to the 5,000- and 10,000-m races. Initially reserved for endurance runners, these sports events have gone through a real revolution in recent years under the influence of exceptional athletes who, in search of records, broke down many physiological and psychological barriers.

Analysing the practical and theoretical concerns in various branches of sport, it seems that more and more emphasis is placed on educating combined physical qualities by increasingly taking into account the way in which basic physical qualities (strength, speed, endurance, dexterity etc.) manifest in the specific process of athlete training (Geambaşu, 2018, p. 97).

Competitions have become much more spectacular, faster, with surprising turns of events mostly created by East African, Ethiopian and especially Kenyan runners. Improving the technique, making the workouts tougher (the distance travelled by athletes every day may reach 50 km) and organizing them thoroughly, along with superior motivation, have allowed a meteoric progression of records. Thus, if Saïd Aouita (Morocco) managed to go below the 13-minute limit in the 5,000-m race (12:58.39), nowadays athletes are tackling a new milestone, that of the 12:30, the record passing from the Ethiopian Haile Gebreselassie (1998/12:39.36) to his younger compatriot Kenenisa Bekele (2004/12:37.35).

For the 10,000 meters, many runners demonstrated, in the early 1990s, that the 27-minute objective could be reached. In 1994, the Kenyan William Sigei achieved the memorable time of 26:52.23, which Haile Gebreselassie dropped to 26:22.75 in 1998. Since 2005, Kenenisa Bekele is the world’s best performer, with a time that would have seemed impossible to reach in 1960: 26:17.53.

The governing body of world athletics is the International Association of Athletic Federations (IAAF). The IAAF keeps strict records of performances achieved in all types of competitions, but data on the time sequencing of the races at the first editions of the Modern Olympics and/or European Championships are not documented. However, the tradition of major contemporary championships says that the first big final, in the case of long-distance races, is (almost always) the men’s 10,000 meters, usually scheduled on the first day of the competition or separated by 4 days when/if there are heats and a final.

At the same time, the starting lists for the 5,000-m race include, at each international competition, many of the names of those who have already participated in the 10,000 meters.
At the Olympic Games and World Championships, long-distance races take place in a more relaxed configuration, namely over 9 days; however, at the European Championships, they are scheduled more densely by far, over 5 days only.

Until the 2000s, before the men’s final, the programme included a 10,000-m heat and two 5,000-m heats. Starting with Seville 1999, the 10,000-m final act was followed, the very next day, by the 5,000-m heats. Under these conditions, it is explicable, even for non-specialists, why a double winner is a rarity.

This paper has started from the questions whether, in a dense championship that takes place over just a few days, the double victory is possible, namely winning two titles in long-distance races (10,000 and 5,000 meters), under what conditions and who could do it.

Current state of knowledge

If an athlete wishes to win both titles, he or she will have to face a delicate situation, because, 48 hours after doing everything possible in the 10,000-m final, the competitor will return to the track for the 5,000-m semi-final. It is the most difficult day, given that the major effort is followed by great fatigue and pain. If the race is on a Sunday, the last intensity training usually takes place on the previous Wednesday or no later than Thursday. Friday is always allocated to rest. That is why, in the context of three races scheduled every two days, making a double win will really be a challenge.

The two races are not radically different, in the sense that both use the so-called aerobic physiological process; however, in the 5,000 meters, a runner’s profile is more complex (Cochennec, 2010).

The 10,000-m event is tackled by skilled long-distance runners, whose order is generally decided by their finish, regardless of the race strategy. Therefore, everything is decided over the last 2-3,000 meters and, as it is said (jokingly) that the 400-m race starts after the first 300 meters, we can consider that 70% of the long-distance race “does not really matter”.

On the contrary, the 5,000-m event is tackled by athletes who have already competed in the 10,000-m race, but also by skilled 3,000-m runners or even by 1,500-m runners who make a step towards long-distance races. In the 5,000-m event, the strategic plan is crucial: the fight for a medal is between long-distance runners who, having no redoubtable sprint finish, need to establish a fast and energy-consuming pace, and dynamic athletes able to run 52 seconds over the last 400 meters. The antagonism of athletes’ profiles makes the 5,000-m race a highly animated one, with many surprising changes.

From a somatic and technical point of view, both the 10,000- and 5,000-m athletes are long-distance runners, the difference between them (if any) being imperceptible. In athletics, there is still a valid rule according to which the longer the race distance, the lower the height of the athletes. If, in the 800-m race, all morphological types (short, strong, slim, tall athletes) are common, starting with the 1,500 meters, there is a transition to ethereal profiles. This “standardisation” can also be found in the two events under analysis.

Long-distance runners have long-type muscles (for medium height), are underweight (8 to 10 units less than the number of centimetres over the 100 of the height), long lower limbs and a calf-thigh ratio in favour of the calf (Table 1). The exception to the rule is Vladimir Kuts, but he was a boxer retraining as a runner, a massive one, who, after retiring from competitions, has joined the “obese club”.

Table 1. Somatic features of the most successful long-distance runners

<table>
<thead>
<tr>
<th>Athlete</th>
<th>Country</th>
<th>Height (cm)</th>
<th>Weight (kg)</th>
<th>Age at which performance was achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenenisa Bekele</td>
<td>Ethiopia</td>
<td>163</td>
<td>56</td>
<td>27</td>
</tr>
<tr>
<td>Haile Gebreselassie</td>
<td>Ethiopia</td>
<td>164</td>
<td>54</td>
<td>20</td>
</tr>
<tr>
<td>Said Aouita</td>
<td>Morocco</td>
<td>176</td>
<td>65</td>
<td>24</td>
</tr>
<tr>
<td>Ron Clarke</td>
<td>Australia</td>
<td>183</td>
<td>72</td>
<td>28</td>
</tr>
<tr>
<td>Hannes Kolehmainen</td>
<td>Finland</td>
<td>168</td>
<td>57</td>
<td>25</td>
</tr>
<tr>
<td>Emil Zatopek</td>
<td>Czech Republic</td>
<td>182</td>
<td>72</td>
<td>30</td>
</tr>
<tr>
<td>Vladimir Kuts</td>
<td>Ukraine</td>
<td>172</td>
<td>70</td>
<td>29</td>
</tr>
<tr>
<td>Lasse Virén</td>
<td>Finland</td>
<td>180</td>
<td>60</td>
<td>27</td>
</tr>
<tr>
<td>“Mo” Farah</td>
<td>Somalia / Britain</td>
<td>175</td>
<td>58</td>
<td>29</td>
</tr>
</tbody>
</table>
Early scientific work on long-distance running performance aimed at the bioenergetic and physiological dimensions of the athlete’s activity (Billat, 2001), which had a strong influence on the training planning methods, usually directed towards the optimisation of motor qualities. Long-distance runners have excellent aerobic qualities and, although physiological factors seem to be determining for their performance, psychological processes, especially those related to the perception of effort, are equally important. Thus, a well-established strategy has often proven to be better than excellent training.

Technically, the 5,000- and 10,000-m racers are brought to the same denominator by the naturalness of the running. Just as in the sprint event, the stride lengthening is sought; the simple stride is the perfect compromise between dynamic contacts and the exploitation of elastic elements in the muscles. Long calves favour the almost horizontal position of the sole at the moment of maximum knee flexion on the posterior step, and the full extension of the driven knee contributes to an impeccable race attitude.

The dynamics of world records

Unlike the World Championships, where the presence of Africans is predominant in long-distance races, the European Championships are attended by far fewer runners of colour, namely those naturalised by different countries (France, Belgium, Turkey and more). The absence of Kenyans and Ethiopians fundamentally changes the nature of a race.

High-altitude inhabitants usually have a fast start, thus establishing a “suffocating” pace, especially in the 10,000-m race, for a first test of their opponents. Kenyans suddenly accelerate over relatively long distances (500 or 1,000 meters), because they like to “feel” the competition and, although this tactics has cost them several victories, they still use it (Larsen, 2003).

At the European Championships, races are more tactical and reasonable, but also more boring. Without the Africans, especially the 10,000-m event is harder to watch, because it will only be animated by its end.

In an attempt to establish a hierarchy, history suggests that the best 5,000-m runner might be chosen between the Ethiopians Kenenisa Bekele (two world gold medals in the 10,000- and 5,000-m races, in 2009) and Haile Gebreselassie (a 10,000-m gold medallist and a 5,000-m bronze medallist, in 1993); the latter had managed a double win in the previous year, also at the World Championships, but in the junior age category. The title of best runner could be awarded to Gebreselassie for his victories in world-class competitions that covered the whole range of races (between 800 meters and marathon), but also for his bright smile to the world before starting an Olympic or a world championship final.

Close to them, we find the Moroccan Saïd Aouita, a versatile runner (in the positive sense of the word) able to run and win over distances between 800 and 5,000 meters (in the 1980s), which is rare and absolutely exceptional.

On 22 July 1985, Saïd Aouita improves the world record by a hundrdeath of a second in the 5,000-m race, achieving 13:04.0 in Oslo, at the Bislett Games (an annual competition that takes place in Norway). The Bislett Games also existed in the period of Golden League competitions, but today, they are a sequence of the IAAF Diamond League, being sponsored by ExxonMobil. Five days later, on 27 July 1987, during the Golden Gala in Rome, Saïd Aouita becomes the first athlete to go under 13 minutes over the above-mentioned distance; he managed to achieve 12:58.39 a few days before his first World Champion title (Parienté & Billouin, 2003, p. 368).

An athlete that has revolutionised long-distance running was the Australian Ron Clarke, who, in the 1960s, held the world record for every distance between 2 miles and 20 km. Already holding the world record over the 10,000-m distance since 1963, Ron Clarke stands out in 1965, when he corrects three times the 5,000-m record. In Hobart, in January, on a grass track, he breaks the world record (which Volodymyr Kuts had established in 1957) with two tenth of a second (13:34.8). A month later, in Auckland, he brings his own record to 13:33.6 and then improves it by nearly 8 seconds (13:25.8), running in Los Angeles, in the month of June (Parienté & Billouin, 2003, p. 344). In the autumn of 1965, on 30 November, the Kenyan Kip Keino breaks his record, running 13:24.2 in Auckland, but one year later, on 5 July 1966, in Stockholm, Ron Clarke climbs again to the top ranking and establishes the fourth world record in his career, improving Keino’s time by more than 7 seconds (13:16.6) (Parienté & Billouin, 2003, p. 346). What distinguishes him from the names mentioned above is the colour of the skin, Ron Clarke being the white runner in a race dominated by athletes of colour.

At this point, it is appropriate to make a parallel with the sprint event, a race controlled by the African athletes or their descendants on the European continent. Christophe Lemaitre, the first white runner to go below the symbolic 10-second threshold, has shown that everything is possible in sport. Dafne Schippers, the Dutch who has broken European records dating back 36 years, is the third fastest woman over the 200-m distance in history, after Florence Griffith-Joyner and Marion Jones (an athlete of colour). Griffith-Joyner died 10 years after setting the
record, at only 38 years of age, ending a career shadowed by doping charges, while Jones, the protagonist of a huge scandal, was stripped of her Olympic medals after finally admitting the use of steroids. Meanwhile, the blonde Daphne continues her sports career without any suspicion on her, winning a silver medal at the European Athletics Indoor Championships held in Glasgow, in 2019.

Christophe Lemaitre or Dafne Schippers could raise a generation that in turn will raise another one. It is a situation similar to the one existing in swimming, which is not argued by reliable studies, but noticed by sports journalists who rhetorically ask themselves: how many swimmers holding Olympic or World titles are Afro-Americans?

The colour of the skin remains an issue of dispute among specialists; we cannot deny that genetics plays a role in sport, although it is still impossible to determine its weight in achieving performance. Genetics shapes the physiological and constitutional type, but the exacerbation of its mission should be treated prudently, because, throughout history, pseudo-science (in an attempt to justify slavery, apartheid and holocaust) has come to argue that certain races are (genetically) superior, choosing to ignore that the formula of success is much more complex (Vazel, 2013).

So far, history has retained the names of seven men who managed to achieve double Olympic victories (Hannes Kolehmainen, in 1912; Emil Zatopek, 40 years later, in Helsinki; Vladimir Kuts, in 1956; Lasse Virén, in 1972 and 1976; Miruts Yifter and Kenenisa Bekele, in 1980 and 2008, respectively; Mohamed Farah, in 2012 and 2016). Of them, only Lasse Virén and Mo Farah “doubled the double” (!) at the Olympic Games.

Lasse Virén wins both races (5,000 and 10,000 meters) from the outsider position at the 1972 Munich Olympics. The men’s 10,000-m final was notable, being marked by the performance recorded by Virén, but especially by the context in which it was achieved. At the start of the race, a world record pace was imposed by the British Dave Bedford, who maintained it almost halfway through the race, when Virén and Mohammed Gammoudi (a 10,000-m bronze medallist and a 5,000-m gold medallist at the 1968 Olympics in Mexico City) tangled into each other and fell onto the track (SR/Olympic Sports, n.d.). Both resumed the race, but, while Gammoudi abandoned it (after two more laps), Virén recovered the 20 meters, passed Bedford and took the lead for the rest of the race (about 6,000 meters); he ran 56.4 seconds over the last 400 meters, which allowed him to beat the runner-up by 7 meters and set a new world record (27:38:40) (Hendersen, 2001). A week later, he also won the 5,000-m race, where the final sprint was decisive and thus he beat Gammoudi by one second.

Virén’s successful races were facilitated by technical and strategic factors: he used to carefully handle the turn by running very close to the edge, which allowed him to gain tens of meters ahead his opponents. Exploiting the rules and this meter-saving practice called “bend (curve) mathematics” created for him competitive advantages of more than 40 meters in the 5,000-m race and over 50 meters in the 10,000-m race (Saari, 1979).

Another important factor was a decisional one, relating to how he used to prepare for the Olympics: discipline pushed to the extreme in his physical training and attention paid to the mental aspect (ability to bear and overcome pain) (Pears, 2007).

Sir Mohamed Muktar Jama (“Mo” Farah) succeeded even more, being a gold medallist over both distances at two successive editions of the World Championships. In addition, competing and triumphing in his favourite races, “Mo” Farah has become the fifth man in the history of European Championships to achieve a double win (in 2010 and 2014), after the Czech Emil Zatopek (in 1950), the Polish Zdzislaw Krzyszkowski (in 1958), the Finnish Juha Vaattainen (in 1971) and the Italian Salvatore Antibo (in 1990) (Hart, 2010).

“Mo” Farah’s strengths relied on his perfect tactics, confidence and mental edge over his opponents, who were unable to practice a strategy to put him in difficulty (either by using an extremely fast start or a sufficiently intense intermediate sequence to slow down his speed over the last part of the race). Nerves stretched to the limit, a game “of cat and mouse”, a rather slow run during the first laps, attempts to take the lead and repositioning in the middle of the group, these are Farah’s rallies when targeting the title (Vollmer, 2017).

In most cases, the Somali-British athlete manipulated his opponents by bringing them on this favourite “ground”, the finish, stretched over several hundred meters. Not necessarily physically superior, “Mo” Farah managed, due to his tactical sense, to make his opponents doubt themselves. His well-established strategy and well-trained finish have ranked Farah among the best long-distance runners of all time.
Conclusions

In a major championship taking place over only a few days, it is possible to win the two titles, in both the 10,000 and 5,000 meters. However, for this performance, several elements need to be convergent: an exceptional talent, a relaxed and economical run, an athlete who knows to accelerate intelligently, being at the same time a perfect tactician able to have a mental edge over his or her opponents. The athlete should be an eclectic runner; thus, in the analysed competitors, the race distance ranged between 800 meters and marathon, with an extremely fast finish (53 seconds on average over the last 400 meters). This requires the muscular and energy systems to work in the speed mode.

Another aspect is motivational, because athletes must undergo Spartan training, often away from their families.

References


THE RELATIONSHIP BETWEEN COPING STRATEGIES AND STRESS LEVELS IN KINETOTHERAPY MASTER’S STUDENTS

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Abstract. Manifestation of the harmful potential of different environmental stressors is specific to each individual, their negative effects largely depending on the resonance they have in the personal mental plane. Thus, between the action of stressors and their effect on the individual, there is a system of psychological mechanisms developed by each person throughout their lives, through which the action of stressors is received, processed and subjectively evaluated by each individual. This paper aims to assess the characteristics and systemic organization of the set of mechanisms and behaviours that the Kinetotherapy students attending the Nutrition and Body Remodelling (NRC) and Motor and Somato-Functional Recovery-Rehabilitation (RRMSF) Master’s programmes have built in ontogenesis to control, tolerate and reduce the harmful impact that stressors may have on their physical and mental wellbeing (creation of coping profiles), but also to correlate them with the stress levels. The research subjects are 68 students in the 1st and 2nd years at the Faculty of Kinetotherapy (NRC and RRMSF Master’s programmes) within the UNEFS Bucharest. There were applied: the Cognitive Emotion Regulation Questionnaire (CERQ), with the subscales: Self-Blame, Other-Blame, Rumination, Catastrophizing, Refocus on Planning, Positive Reappraisal, Putting into Perspective, Acceptance and Positive Refocusing), the Emotional Distress Profile (EDP, within the Cognitrom Assessment System Platform CAS++) and the Holmes and Rahe Stress Scale (developed on the basis of Life Event Theory).

Keywords: coping, coping profiles, emotional distress.

Introduction

One of the phenomena with a significant harmful potential on the human being: stress, can be faced and managed efficiently and even turned into a personal development factor if the person is trained accordingly. „The potential evolution towards a stress disease depends on the individual's abilities to cope with (coping) and to adapt” (Larousse, 2006, p. 1184); stress, itself, does not necessarily determine a pathological condition.

The concept of stress “also means aggressions that are exerted on the human body (stress agents), as well as the human body's reaction to aggressions” (Dantzer, 2007, p. 750).

Stress factors need to find a certain resonance to the subject on which they act in order to develop (or, on the contrary, not to develop) their stressful potential. For example: Some personality traits, such as the vulnerability to stress of certain individuals, represent their feature of developing easily stress reactions on a wide range of stressors, while resilience is the person's ability to cope with hardships and to adapt effectively, even in difficult, stressful, unfavorable situations.

Stressors represent the totality of the events / life situations that the subject experiences as being unpleasant, aggressive, traumatic, intense or frequent enough to cause adaptive reactions to the subject. Stressors are characterized by their strong emotional and affective significance. In dynamics, the stressors can act successively or interfere with their own action, but their effect is additive (summative, cumulative).

Depending on the positive or negative nature of experiencing the stressful situation and the type and intensity of hormonal discharges, the field literature mentions:

- a type of positive stress called eustress – that strains positively the human body, with favorable effects on it (positive tonus). The eustres - represents "the state that characterizes an individual who perfectly controls the situation. The eustres is the opposite of helplessness that refers to negative reactions occurred when the situation is difficult to control " (Dantzer, 2007, p. 750).

- a type of negative stress – called distress – with potentially harmful effects on the human body and that determines adaptation disorders.

Between the actions of the stressors and their effect on the individual, the psychic mechanisms, developed by each person in ontogenesis, through which the action of the stressors on the person is received and processed (the subjective evaluation performed by each individual) intervene.

A well-adapted human body is characterized by a general well-being, good health condition and physical, mental and social comfort.

Immunogenic features are a group of cognitive-attitudinal features that correlate with the functional tonus of the immune system that "provides biological support meant to ensure the survival in extreme natural and social
adverse conditions” (Iamandescu & Sinescu, 2015). These are: optimism, locus of control, self-efficiency, psychological robustness, self-esteem, humor, sense of coherence, etc.

An approach to the individual's psychic life in terms of adaptation phenomenon has made it possible for researchers and practitioners to focus more on capacities than on incapacities rather than on achievement than on failure, on health than on sickness (Tudose, 2000).

"Studying the adaptive behavioral patterns demonstrates the fact that it’s up to each individual, through efficient coping of stressful situations/ life events and of information-energy resources, use the stress for his own personal development” (Tüdös & Mitrache, 2011, p. 104).

The concept of coping - to cope (en.) was imposed following the research carried out by de Lazarus (1966), Lazarus and Folkman (1984), McCrae (1984) etc, in the above mentioned authors’ opinion, representing the set of mechanisms and behaviors that an individual establishes between himself and the event / life situation perceived as threatening, in order to be able to confront this situation, to manage it, to control it, to tolerate it and to diminish the harmful impact which it may have on its status of physical or mental comfort.

It implies complex, multidimensional control strategies, in order to modify the situation generating the stress or to change the subjective perception, the internal echo of this situation.

After analyzing different significations of this concept under the field literature, we can distinguish several important features:

- the coping includes stress management, but its positive effects on the mental side may be much broader because it acts to develop the self-control capacity of the individual and its ability to "master" the environment;
- is influenced, on the one hand, by the nature of personality and, on the other hand, by the social resources of the subject.

Coping strategies - imply the active processes and mechanisms that the individual has developed to overcome stress (to reduce the negative tensions and regain „the well-being“, mental comfort), or to avoid the occurrence of stress.

They are based on coping skills that represent the behavioral tools the subject creates to eliminate or overcome adversities, disadvantages or disabilities (without correcting or eliminating the conditions underlying the stressful situation). As the term "skill" indicates, they are formed by repetition and learning, can be efficient or inadequate and, especially, they can be improved, new sanogenetic skills can be formed in order to replace those that are inadequate as a result of informing, training, repetition , learning, exercising.

Coping is considered under the field literature as being of a cognitive or emotional nature, both of them involving "centering" (the process of concentration and guidance of the psychic energy towards a target), e.g. problem - focused coping and emotion-focused coping (Lazarus & Folkman, 1984; Weiten & Lloyd, 2006). Thus, strategies for defense against stress involve: direct action on the stressful situation (and acts indirectly on emotions) or indirect action on stress-induced emotion. An important feature of coping is that it is a highly complex, multidimensional phenomenon. It can be realized/ manifested through a very wide range of ways (from avoidance behaviors to direct encounters, vigilance, rationalization etc), such as:

- the attitude of avoiding the stressful event (by replacing it with other types of activities, with sanogenetic potential: physical exercise, playing, relaxation etc);
- searching for information, learning and exercising to better control the situation;
- by changing the subjective significance of the event, through positive thinking, humor, optimistic attitude, by minimizing the possible negative effects;
- streamlining the situation and finding a causal explanation, as well as developing action plans and possible solving algorithms;
- developing active behaviors to deal with the stressful situation.

**Aim**

This paper aims to assess the characteristics and systemic organization of the set of mechanisms and behaviours that the Kinetotherapy students attending the Nutrition and Body Remodelling (NRC) and Motor and Somato-Functional Recovery-Rehabilitation (RRMSF) Master’s programmes have built in ontogenesis to control, tolerate and reduce the harmful impact that stressors may have on their physical and mental wellbeing (creation of coping profiles), but also to correlate them with the stress levels
Materials and methods

Participants

The research subjects are 68 students in the 1st and 2nd years at the Faculty of Kinetotherapy (NRC and RRMSF Master’s programmes) within the UNEFS Bucharest.

Procedure

There were applied:

- the Cognitive Emotion Regulation Questionnaire (CERQ, within the Cognitrom Assessment System Platform CAS++) is a psychological test represented by a self-evaluation questionnaire, consisting of 36 items, with nine subscales: Self-Blame, Other-Blame, Rumination, Catastrophizing, Refocus on Planning, Positive Reappraisal, Putting into Perspective, Acceptance and Positive Refocusing;
- the Emotional Distress Profile (Copyright © Daniel David) within Cognitrom Assessment System Platform (CAS++) is a scale consisting of 26 items that measures the emotional negative stress (the negative emotions as well as functional ones within “fear” and “sadness/blue” categories, and dysfunctional ones) with harmful potential, created by Opriș and Macavei in 2005 (Opriș & Macavei, 2007);
- the Holmes and Rahe Stress Scale (developed on the basis of Life Event Theory). The theory of life events was set by Holmes and Rahe (1967), who, starting from the situational assessment of stress, quantified the most diverse life changes in the form of scales of events, considering that they involve approximately the same tensional charge, the same adaptive efforts etc., for all people, in general.

Results

In the table below we present the 9 coping strategies and the psychological significance according to the test manual (being a psychological test, they are standardized).

Table 1. Test subscales Cognitive Emotion Regulation Questionnaire (CERQ) and the psychological content (Perțe & Țincaș, 2009)

<table>
<thead>
<tr>
<th>Subscale (Cognitive coping strategy)</th>
<th>The assessed psychological dimension (psychological content)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Blame</td>
<td>Is a cognitive coping strategy that involves generation of thoughts according to which the individual bears the full responsibility for the situation; the individual blames himself and is concerned about the mistakes he has made.</td>
</tr>
<tr>
<td>Acceptance</td>
<td>It refers to generation of thoughts of resignation to what happened and of accepting the situation.</td>
</tr>
<tr>
<td>Rumination</td>
<td>It refers to the continuous generation of thoughts in connection with the negative event/situation and the continuous concern about the feelings and thoughts associated with the negative event.</td>
</tr>
<tr>
<td>Positive Refocusing</td>
<td>The individual thinks of other more pleasant things, rather than thinking of the negative experienced event</td>
</tr>
<tr>
<td>Refocus on planning</td>
<td>The individual thinks about the steps to be taken in order to deal with a negative event or about a plan to change a negative situation</td>
</tr>
<tr>
<td>Positive reappraisal</td>
<td>The individual mentally associates a positive significance to a negative event in terms of personal development, looks for the positive aspects, thinks that the negative event can make him stronger</td>
</tr>
<tr>
<td>Putting into Perspective</td>
<td>It refers to the generation of thoughts through which he reduces the severity of the event (compared to other events), the person thinks that there are other more serious things in the world, too.</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td>The person is constantly thinking of how terrible the experienced event was, and of the fact that it is the worst thing that could happen, that it is far worse than what happened to others</td>
</tr>
<tr>
<td>Other-blame</td>
<td>It refers to the generation of thoughts through which guilt and responsibility for what happened to the individual are transferred to others; he thinks of the mistakes made by others in this regard.</td>
</tr>
</tbody>
</table>
The profile of the master students’ group of the Faculty of Physical Therapy, regarding the cognitive-emotional coping, highlights the fact that this one falls as a "population average" level for 7 out of 9 subscale of the test, being slightly "above average" in terms of Self Rumor and Rumination (Table 2).

Table 2. Cognitive Emotion Regulation Questionnaire (CERQ) – Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Self-blame</th>
<th>Acceptance</th>
<th>Rumination</th>
<th>Positive refocusing</th>
<th>Refocus on planning</th>
<th>Positive reappraisal</th>
<th>Putting into perspective</th>
<th>Catastrophizing</th>
<th>Other-blame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>12.22</td>
<td>12.80</td>
<td>13.98</td>
<td>11.98</td>
<td>15.42</td>
<td>14.97</td>
<td>13.79</td>
<td>8.69</td>
<td>8.69</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.38</td>
<td>0.43</td>
<td>0.44</td>
<td>0.52</td>
<td>0.41</td>
<td>0.49</td>
<td>0.47</td>
<td>0.44</td>
<td>0.44</td>
</tr>
<tr>
<td>Median</td>
<td>11.5</td>
<td>12</td>
<td>14</td>
<td>11</td>
<td>16</td>
<td>16</td>
<td>13</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Mode</td>
<td>11</td>
<td>12</td>
<td>16</td>
<td>11</td>
<td>20</td>
<td>20</td>
<td>12</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.16</td>
<td>3.56</td>
<td>3.67</td>
<td>4.30</td>
<td>3.42</td>
<td>4.12</td>
<td>3.94</td>
<td>3.65</td>
<td>3.65</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>0.058</td>
<td>-0.40</td>
<td>0.052</td>
<td>-0.70</td>
<td>-0.42</td>
<td>-0.59</td>
<td>-0.69</td>
<td>-0.05</td>
<td>-0.05</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.39</td>
<td>0.12</td>
<td>-0.33</td>
<td>0.24</td>
<td>-0.46</td>
<td>-0.50</td>
<td>-0.003</td>
<td>0.66</td>
<td>0.66</td>
</tr>
<tr>
<td>Range</td>
<td>15</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>13</td>
<td>16</td>
<td>16</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Minimum</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Maximum</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Sum</td>
<td>831</td>
<td>871</td>
<td>951</td>
<td>815</td>
<td>1049</td>
<td>1018</td>
<td>938</td>
<td>591</td>
<td>591</td>
</tr>
<tr>
<td>Count</td>
<td>68</td>
<td>68</td>
<td>68</td>
<td>68</td>
<td>68</td>
<td>68</td>
<td>68</td>
<td>68</td>
<td>68</td>
</tr>
</tbody>
</table>

The higher the score for a subscale is, the more the respective coping strategy is used:

- Mean\text{Self-Blame} = 12.22 having the significance “Above the average”
- Mean\text{Acceptance} = 12.80 having the significance “Average”
- Mean\text{Rumination} = 13.98 having the significance “Above the average”
- Mean\text{Positive Refocusing} = 11.98 having the significance “Average”
- Mean\text{Other-Blame} = 8.69 having the significance “Average”
- Mean\text{Refocus on Planning} = 15.42 having the significance “Average”
- Mean\text{Positive Reappraisal} = 14.97 having the significance “Average”
- Mean\text{Putting into Perspective} = 13.79 having the significance “Average”
- Mean\text{Catastrophizing} = 8.69 having the significance “Average”

As for the "pde" - the emotional distress, the negative emotional stress (the negative emotions, both the functional ones in the "fear" and "sadness / depression" categories and the dysfunctional ones) with harmful potential, Mean\text{PDE} = 25.53 indicates the level "Very low".

Table 3. Emotional Distress – Descriptive Statistics

<table>
<thead>
<tr>
<th>Emotional Distress (PDE)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>25.52</td>
</tr>
<tr>
<td>Standard Error</td>
<td>1.65</td>
</tr>
<tr>
<td>Median</td>
<td>21</td>
</tr>
<tr>
<td>Mode</td>
<td>21</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>13.66</td>
</tr>
<tr>
<td>Sample Variance</td>
<td>186.73</td>
</tr>
</tbody>
</table>
The assessment of the stress level (both eustress and distress) and the harmful potential / illness risk, through the Holmes and Rahe Stress Scale (developed on the basis of Life Event Theory), highlights: \( \text{Mean}_{\text{Holmes and Rahe Stress Scale}} = 192.89 \) representing “Moderate illness risk”

Table 4. Stress Level (Holmes and Rahe Stress Scale) – Descriptive Statistics

<table>
<thead>
<tr>
<th>Stress level</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>192.89</td>
<td></td>
</tr>
<tr>
<td>Standard Error</td>
<td>10.36</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>Mode</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>85.46</td>
<td></td>
</tr>
<tr>
<td>Sample Variance</td>
<td>7303.49</td>
<td></td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-0.661</td>
<td></td>
</tr>
<tr>
<td>Skewness</td>
<td>0.485</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>338</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>414</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>13117</td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>68</td>
<td></td>
</tr>
</tbody>
</table>

Analysis and statistical data processing reveal the existence of some significant negative correlations (Pearson Correlation) between the emotional distress and some coping strategies used by the master students of the Faculty of Physical Therapy: positive refocusing, refocus on planning, positive reappraisal and putting into perspective (Table 5).

Table 5. Correlations between the emotional distress (assessed through PDE) and coping strategies (assessed through CERQ)

<table>
<thead>
<tr>
<th></th>
<th>pde</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>self-blame</strong></td>
<td></td>
</tr>
<tr>
<td>pearson correlation</td>
<td>.095</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.440</td>
</tr>
<tr>
<td>N</td>
<td>68</td>
</tr>
<tr>
<td>pearson correlation</td>
<td>-.163</td>
</tr>
<tr>
<td>acceptance</td>
<td></td>
</tr>
<tr>
<td>pearson correlation</td>
<td>.183</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.183</td>
</tr>
<tr>
<td>N</td>
<td>68</td>
</tr>
<tr>
<td>pearson correlation</td>
<td>.135</td>
</tr>
<tr>
<td>rumination</td>
<td></td>
</tr>
<tr>
<td>pearson correlation</td>
<td>.273</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.273</td>
</tr>
<tr>
<td>N</td>
<td>68</td>
</tr>
<tr>
<td>pearson correlation</td>
<td>-.296</td>
</tr>
<tr>
<td>positive refocusing</td>
<td></td>
</tr>
<tr>
<td>pearson correlation</td>
<td>.014</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.014</td>
</tr>
<tr>
<td>N</td>
<td>68</td>
</tr>
<tr>
<td>pearson correlation</td>
<td>-.342</td>
</tr>
<tr>
<td>refocus on planning</td>
<td></td>
</tr>
<tr>
<td>pearson correlation</td>
<td>.004</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.004</td>
</tr>
<tr>
<td>N</td>
<td>68</td>
</tr>
<tr>
<td>pearson correlation</td>
<td>-.462</td>
</tr>
<tr>
<td>positive reappraisal</td>
<td></td>
</tr>
<tr>
<td>pearson correlation</td>
<td>.000</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>68</td>
</tr>
</tbody>
</table>
The analysis of the stress level resulted from various life situations in the case of students in the 1st and 2nd years at the Faculty of Physical Therapy (NRC and RRMSF Master's programs) and its correlation with the coping strategies they use reveal some significant negative correlations in the case of the following coping strategies: refocus on planning, positive reappraisal and positive significant correlation between stress level and catastrophizing (Table 6).

Table 6. Correlation between stress level (assessed through Holmes and Rahe Stress Scale) and coping strategies (assessed through CERQ)

<table>
<thead>
<tr>
<th>stress level</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>self-blame</td>
<td>-0.002</td>
<td>0.988</td>
<td>68</td>
</tr>
<tr>
<td>acceptance</td>
<td>-0.180</td>
<td>0.142</td>
<td>68</td>
</tr>
<tr>
<td>rumination</td>
<td>-0.111</td>
<td>0.368</td>
<td>68</td>
</tr>
<tr>
<td>positive refocusing</td>
<td>-0.304</td>
<td>0.012</td>
<td>68</td>
</tr>
<tr>
<td>refocus on planning</td>
<td>-0.421</td>
<td>0.000</td>
<td>68</td>
</tr>
<tr>
<td>positive reappraisal</td>
<td>-0.032</td>
<td>0.796</td>
<td>68</td>
</tr>
<tr>
<td>putting into perspective</td>
<td>-0.350**</td>
<td>0.003</td>
<td>68</td>
</tr>
<tr>
<td>catastrophizing</td>
<td>0.115</td>
<td>0.349</td>
<td>68</td>
</tr>
<tr>
<td>other-blame</td>
<td>0.172</td>
<td>0.161</td>
<td>68</td>
</tr>
</tbody>
</table>

Conclusions

Stress occurrence can also have a beneficial effect: to stimulate the individual's adaptive mechanisms, to increase the number of behavioural responses of the subject, to select the efficient ones.

In the case of the subjects involved in this research (master students in 1st and 2nd year at the Faculty of Physical Therapy), one characteristic is that the school activity is doubled by the professional activity, however, in terms of emotional distress, it is at a "Very low level of distress" and the assessment of the stress level through Holmes and Rahe Stress Scale (developed on the basis of Life Event Theory) indicates "a moderated risk" of illness.

The descriptive statistics, following the Cognitive Emotion Regulation Questionnaire (CERQ) test, highlights that at the level of Physical Therapy master students' group, the Other-Blame, Catastrophizing, Refocus on
Planning, Positive Reappraisal, Putting into Perspective, Acceptance, and Positive Refocusing coping strategies are used at the average of the population. To a larger extent, for "above average" level self-blame (generation of thoughts according to which the individual bears the full responsibility for the experienced situation; the individual blames himself and is concerned about the mistakes he has made) and rumination (to constantly think and to always be concerned about the feelings and thoughts they associate with a negative event) are used.

As a result of calculating the correlation between coping strategies and emotional distress, it is noted: significant negative correlation between pde and positive refocusing; significant negative correlation between pde and refocus on planning; significant negative correlation between pde and positive reappraisal; significant negative correlation between pde and putting into perspective, which indicates the importance of these coping strategies in reducing the emotional distress.

The analysis of the stress level (both eustres and distress) assessed based on Holmes and Rahe Stress Scale (developed on the basis of Life Event Theory) in the case of master students in the 1st and 2nd year at the Faculty of Physical Therapy (NRC and RRMSF Master's programs) and its correlation with the emotional cognitive coping strategies, assessed through CERQ test, reveals:

- significant positive correlation between stress level and catastrophizing, which indicates that the use of this coping strategy leads to increased stress levels;
- some significant negative correlations in the following coping strategies: refocus on planning and positive reappraisal, which indicates the efficiency of these coping strategies in reducing the stress level.

Authors’ Contributions

All authors have equally contributed to the study.

References

LEGAL CONSIDERATIONS RELATED TO THE SPORTS ACTIVITY CONTRACT

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Abstract. Discrepancies regarding the interpretation of the sport and tax legislation applicable to the financing of sports activities, especially at the level of the local public administration, have generated the initiative to amend and complete the Law on Physical Education and Sport no. 69/2000. Following this complex process of intervention over the legislation there has also resulted a new legal instrument, namely the Sports Activity Contract. In the analysis carried out over the sports activity contract there have been analysed the subjects of the legal report, namely the sports structures and the participants to the sports activity; assessments were made on the scope of the agreement, with remarks over the existence of an alternative to the benefit due by the sports organization in relation to the classical remuneration; there has been made an analysis of the clauses imposed by Order 631/890/2017 regarding the approval of the type of framework sports activity contract. Also, the relation between the sports activity contract and the regulations of the sports organization, respectively of the sports federation, can generate the most various effects regarding the conditions for the fulfilment of the legal relation between the parties. The introduction of this type of agreement into the sports activity has a positive contribution to clarifying the roles and duties of the entities involved in sports field.

Keywords: Sports Activity Contract, sports law, participants to the sports activity, sports federation, performance sportsmen.

Introduction

The sport industry, the participants to sport activity and the management of sport organisations and activities have the possibility to use the Sports Activity Contract, instituted by Emergency Ordinance no. 38/2017 for amendment and completion of Law of physical education and sport no. 69/2000.

By Sports Activity Contract (SAC), the legal relation between the participants to sport activity and sport organisations has been ruled, and the effects have been identified, analysed and ruled in the entire ancillary legislative frame.

Considering that the initiative to elaborate this new legal instrument was determined by some blockages appeared on level of public administration managing sport structures of public law, in the context of confusions and different interpretations of tax control bodies, corroborated to the disposals of Law of physical education and sport no. 69/2000 (hereinafter referred to as Law 69/2000) and of Law no. 273/2006 on local public tax, it has been generated the unitary intervention to create a coherent legal frame.

The complexity of legislative issues related to Sports activity contracts determined by: successive amendments and completions of Law 69/2000, issuance of the Order of Ministry of Youth and Sport no. 438/2018 for the approval of Methodology related to the release of performance sportsman authorisation (hereinafter referred to as Order 438/2018), of joint Order of Ministry of Youth and Sport and Ministry of Labour and Social Justice no. 631/890/2017 on approval of frame draft of sports activity contract (hereinafter referred to as Order 631/890/2017), as well as the specific elements of Law no. 227/2015 on Tax Code and the concepts defined in Civil Code, has supported the decision of a study to encourage and support, by presenting and explaining the concepts and legal consequences, the use in full knowledge of sports activity contract.

Topic addressed

This study shall provide, actually and in a documented manner, to the managers of sport organisations and to the participants to sport activity the possibility to identify the role, attributions, obligations and legal limits of action in case of concluding a sports activity contract.

Although the analysis refers to the sports activity contract, which may be concluded by both amateur sportsmen and professional sportsmen, and other categories of participants to sport activity, we have provided priority to the perspective of individuals practicing an amateur sport, emphasizing the elements which may significantly influence the effects generated by such contract.

The study is made, both from the perspective of analysing the concept of contract and from the perspective of clauses and role of parties related to sports. Also, the intention to increase the degree of application of the concepts analysed by using actual concepts and by reporting to the possibilities and limits of action of each party is emphasized in the entire analysis.
We have also presented the gaps, discrepancies, discontinuities, interpretable items corroborated to other normative acts, we have emphasized, by examples of analysis of legal norms, the role of legal counselling in order to provide balance between the signatories of sports activity contract.

**Subjects of legal relation instituted by sports activity**

The subjects of legal relation instituted by sports activity are, on the one hand, the sportive structures, and, on the other hand, the participants to sport activity, respectively the natural persons authorised according to the disposals of methodology of authorisation of performance sportsmen or methodologies issued by the Sport Federations per sport branch, for the other categories and persons stipulated by the legislation in force.

**Sport structures**

Art. 22, par. (1) of Law 69/2000 provide the general definition of the concept of sport structures, which, in terms of law, may be "associates of private law or public law institutions, incorporated or registered, if any, with a view to organise and manage a sport activity and which have as object the promotion of one or several sport disciplines, practicing it by its members and participation to sport activities and competitions”.

The sport structures, that may conclude sports activity contracts, are enumerated in art. 21, Title IV – Sport structures of Law 69/2000, respectively "a) sport associations; b) sport clubs, included that organised as companies, education institutions with sport programme or specialisation, the palaces and clubs of children and pupils; c) county associations and of Bucharest municipality, per sport branches; d) professional leagues; e) national sport federations; f) Romanian Auto Club, for activity of sport motoring and sport karting; g) other national sport organizations". The law presents in distinct chapters the main categories of sport structures, which it defines and emphasizing the main aspects related to organisation and operation.

An important criterion to mention, included in art. 24, par. (1) of Law 69/2000, is represented by the fact that an organisational entity is acknowledged as sport structure by Certificate of sport identity.

**Participants to sport activity**

Art. 67, par. (1), lett. a), b), c), d) of Law 69/2000 stipulates the occupational categories to which the natural persons concluding a sports activity contract belong as participant to sport activity, respectively "a) sportsmen; b) coaches; c) physicians, nurses, massage technicians, kinetotherapists, researchers; d) referees, observers, video operators, auxiliary staff".

Also, art. 67, par. (1), lett. e) of Law 69/2000 provides the possibility of extending the capacity of participant to sport activity to "other persons that contribute to sport activity” by decisions of managing studies of National Sport Federations per sport branch, included in the By-laws and Rules of federations.

The fact that law, in this case, is using the concept of individuals, defined by art. 25, Civil Code, may generate different interpretations in the effective enforcement of legal disposals. Corroborating to the disposals of next articles, providing clarifications related to the possibility of concluding an individual employment contract or sport activity contract, it results that art. 67, par. (1), lett. e) of Law 69/2000 refers to natural persons and not to legal persons.

On the other hand, the indication of individual as object of clarifications included in the rules and by-laws of national sport federations raises problems meaning that, for a strict observance of legal disposal, such documents should include the identification data of individuals who contribute to sport activity. According to the disposals of subsequent sections of Chapter III – Identification of natural person of Civil Code, the individuals are identified by name, domicile and marital status, which would lead to entering such information in public general documents, of sport federations.

Despite all these, the spirit of legal disposals is emphasized in art. 9, par. (2) of Order 438/2018, indicating the means of elaboration of some procedures related to the issue and records of authorisations for "the categories stipulated by par. (1)”, these including as well the mention "other individuals contributing to sport activity”. Thus, using the signification included in the issue of Methodology related to the issue of performance sportsmen authorisation, the sport federations may state other categories of individuals entitled to conclude sports activity contracts with sport structures.

Also, art. 67^1, par (1^4) of Law 69/2000, stipulates the possibility that sportsmen and coaches "hired as military staff, policemen, contractual civil staff, public officers with special status from defence system, public
order and national security, regardless the position occupied” to cumulate the income corresponding to exercising the profession with the allowance stipulated in the sports activity contract.

**Capacity to contract of participants to sport activity**

The Civil Code, art. 1179, par. (1) of 3rd Section Conclusion of contract, Chapter I – Contract, stipulates the following conditions as essential for the validity of a contract: 1. Capacity to contract; 2. Consent of parties; 3. A determined and licit object; 4. A licit and moral cause.

The capacity to contract of natural persons is intrinsically related to the capacity of exercise, defined by art. 37, Civil Code as “the capacity of an individual to conclude civil legal documents on its own”.

From this perspective we may identify several situations of the participants to sport activity, respectively full capacity of exercise (major persons, minimum 18 years old and underage married), anticipated capacity of exercise (under special conditions, as of the age of 16), restricted capacity of exercise (14-year old underage concludes legal documents only with approval or authorisations) and individuals lacking capacity of exercise (underage under 14 years old, court restricted).

The civil documents concluded without the observance of the condition related to capacity of exercise, according to the disposals of art. 44, Civil Code, are relatively null, which means that, under certain conditions these may be confirmed. An example is that minor when an underage signs a sports activity contract, such document, if confirmed subsequently by agreement of tutor or family court, becomes a valid document, although it may be cancelled firstly. From practical perspective, with respect to sports activity contract, the fact that "relative nullity may be claimed only by the individual with an interest protected by the legal disposal breached", stipulated by art. 1248, par. (2), Civil Code, prevent sport structures to claim relative nullity to terminate a contract concluded with a person who does not meet the condition related to capacity of exercise and allows to be exercised such prerogative only by the individual itself, legal protector, tutor or family court.

From practical perspective, in the light of observing the legal disposals related to capacity of exercise, respectively capacity to contract, the representatives of sport structures, during the negotiation and conclusion of sports activity contract, must analyse each case separately in case of identifying the situation of participants to sports activity, who shall conclude such contract so as to observe the conditions providing validity to legal document.

**Authorisation of participants to sport activity – condition related to including income in the category of freelance activities**

Although, according to Law 69/2000, art. 63\(^1\)1, par (1), letter a), the category "sportsmen” is indicated as being entitled to conclude sports activity contracts, we will notice that only performance sportsmen and professional sportsmen are qualified to conclude this contract.

Thus, Law 69/2000, art. 14\(^1\), par. (1) stipulate that sport federations authorise performance sportsmen, and art. 14\(^1\), part. (2) stipulates that the authorisation issued "certifies the capacity of performance sportsman with a view to classify his/her income, obtained under the sports activity contract, in the category of freelance activities". The disposals of this article stipulate that in order to conclude a sports activity contract and include the income obtained as such in the category of freelance activities the amateur sportsman has to obtain the performance sportsman authorisation issued by the national federation per sport branch.

The sport structure to which the sportsman belongs is entitled to apply for performance sportsman authorisation according to the requirements of art. 4 and annex no. 1 of Methodology on issue of performance sportsman authorisation released by the Ministry of Youth and Sport.

The methodology previously mentioned, at art. 9, part. (2), stipulates that the procedure issuing and recording the authorisation for the other categories of participants to sport activity will be undertaken by the sport federations so as to be similar to the disposals related to the issue of performance sportsman authorisation.

**Object of contract and object of obligation of sports activity contract**

The object of contract, according to art. 1225, par. (1) and (2) of Civil Code, consists in the "legal operation", which may be determined and licit, and the object of obligation, defined by art. 1226 of Civil Code, represents "the service undertaken by debtor", which, on its turn, must be "determined or at least determinable and licit". The failure to meet the conditions stated entails absolute nullity of contract. Also, art. 1225, par. (3) of Civil Code defines the notion of illicit as "restricted by law or contravening public order and morality".
Analysing the rules related to sports activity contract we shall identify at lett. f) of Annex to Law 69/2000 the definition of this kind of contract, stating that the object of contract consists in the "development of sport activity".

Also, chapter II of frame draft of sports activity contract, as presented in Annex to Order no. 631/890/2017, although stated that it shall be completed the object of contract, by the fact that the indications between parentheses demand details and enumeration of sport activities carried out by the participant to sport activity in the benefit of sport structure, it results in fact that it will be entered the object of obligation, as one refers to actual service undertaken by the participant to sport activity.

Thus, the object of obligation, entered in the sports activity contract, undertaken by the participant to sport activity, must be, according to the disposals of art. 1226 of Civil Code, "determined or at least determinable and licit", in other words, to include enough details to be differentiated, identified, acknowledged, and to observe legislation, not to contravene public order and morality.

**Income obtained under sports activity contract**

One of the essential conditions to conclude a valid contract, in terms of art. 1179, par. (1), Civil Code, is the existence of a cause, and for sports activity contract, the cause of concluding the contract by the participant to sport activity is to obtain an income. Thus, depending on the service provided under the object of obligation under sports activity contract, the participants to sport activity are entitled to an allowance paid by sport structure.

Law 69/2000 includes disposals related to income obtained under sports activity contract in three distinct situations, respectively art. 14^1, par. (2) motivates the issue of authorisations certifying the capacity of performance sportsman "with a view to include his/her income, obtained under sports activity contract, in the category of freelance activities"; art. 14^2, par. (1) stipulates that the activity carried out under the sports activity contract is a freelance activity, and "the income obtained under sports activity contract are income from freelance activities"; as well as the definition of sports activity contract from Annex, where are briefly resumed the disposals of art. 14^2 of law. Tax Code defines at art. 7, pct. 1, the freelance activity as including "any activity carried out by a natural person to obtain income", however, Law 69/2000 creates a facility to the participants to sport activity in terms of imposing a derogation from meeting the disposals of Tax Code to include an activity in this category.

In order to clarify the concept and tax regime of the income obtained, art. 10 of Tax Code stipulates at par. (1) that "taxable income includes income in cash and/or in kind", and at par. (2) mentions that the income in kind includes assets and/or services.

In this respect, although the frame draft of sports contract, stipulated by Order no. 631/890/2017, states in the chapter related to object of contract that sport activities are carried out in exchange of a remuneration, which would reduce the consideration of sport structure only to pay of an amount, Chapter V of frame contract stipulates that the rights negotiated by parties "may consist in money, services or in kind", which provides the freedom of negotiation, by parties, of the nature of income.

From the perspective of income tax, it is important art. 68^1, Tax Code, which rules "the tax for the income generated by freelance activities under sports activity contract". Briefly, the disposals useful for taking decisions to conclude a sports activity contract, are: par. (2), which presents the obligation of sport structures "to calculate, withhold and pay the tax corresponding to the amounts paid by tax withholding"; par. (3) which determines the tax percentage of gross income to 10%; par. (4), which stipulates that "the tax calculated and withdrawn represents the final tax and is paid to state budget until 25th included of the month following the month when withheld"; as well as par. (7) which refers to the possibility of taxpayers to decide the destination "of an amount representing up to 3.5% of the tax stipulated by par. (3), to support the non-profit entities incorporated and operating in terms of law and cult units, as well as for granting private grants".

Also, considering the possibility of payment in kind, which may be taxable income, it is relevant to determine the tax applied to the income discussed art. 11, par. (1) and par. (2) of tax code, which stipulates that "the tax authorities may not consider a transaction without economic scope, adjusting the tax consequences of it" motivating the decision by indicating the "relevant elements related to the scope and contents of transaction subject to being disregarded", as well as of all existing evidence.

In this context, we may estimate the non-uniformity in consideration of income obtained under sports activity contract, mainly when it is mixed, respectively in cash, in goods and services, determined by different interpretation of the economic scope of transactions performed by local tax administration staff.

Also, according to the indications entered in the frame sports activity contract, it is compulsory to expressly stipulate the bonuses and/or penalties granted to the participant to sport activity, calculated according to the
disposals of internal rules of sport structure. Also, it is obligatory the recording of terms and means of payment to the participant to sport activity.

**Selective aspects related to the clauses of the frame draft of sports activity contract**

The sports activity contract may be concluded on definite term, and it must include the start and end date. The minimum period of such contract is of one day and whereas the maximum has not been restricted. For the contract concluded with a performance sportsman, the duration of contract cannot overcome the date of withdrawal from sport activity since, according to art. 6 of the Methodology on issue of performance sportsman authorisation, the performance sportsman authorisation, necessary to include the income generated by sport activity in the category of income from freelance activity, becomes null on the date of withdrawal from performance sport activity.

The analysis of general rights and obligations of the signatories of sports activity contract, obligatory to be entered in the contract to be concluded, reveals the non-symmetrical approach of the chapter mentioned. Therefore, one states clauses for the rights and obligations of participant to sport activity, whereas related to sport structure the frame draft includes only the obligations, not the rights. Under such conditions, in order to balance the structure of contract and the legal relation, the representatives of sport organisations must propose and negotiate the entering in the contract of some clauses with their rights.

With respect to the termination of contract, the frame draft made available by Order 631/890/2017, contains two clauses referring to termination and unilateral rescission. Art. 1276 of Civil code stipulates that the right to unilaterally rescind a contract may be exercised before the start of execution or, in case of a contract with successive and continuous execution, such right may be exercised only with reasonable notice term, however, in this case, the rescission does not impair the services already rendered or those in progress.

The perspective on exercising the right to unilateral rescission of contract may be completed by the disposals of art. 15, Civil code, which defines the abuse of law by that “no right may be exercised with a view to prejudice or cause damages to another or excessively and non-reasonably, contrary to morality”. Thus, the unilateral rescission cannot be claimed during rendering a service, which means that, for instance, a participant to sport activity cannot claim such right during a competition where he/she carries out a sport activity.

Despite unilateral rescission which may be exercised due to different reasons, the termination of contract may be required only due to “faulty and/or improper execution or non-execution of contractual obligations”. According to art. 1551, par. (1), of Civil code, “for the contracts with successive execution, the creditor is entitled to terminate, although the non-execution is insignificant, however it has a repeated nature”, thus, for instance, in case of sports activity contract, the repeated and unmotivated absence of a sportsman from the trainings prior a competition may represent cause to claim the termination of contract.

Chapter X, which includes final disposals of frame draft of sports activity contract, includes the clause on the possibility of amendment of contract exclusively pursuant to the “occurrence of some circumstances affecting the legitimate interests of parties and which couldn’t have been known on the date of conclusion”. This clause restricts the possibilities of parties to use the addendum to change the contractual conditions for any other reasons except for the situations when their interests are affected.

Motivated by the requirement included in art. 14, par. (6) of Law 69/2000, which stipulates that national sport federations organise the records of performance sportsmen, the frame draft of sports activity contract stipulates that, within 48 hours as of execution and registration, a copy of contract will be sent to sport federation. Since no additional clarifications are included, and the scope of sending the copy of contract is the sport records it results that including a simple or electronic copy may be submitted. Considering the sport federation has the obligation, according to the Order no. 438/2018, to keep for 10 years the documents of file to obtain the performance sportsman authorisation and for 50 years, the registers of performance sportsmen, without including here the documents of other participants to sport activity, we consider that determining a procedure to submit the copy of sports activity contract electronically may be the most effective means to meet the requirement stated, in terms of relieving from handling and storage an additional range of documents.

**Other clauses – ancillary rules and particular issues which may be subject to negotiation**

From the perspective of legal relation of the participants to sport activity and sport structures it has practical importance for instance art. 51, par. (2) of Law no. 227/2006 on preventing and combating sport doping stipulating that sport clubs ”have the obligation to incur the costs of laboratory tests in case of positive result” and art. 52°5, which stipulates sanction by contravention fine ranging between 5,000 lei and 30,000 lei applied to clubs within which individuals were sanctioned for doping, as well as other sanctions for acts of other persons related to
sportsman and such fact. In this case, the negotiation of some clauses which may allow the negotiation of the amounts spent by sport structure for the offset of tests’ cost, payment of fines, for other losses and damages generated or related to doping case or refusal of test would represent a demarche which might provide for an effective settlement of situation. The interest of entering such clauses is high, from the perspective of sport structures, mainly because one of the obligatory clauses, entered in the frame draft stipulates termination of contract in case of positive result to anti-doping test or in case of refusal of test.

Also, the sports activity contract may be entered clauses related to potential finance sources of sport structures, such as the transfer allowances or other sources, stipulated by art. 69, par (4) or 71, par. 2 of Law 69/2000.

Although the frame draft stipulates only the sport boards and courts as bodies competent to solve the disputes related to legal relation instituted under sports activity contract, based on the fact that the use of arbitration as means of solving disputes is an act of disposition of parties, we consider that a compromissory clause may be entered in the contract. The compromissory clause, ruled by art. 550 of Code of civil proceedings, must state the means of appointing referees or in case of use of “institutionalised arbitration it is enough the reference to the institution or rules of proceedings of institution organising the arbitration”. In case of entering such clause it is recommended the compared analysis of economic efficiency and from the perspective of the term of settlement between the settlement by arbitration and by courts.

Conclusions

The practical nature of observations and explanations is present in the entire approach of legal analysis mainly from the perspective of users, respectively of managers of sport structures and participants to sport activity signatories of a sports activity contract.

Thus, the analysis of situation of participants to sport activity from the perspective of capacity to contract, the observance of the disposals of the norms on issue of authorisations by sport federations, the elaboration and registration of obligations, the observance of tax norms in the execution of payments and pertinent motivation in case of tax control, the negotiation and entering of some clauses, which may provide increased protection to parties, were analysed from legal perspective outlining the elements which may significantly influence the conclusion of contract.

Being aware that the only effective protection of ones which is in position to sign a contract, without specialised advises, lays on the knowledge of the law and the awareness regarding the nuances of the legal terms and concepts used. Without deep analyses of legal effects or implications anybody can be in the position of weakest party. Generally, in the world of sport business, compared to the sports organisations, participants to sport activity are in the lack of legal support and particularly exposed are sportsman and sportswomen.

Consequently, the prime objective of the paper was to present an extensive analysis of the legal concepts and upon of development generated by signing an sports activity agreement in order to rise the comprehension of law provisions and acknowledgement of participants to sport activity.

Conversely, sport club managers ascertain, in this paper, subtleties of interpretation of different aspects of articles that determine necessity of certain clauses in order to secure their business.

Revealing the sport activity areas uncovered by the sports activity contract presented by authorities, for example, regarding doping penalties, which remain to be subject of bilateral negotiations added a wider perspective upon the effectiveness of the document examined.

Thus, this study provide all parties with the resources to maximise the benefits gained throughout sports activity agreement by presenting the correlations implied, starting, for instance, with legal capacity to the taxation category related to the special status obtained.

Although the target of the study was to make available some information with direct applicability, the complexity of legislation and of relations between the fields producing effects related to sports activity contract reveals the need to turn to specialised legal services.

The conditions imposed by legislation and subsequent norms emphasize the need of knowledge of legal disposals applicable to sport activity, of the rules of sport structures and of the norms issued by it, of wide understanding of attributions and responsibilities of parties, the need of extended analysis of parties’ intentions with a view to elaborate a sports activity contract which may actually reflect and include the will and needs of participants to sport activity and sport structures.
References


CASE STUDY REGARDING THE CAUSES OF INJURIES IN FEMALE PERFORMANCE BASKETBALL AND THE IMPORTANCE PLAYERS GIVE TO THE SPORTS INJURIES

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Abstract. The number of participants in basketball, both professionals and amateurs, has risen spectacular in the last years. The desire to accomplish more spectacular skills and to obtain sports performance as fast as possible can have the body of the player making tremendous efforts that can lead to body wear and irreversible degradation of the health condition if the whole sports training process does not take place according to verified scientific principles. According to specialists, the reasons which encourage or trigger injuries are many. They show a tight connection between the number and the way sports injuries occur and the characteristics of each sport branch. The particularities of the environment in which the sport activity takes place, the type of effort, its bio-mechanic characteristics, the specific organizational regulation, the particularity of the athletes, the pedagogy mastery of the trainer are between the many causes which make not only the injuries percentage vary but also the way and where they occur. The presented case study was realized on an 80 basketball female players group from the national league and its main purpose is to show, from the perspective of the players, which are the main causes that encourage or triggers performance basketball injuries.

Keywords: basketball, sport players, injuries, trauma.

Introduction

The performance basketball game is becoming more and more spectacular, performance improves from one year to the next so that they represent a limiting psychomotor activity, involving from competitors a maximum effort of speed, strength, stamina, concentration ability under stress conditions. It also increases the risk of injury and illness of the athlete, precisely because of intense stresses, close to the functional limits of the body.

"The technical and physical evolution in basketball in recent years has helped athletes achieve great performances, but has also led sportsmen to suffer physical and psychological stress. Unfortunately, often the poor health of the players and the injuries endanger the entire competitive season of the athlete" argues Cuzzolin (2005, p. 59).

"The locomotor system is used intensively and continuously during basketball play - in moments of maximum intensity as well as in the submaximal. Players must make numerous jumps to the basket, intensely kneeling, swinging, sudden stops, steering changes and sprints, all putting pressure on the knees and the ankle joint. The locomotor system is unequally required. Catching the ball, dribbling, passing or throwing the ball into the basket requires the simultaneous participation of the upper limbs and lower limbs (through cyclic or noncyclic movements - jumping, sloping) while the brain ensures that the opponent is distracted and cannot foresee the next move of the player" supports Jianu (2008, p. 37).

Under these playing conditions injuries are quite common during training and basketball competitions, the most common being ankle and knee sprains, often meniscus lesions and muscle injuries.

Sports injuries are more common in some sporting disciplines. Thus, basketball is a sport in which contact with the opponent is placed in the top 10 sports on the incidence of trauma.

Cumps, Verhagen and Meeusen (2007, p. 204) conducted a study to assess the overall incidence of acute and overloaded basketball injuries, and to identify the risk factors associated with ankle sprains and excessive knee injuries. In total, "164 senior players (23.7 years ± 7.0) from all levels of play, both men and women during a season in Europe. A total of 139 acute and 87 overload injuries were reported, resulting in a global injury incidence of 9.8 (8.5 - masculine and 11.1 - feminine) at 1,000 hours. The incidence of acute lesions was 6.0/ 1000 hours, the incidence of overload injuries was 3.8/ 1000 hours". This study shows that basketball is no longer a fine sport as it was many years ago, it is a high-risk sport.

There are many causes that favor or trigger accidents. They intervene differently, depending on the particularities of the environment in which the sport activity takes place, depending on the particularities of the sporting branch, the playing courts, the devices and the installations, the peculiarities of the participants in the activity, the pedagogical skill of the coach etc.
Most specialists indicate a "close interdependence between the number and type of sports injuries and the characteristics of each sport discipline. The type of effort, its biomechanical characteristics, the specificity of the organizational regulations, are among the many causes that make not only the percentage of traumas, but also their type and location" (Radovici & San-Marina, 1973, p. 9; Tomele, 2005, p. 59; Balint, 2006, p. 49; Ugron & Marolicaru, 2009; Duma, 2009, p. 85; Ugron, 2008, p. 146).

"The knowledge of the main theoretical and practical aspects of accidents (causes, frequency, production mechanism, mode of expression) determines the level of understanding of these undesirable phenomena, having a direct implication in acquiring the knowledge of prevention as well as a more judicious organization of sports activities" supports Duma (2009, p. 77).

Risk factors are typically divided into two broad categories: external or extrinsic-linked to environmental and internal or intrinsic-related factors.

Factors or causes favoring the occurrence of sports injuries are classified into two main categories according to Ilinca (2008, p. 6), Ugron and Marolicaru (2009, p. 205):

a) External or extrinsic factors (unrelated to the athlete, related to environmental factors);

b) Internal or intrinsic factors related to the anatomical and biomechanical characteristics of the athlete.

Practicing the performance basketball, we wanted to see the athletes’ opinion regarding the occurrence of performance basketball injuries and the importance the players give to sports injuries.

Material and methods

According to the way of organizing the activity, this research is one of ascertainment. The aim of the present paper is to identify and analyze the causes of injuries as well as the importance that players give to sports injuries from the perspective of performance basketball players in current sport trends and finding realistic and viable solutions.

Methods used: the bibliographic study, the observation, the survey method (the questionnaire), the data analysis and interpretation method and the graphic method.

The analysis was based on the bibliographic study and statistical information of the questionnaire survey addressed to the basketball players of the National Female Basketball League.

The questionnaire was anonymous or assumed with closed and open questions and the number of subjects used in the present research was 80 female sportsman, with a basketball experience between 6-28 years, mentioning that there are 13 clubs and sports associations in the National Basketball League at FRB (Romanian Basketball Federation). The study was conducted over 2 competitive years.

The data obtained were analyzed and processed statistically and presented through the graphs. Results and conclusions were drafted. We will present you next the answers of the players to the most important questions of the survey regarding injury causes in women’s performance basketball.

Results

- What importance do you give to basketball injuries?

![Figure 1. Importance of basketball injuries](image)
At the question - "What importance do you give to basketball injuries?", most of the basketball athletes surveyed give a special importance to injuries in the sport they practice: 97.6% (66.3% consider the injury problem very important and 31.3% appreciates this issue quite importantly in sports). Only 2.4% of players give little importance to basketball injuries.

- What injuries do you think are the biggest problem in basketball?

<table>
<thead>
<tr>
<th>Injury</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee</td>
<td>68.8%</td>
</tr>
<tr>
<td>Ankle</td>
<td>30%</td>
</tr>
<tr>
<td>Spine</td>
<td>26.3%</td>
</tr>
<tr>
<td>Fingers</td>
<td>5%</td>
</tr>
<tr>
<td>Head</td>
<td>3.8%</td>
</tr>
<tr>
<td>Shoulder</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

Figure 2. The most serious injuries in basketball

Reported to the anatomical regions causing the biggest problems for a basketball player, the athletes surveyed responded: to the knee 68.8%, the ankle 30%, the spine 26.3%, followed by the injuries to fingers 5% , head 3.8% and shoulder 1.3%.

- What do you think are the main causes of basketball injuries?

![Diagram of main causes of basketball injuries]

Figure 3. Main causes of basketball injuries

We have been particularly interested in this study to find out what is the opinion of the players about the main causes of injuries in performance basketball. Participants expressed their opinion on the main causes of injuries, with 15 variants of answers, choosing three variants of response. Realizing a ranking of the causes of basketball injuries from the perspective of the 80 athletes, it looked like this: little/ inadequate or lack of recovery; insufficient and inadequate/ non-individualized warmup; busy competitive program (too many matches/ too many training sessions); poor physical condition; hard contact between players (see Figure 3).
Do you think the rules of play and its interpretation by referees can influence the occurrence of injuries?

![Pie chart showing opinions on the influence of rules and refereeing on injuries]

Figure 4. Opinion regarding the statement that rules of play and its interpretation by referees can influence the occurrence of injuries

For the question - "Do you think the rules of the game and its interpretation by the referees can influence the occurrence of injuries?" the answers were varied. If 45% of sportspeople appreciate that referees, by allowing a permissive referring, may sometimes cause a more aggressive game that can lead to injuries, other sports 36.3% do not agree with this and 16.2% of the 80 athletes questioned claim that both the rules of the game and its interpretation by the referees can influence the occurrence of injuries.

How was your health condition before the injury?

![Pie chart showing health conditions before injuries]

Figure 5. Health condition before the injury

At the question "How was your health before the injury?" it is interesting to see that over half of the athletes said that their health was very good 51.2%.

On the other hand, 33.8% of the basketball players, before the injury, accused tiredness and muscle tension. Of the respondents, 6.3% accused regular joint/muscle pain during training and 3.7% had just returned after another injury.

Before the injury occurred, have you recently changed your playing shoes/new shoes, changed your training regime, changed the training ground, accused pains that occur only in effort, superficial warmup, didn’t wear protective equipment, didn’t use stretching exercises in the warmup part, did you feel tense or anxious, others?
The answers in the case of the question above give us the judgment of the athletes about what could have triggered the injury at issue. Much of the 18.4% players admitted that they had superficial/inadequate warmup for that training before the injury occurred. Changing the training surface (other gyms with different play areas or slippery areas, tougher trails, lands, beaches etc.) caused 17.5% of respondents some trauma. Out of the surveyed players, 11.4% did not use the stretching exercises on the warmup part before the injury occurred. If 12.3% of basketball players specify other reasons such as overwork, new exercises in training, out of the 8 listed, 10.5% did not wear protective equipment, 8.8% of the total of 80 athletes felt tensed and accused tiredness and anxiety before the injury occurred.

Analyzing the questionnaires of the 80 athletes, we have obtained interesting and relevant results regarding the problems related to the causes of the women's performance basketball injuries and the importance that the players give to the trauma.

Although most athletes give a great importance to injuries, they have sustained that musculoskeletal trauma has often been subjected to superficial/inadequate warmup for that training.

Basketball athletes fear most of the knee trauma followed by trauma from the ankle and the spine.

The severity of the injuries produced during competitions or training is determined by the injuries produced and by the fact that the injured basketball players are forced to interrupt their competitive activity for a long period of time or even to abandon definitively the performance in sports activity.

Causes favoring or triggering injuries described in the specialty literature are found in a very large number. They work differently, depending on the particularities of the environment in which the sporting activity takes place, according to the particularities of the basketball game, the courts used for training and playing, the particularities of the athletes and the professionalism of the coach.

From the perspective of the 80 basketball athletes surveyed, the main factor that can cause basketball accidents is little/inappropriate recovery or even the lack of means of rehabilitation.

Other very important causes from the athletes' perspective would be the insufficient or unsuitable warming up of the busy schedule (too many matches/too many training sessions), poor physical condition and too permissive refereeing that can lead to a more aggressive game with tougher contact between players and in this way various injuries can occur.

Analyzing the causes mentioned by the athletes you can think that some of the injuries can be errors of training-conditioning, preparation and organization errors. An approach to a misguided methodology in different stages of preparing the athlete. The methodical mistakes during the training performed by unequal training of antagonistic groups at the expense of the agonist groups may also be responsible for the occurrence of traumas.

Concerning conditioning and training, it is important to analyze the athlete's training method, which may be an increased intensity or an excessive volume. Many athletes accused fatigue and muscle tension and anxiety. Metabolic fatigue can cause muscle or tendon injuries, discomfort, and muscle cramps. Forcing players beyond this fatigue limit can cause serious injuries.

The sudden changes in the training type, the overworking, as claimed by the athletes, can cause injuries and the coaches should rethink the way in which the training is conducted, and regular sports discussions about their physical and mental health status should be mandatory.

Non-individualization of training, non-observance of medical prescriptions, non-observance of medical check-ups, admission to training and competitions of athletes who hide illness or who have been ill and have not been recovered are causes that can cause very serious injuries and a coach that complies must take into account all these
aspects. A previous trauma leads to muscle imbalances either between the lower or upper limbs or between the flexor and extensor muscle groups. In other words, the athlete recovers training and competitions based on the lack of pain and inflammation, but not on the recovery of strength, or resistance, mobility necessary for successful basketball performance, and is then at risk of reactivation.

On the other hand, the lack, insufficiency or inadequacy of restoration after the training or competition effort cannot be understood at the level of performance in the National League.

Conclusions

Sports injuries are an important issue as shown in basketball by their number and the medical and sporting consequences.

Preventing injuries in basketball play can only be possible if the causes that determine them are known. In the incidence and exposure studies of injuries as well as the injury mechanisms it is shown that a large part of the total accidents can be avoided.

Rehabilitation of sports injuries may be possible by appropriate measures and adapted to the specific conditions in which the sports coach or sports instructor operates. Minimizing or neglecting concerns about injury prevention leads to multiplying the number of injuries and altering body and health integrity for an increased number of athletes.

Knowing the causes that can lead to trauma in sports practice, is of great importance not only for the correct diagnosis but also for taking early measures to prevent their production through more judicious organization of sports activities and regular discussions with the athletes involved in the activity.

References

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- The Publication Manual of the American Psychological Association was first published in 1929 as a seven-page standard of procedure (Bentley et al., 1929, p. 57).

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