THE ATTITUDES AND BELIEFS OF PARALYMPIANS AND ATHLETES WITH DISABILITIES ON DOPING IN SPORT

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Keywords: doping; performance-enhancing drugs (PED); Paralympic athlete; PEAS

Abstract:

Background: This study aims to analyze the opinions and attitudes of elite athletes with disabilities.

Methods: Study participants included a group of elite Polish team members competing in international competitions (including Paralympics) in various sports. The research sample consisted of 100 individuals, including 67 men (67%) and 33 women (33%). The descriptive exploratory design used an instrument that combined a validated questionnaire (Performance Enhancement Attitude Scale; PEAS) with a special questionnaire adapted to athletes with disabilities.

Results: The overall mean score from the PEAS scale (range, 11–66, with higher scores representing more permissive attitudes towards doping) was 20.61 ± 11.35, with 21.20 ± 10.96 in men, 19.39 ± 12.20 in women, 20.46 ± 10.92 in Paralympians and world championship participants (Masters), and 21.14 ± 13.16 in other competitors. For more than half (58%) of respondents, doping is uncommon in sports, and sports success can be achieved without doping (88%). The vast majority of respondents (90%) do not know people who use doping.

Conclusion: The lack of response and hesitation in answers suggest that the respondents did not use doping but also were unaware of doping. Therefore, it seems necessary to implement anti-doping education for athletes with disabilities from the early stages of their sports careers.

Introduction

Modern sport is focused on success, generating high-level performance, and crossing physiological barriers. Breaking records and winning is associated with financial benefits but it also raises the social prestige of the athlete. Some competitors try every possible means in order to achieve better results and success in sport, including using doping. Although the use of prohibited substances violates the ethical principles of sport and medicine and is contrary to the spirit of sport [30], doping is still a current problem in modern sport as the development of medicine, pharmacology, and technology helps contestants to use increasingly advanced improvements. Despite the high interest of organizations that ensure compliance with the Anti-Doping Code that clearly defines the objectives of the World Anti-Doping Programme [4,30], athletes are caught using prohibited performance enhancers or taking ‘shortcuts’ [32].

The topic of doping has been raised many times in research papers in recent years. However, those reports mainly concerned the use of prohibited means and methods to improve the body’s functioning. Our research interest is focused not on the medical but rather social context of using doping. To date, several social studies have been published.
related to the opinions and views on doping of athletes in various sports. This perspective can be found in studies on judo [6], sailing [20], football [13,28], swimming [21], weightlifting [19]; tennis [7], cycling [9,14], female cyclists and triathletes [14], and a group of 492 Spanish cyclists (future physical trainers, elite cyclists, young cyclists, and cycling team managers) [12]. Interesting research was conducted on a large sample of 457 players of team sports such as volleyball, football, basketball, and handball [24].

Another interesting study was conducted on people dealing with strength and conditioning, including trainers, physical trainers, and technical staff [15]. Due to its complexity and controversy, the problem of doping in the social aspect has been rarely explored. Furthermore, few reports from studies on doping have concerned disabled people. In general, disability sports are not very popular among researchers of various scientific disciplines, and there are few publications on athletes with disabilities. Due to the lack of information in the scientific literature regarding the opinion on using doping by athletes with disabilities, we decided to explore this issue.

Doping is becoming a method to accelerate sports success. For some, it may be the missing element to achieving high performance. As some athletes believe, only using prohibited substances can allow for overcoming barriers and achieving a high score [22]. On the one hand, doping is forbidden and unethical but on the other hand, it is considered necessary and leads to victories and breaking records. Prohibited measures to increase physical performance are not accepted in society, which can cause frustration caused by the discrepancy between positive outcomes such as prestige, fame, and popularity, and the forbidden method of their implementation [10]. Using doping may result from the influence and pressure from the closest people, family, or society. The use of prohibited substances can also be discussed in the context of the theory of inefficiency of social control mechanisms, which says that deviations occur when social control weakens [26]. The anti-doping system is not perfect and athletes using prohibited substances are usually aware of the weak points of monitoring. Another sociological theory that can be used to explain deviations in sport and doping is the theory of positive deviance where any use of a prohibited substance results from overconformity [5]. According to this theory, using doping is in line with the standards and values related to sport ethics, such as striving for excellence, crossing borders, dedication to sport, while the use of prohibited substances means a full commitment to sport.

The dedication and subordination of one’s life to sport is known to all competitive athletes, both able-bodied and disabled. They share the same dreams and goals to achieve success. Following the analysis of Goffman’s stigma, it can be added that athletes with disabilities must undertake more work than their non-disabled peers in order for them to be recognized as full members of society [3]. The sport for disabled people has been developing for nearly 70 years, and, in recent decades, more than ever before. An increasing number of disabled people, especially young people, get involved in sports, and new competitions are held every year. Similar to the sport for healthy people, Paralympic sports are centered around the International Paralympic Committee (IPC), which was established in Dusseldorf in Germany in 1989. Its symbol is three Agitos which ‘symbolize motion, emphasize the role of the Paralympic Movement in bringing athletes together from all corners of the world to compete’ [33]. The IPC motto is Spirit in Motion, which means ‘that Paralympic athletes are constantly inspiring and exciting the world with their performances: always moving forward and never giving up’ [33]. The IPC brings together national Paralympic Committees and also cooperates with international sports federations.

Despite the contestants’ disabilities, they have similar organizations, federations, and sports games run in a similar way and with similar opening ceremonies, course of the competition, medals, closing ceremonies, and high prestige of competitions [18]. Paralympic Games are held after the Olympic Games of able-bodied athletes, and these games are shown selectively in the media. However, the importance of Paralympians’ participation in general sports is increasingly emphasized and it is stressed that they can be a source of inspiration for others due to striving for success despite difficult circumstances [25]. Paralympians and athletes with disabilities must comply with anti-doping rules. They have the same recommendations and responsibilities as healthy athletes. Caught with the use of prohibited drugs, they are disqualified from the sports world. As with healthy athletes, WADA national delegations organize training and provide information in an updated list of prohibited substances. For some diseases, there are also deviations from the accepted rules concerning athletes with disabilities, and for health reasons, the contestant may take medicines that are included in the WADA prohibited list. In such cases, special WADA regulations shall apply and such situations shall be reported to the IPC TUE (Therapeutic Use Exemption) [29]. However, there is a belief that this provision may create the possibility of abuse and unnecessary use of drugs, which in practice means doping with the consent of WADA. This topic is particularly popular among journalists, who define this as ‘doping in disguise’. The problem of doping among athletes is an extremely important issue that is difficult to investigate due to the concerns of revealing uncomfortable truth. The article aims to demonstrate the attitude of athletes with disabilities, including Paralympians, to the use of prohibited performance-enhancing...
substances. The following questions were posed before the research: What is the opinion of Paralympians and athletes with disabilities about doping? Are they against the use of doping? Is doping common and easily accessible in sport? Have the respondents ever been subjected to doping? Can sporting success be achieved without doping according to athletes with disabilities?

**Material and methods**

**Respondents**

The study comprised 100 athletes with disabilities, including elite athletes. Sampling was purposive. This is a small population, from which the best athletes are selected to participate in the games and world championships. The tests were voluntary, and the athletes were informed that they were confidential and that any information contained in the replies would not be passed on to third parties in any way, and the results would be used solely for scientific purposes. The survey was conducted from January to April 2020. One hundred people qualified for the analysis. The study group included 67 men (67%) and 33 women (33%). The average age of the respondents was 29.67 (± 12.31) years, with 30.94 (± 12.07) in men and 27.12 (± 12.55) in women. The respondents included athletes of various sports: swimming (28%), athletics (26%), shooting (21%), rowing and hockey (7 athletes each), cross-country skiing (3 athletes) cycling, basketball, beach volleyball (2 athletes each), and rugby (1 athlete). There was a group of 79 (79%) athletes among the respondents taking part in the most prestigious competitions such as the Paralympics and world championships. The testing protocol and data handling were approved by the Ethics Committee of the Jagiellonian University in Krakow in Poland.

**Research methods**

The research was carried out using the Performance Enhancement Attitude Scale (PEAS). The PEAS scale, used worldwide in English and Spanish, contains a 17-question 6-point Likert-type scale, with points scored for the following responses: (1) Strongly disagree, (2) Disagree, (3) Slightly disagree, (4) Slightly agree, (5) Agree, and (6) Strongly agree. No neutral response was offered and all 17 items were scored in the same direction. The overall scores ranged from 17 to 102 points (with a theoretical middlepoint of 59.5), with higher scores representing a more lenient attitude toward doping. The PEAS scale has been validated for Polish conditions by Sas-Nowosielski and Budzisz [23] and has shown good psychometric properties. In Polish, the scale includes 11 questions with the overall range from 11 to 66 points and a middlepoint of 38.5 [23].

To supplement the PEAS scale, a 9-item author’s survey questionnaire was used to expand the opinion on the use of doping among athletes with disabilities. Similar questionnaires have been used by other researchers [13,15]. The following questions were posed: 1. Do you think that doping is widespread in sport and that its use is a necessity on the way to sports success? 2. Do you think you can achieve very good results in sport without doping? 3. Are doping agents easily available in your community? 4. Have you encountered the problem of encouraging the use of doping? 5. Has anyone in your community used doping? 6. Who do you think is most often responsible for the distribution of prohibited substances? 7. How would you describe the use of doping? 8. What do you think could be the solution to doping in sport? 9. Are disabled athletes more willing to use doping than able-bodied athletes?

**Statistical analysis**

Based on the results, a statistical analysis was carried out using the Statistica 13 software. Data were presented as percentage values, means, and standard deviations. The normality of the data distribution was checked using the Shapiro-Wilk test. The Mann-Whitney non-parametric test was used due to the non-normal distribution. The relationship between the pairs of variables was calculated using Spearman’s rank correlation coefficient. The level of significance was set at p<0.05. Spearman’s correlation coefficient was also used to assess the relationships between PEAS and other analyzed variables.

**Results**

The overall mean score from the PEAS (range: 11–66, with higher scores representing more permissive attitudes towards doping) was 20.61 ± 11.35, with 21.20 ± 10.96 in men and 19.39 ± 12.20 in women, 20.46 ± 10.92 in Paralympians and world championship participants (Masters), and 21.14 ± 13.16 in other competitors. Detailed results are shown in Table 1.
Table 1. Descriptive statistics and comparisons between different men and women, Paralympic athletes, Master athletes, and other Paralympic athletes for the overall score of the Performance Enhancement Attitudes Scale (PEAS)

<table>
<thead>
<tr>
<th></th>
<th>Overall Score =100n</th>
<th>SD</th>
<th>Men=67n</th>
<th>SD</th>
<th>Wome-n=33n</th>
<th>SD</th>
<th>Paralympic and Master Athletes=79n</th>
<th>SD</th>
<th>Others Paralympic athletes=21n</th>
<th>SD</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legalising performance enhancements would be beneficial for sports</td>
<td>1.52</td>
<td>1.27</td>
<td>1.50</td>
<td>1.25</td>
<td>1.54</td>
<td>1.32</td>
<td>1.40</td>
<td>1.12</td>
<td>1.9</td>
<td>1.68</td>
<td>0.149</td>
</tr>
<tr>
<td>Doping is necessary to be competitive</td>
<td>1.77</td>
<td>1.58</td>
<td>1.91</td>
<td>1.69</td>
<td>1.48</td>
<td>1.30</td>
<td>1.79</td>
<td>1.57</td>
<td>1.66</td>
<td>1.65</td>
<td>0.538</td>
</tr>
<tr>
<td>The risks related to doping are exaggerated</td>
<td>2.12</td>
<td>1.88</td>
<td>1.97</td>
<td>1.77</td>
<td>2.42</td>
<td>2.07</td>
<td>2.13</td>
<td>1.89</td>
<td>2.04</td>
<td>1.85</td>
<td>0.795</td>
</tr>
<tr>
<td>Recreational drugs give the motivation to train and compete at the highest level</td>
<td>2.05</td>
<td>1.97</td>
<td>2.02</td>
<td>1.85</td>
<td>2.09</td>
<td>2.22</td>
<td>2.00</td>
<td>1.89</td>
<td>2.23</td>
<td>2.27</td>
<td>0.919</td>
</tr>
<tr>
<td>Athletes should not feel guilty about breaking the rules and taking performance-enhancing drugs</td>
<td>1.42</td>
<td>1.20</td>
<td>1.47</td>
<td>1.21</td>
<td>1.30</td>
<td>1.21</td>
<td>1.32</td>
<td>1.04</td>
<td>1.76</td>
<td>1.67</td>
<td>0.279</td>
</tr>
<tr>
<td>Athletes are pressured to take performance-enhancing drugs</td>
<td>2.39</td>
<td>1.78</td>
<td>2.67</td>
<td>1.81</td>
<td>1.81</td>
<td>1.60</td>
<td>2.53</td>
<td>1.85</td>
<td>1.85</td>
<td>1.38</td>
<td>0.126</td>
</tr>
<tr>
<td>Doping is an unavoidable part of competitive sport</td>
<td>2.46</td>
<td>1.77</td>
<td>2.74</td>
<td>1.74</td>
<td>1.87</td>
<td>1.72</td>
<td>2.51</td>
<td>1.81</td>
<td>2.23</td>
<td>1.67</td>
<td>0.538</td>
</tr>
<tr>
<td>Athletes often lose time due to injuries and drugs can help to make up for the lost time</td>
<td>2.00</td>
<td>1.75</td>
<td>2.17</td>
<td>1.81</td>
<td>1.63</td>
<td>1.57</td>
<td>1.93</td>
<td>1.64</td>
<td>2.23</td>
<td>2.14</td>
<td>0.878</td>
</tr>
<tr>
<td>Doping is not cheating since everyone does it</td>
<td>1.29</td>
<td>0.97</td>
<td>1.19</td>
<td>0.70</td>
<td>1.48</td>
<td>1.37</td>
<td>1.24</td>
<td>0.78</td>
<td>1.47</td>
<td>1.50</td>
<td>0.870</td>
</tr>
<tr>
<td>Only the quality of performance should matter, not the way athletes achieve it</td>
<td>1.96</td>
<td>1.66</td>
<td>1.74</td>
<td>1.46</td>
<td>2.39</td>
<td>1.96</td>
<td>1.96</td>
<td>1.66</td>
<td>1.95</td>
<td>1.68</td>
<td>0.961</td>
</tr>
<tr>
<td>There is no difference between drugs, fiberglass poles, and speedy swimsuits that are all used to enhance performance</td>
<td>1.63</td>
<td>1.61</td>
<td>1.77</td>
<td>1.64</td>
<td>1.33</td>
<td>1.53</td>
<td>1.60</td>
<td>1.57</td>
<td>1.71</td>
<td>1.79</td>
<td>0.974</td>
</tr>
</tbody>
</table>
1. More than half of the respondents (58%) replied that doping is not common in Paralympic sport, 26% did not have an opinion on this subject, 16% said it is present, and only two respondents answered strongly that doping was present in sport.

2. In the next question, the majority of athletes with disabilities (88%) indicated that very good results in sport can be achieved without the use of doping, whereas as much as 64% of respondents were strongly convinced. This result indicates that the surveyed athletes are focused on success without support. Only eight people indicated that doping is necessary to achieve a very good performance, and four people had no opinion on this topic.

3. In this study, we were also interested in access to doping substances. As many as 33% of athletes with disabilities had no opinion on this subject. A total of 44% of respondents indicated that doping was not (22%) or was definitely not (22%) easily accessible. The results may also indicate that athletes had never had any relationship with doping agents.

4. Research shows that the vast majority of 96% had never been persuaded to use doping. In contrast, four people indicated that they had met with persuasion to use doping.

5. The vast majority (90%) of the respondents had no friends who used doping. However, ten people indicated that they knew a person who took or used doping substances.

Table 2. Spearman’s correlation between PEAS results and age of respondents

<table>
<thead>
<tr>
<th></th>
<th>Total sample =100n</th>
<th>Men =67n</th>
<th>Women =33n</th>
<th>Paralympians, Master Athletes = 79n</th>
<th>Others = 21n</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>p</td>
<td>R</td>
<td>p</td>
<td>R</td>
<td>p</td>
</tr>
<tr>
<td>Legalising performance enhancements would be beneficial for sports</td>
<td>0.14</td>
<td>0.152</td>
<td>0.13</td>
<td>0.273</td>
<td>0.14</td>
</tr>
<tr>
<td>Doping is necessary to be competitive</td>
<td>0.03</td>
<td>0.760</td>
<td>-0.006</td>
<td>0.960</td>
<td>0.03</td>
</tr>
<tr>
<td>The risks related to doping are exaggerated</td>
<td>0.05</td>
<td>0.060</td>
<td>0.071</td>
<td>0.564</td>
<td>0.03</td>
</tr>
<tr>
<td>Recreational drugs give the motivation to train and compete at the highest level</td>
<td>-0.02</td>
<td>0.796</td>
<td>-0.11</td>
<td>0.334</td>
<td>0.11</td>
</tr>
<tr>
<td>Athletes should not feel guilty about breaking the rules and taking performance enhancing drugs</td>
<td>0.29</td>
<td>0.003</td>
<td>0.32</td>
<td>0.006</td>
<td>0.18</td>
</tr>
<tr>
<td>Athletes are pressured to take performance-enhancing drugs</td>
<td>0.24</td>
<td>0.015</td>
<td>0.26</td>
<td>0.033</td>
<td>0.03</td>
</tr>
<tr>
<td>Doping is an unavoidable part of competitive sport</td>
<td>0.26</td>
<td>0.006</td>
<td>0.22</td>
<td>0.062</td>
<td>0.19</td>
</tr>
<tr>
<td>Athletes often lose time due to injuries, and drugs can help to make up for the lost</td>
<td>0.180</td>
<td>0.071</td>
<td>0.09</td>
<td>0.427</td>
<td>0.36</td>
</tr>
<tr>
<td>Doping is not cheating since everyone does it</td>
<td>0.04</td>
<td>0.688</td>
<td>0.04</td>
<td>0.737</td>
<td>0.15</td>
</tr>
<tr>
<td>Only the quality of performance should matter, not the way athletes achieve it</td>
<td>0.00</td>
<td>0.970</td>
<td>0.10</td>
<td>0.397</td>
<td>-0.02</td>
</tr>
<tr>
<td>There is no difference between drugs, fiberglass poles, and speedy swimsuits that are all used to enhance performance</td>
<td>0.23</td>
<td>0.019</td>
<td>0.13</td>
<td>0.290</td>
<td>0.40</td>
</tr>
<tr>
<td>PEAS Overall Score</td>
<td>0.22</td>
<td>0.027</td>
<td>0.21</td>
<td>0.083</td>
<td>0.31</td>
</tr>
</tbody>
</table>
6. The next question asked to indicate the individuals most often responsible for the distribution of doping agents. The following answers were provided: dealers – 51 answers, coaches in gyms – 23, coaches in sports clubs – 16, sports activists – 11, sports physicians – 15, friends – 15, and pharmacists – 1; five people did not know anyone who did this. The important fact is that people related to sports clubs and the professional preparation of athletes were indicated in this question as many as 42 times. This question had a multiple-choice format.

7. Athletes with disabilities saw doping as fraud, which was pointed out 51 times, harmful to health (21 replies), and a lie (6 replies). There were two answers indicating that it was a form of taking a shortcut, and one person had no opinion on this topic. Unfortunately, there were also answers that it is an individual matter (8 replies) and that doping is a must in the modern world (6 replies).

8. In the open-ended question of “What do you think could be the solution to doping in sport?”, over 39% of respondents answered that more doping controls should be carried out, 20% said that athletes should be educated from an early age, and almost 25% indicated that doping should be prevented among the youngest athletes. It is clear that athletes with disabilities believe that special attention should be paid to young players and educating them. Furthermore, 11 people said that there was no good solution and 3 people that doping should be legal. Two players were strong opponents of using doping and stated that athletes caught using doping should be banned from participation in sports competitions for life.

9. Over half of the respondents (57%) replied that disabled athlete finds it harder to use doping, whereas 39% did not have an opinion on this subject. Only 4 people admitted that it is easier for a disabled person to use doping.

In the final stage, the correlations between the attitudes towards doping measured by means of PEAS, based on other analyzed variables, and using Spearman’s rank correlation coefficient were examined, as shown in Table 2.

**Discussion**

The results of the present study indicate that the vast majority of athletes with disabilities have negative attitudes towards using prohibited performance-enhancing substances. Based on previous reports, we used the Performance Enhancement Attitude Scale (PEAS) in the first stage of research (Polish version). Due to additional parameters of the PEAS scale in Polish, containing 11 items, the overall values of the results differ slightly from the results obtained in other countries. However, as shown by Sas-Nowosielski and Budzisz: the 11-item Polish version demonstrated the best model fit and internal consistency and (...) it can be used to assess attitudes in Polish athletes [23].

Of previous studies using the 17-item PEAS scale (range: 17-102, and giving a theoretical middle point of 59.5), noteworthy is the study by Uvascek et al. [27], in which 12% of 82 Hungarian athletes scored higher than expected, significantly higher on the PEAS (p<0.05) compared with those who reported no use of banned drugs (46.8±13.32 and 34.43±8.74, respectively). Among other scientific reports, we also found research on a group of 237 stakeholders (34.45±8.59 years) who were categorized as follows: coaches (COA) (n = 101), physical trainers (n = 68), and the rest of technical staff (n = 68). The overall mean score from the PEAS was 31.64±10.77. [15]. In the study of 72 Spanish national team cyclists from different Olympic sports such as mountain bike racing (n = 18), bicycle motocross (n = 12), track cycling (n = 9), and road cycling (n = 33), the mean scores of 36.12±9.39 were obtained. They observed that bicycle motocross (42.46±10.74) and track (43.22±12.00) cyclists showed significantly (P < 0.05) more permissiveness than mountain bike (30.28±6.92) and road (34.91±6.62) cyclists. Consequently, these more lenient groups could be considered risk groups based on their permissive attitudes towards doping [11]. In team sports players, the PEAS score was higher in males than in females (46.12±11.43 and 41.54±14.11 in males and females, respectively) [24]. Another study conducted among 492 Spanish cycling professionals and athletes such as future physical trainers, elite cyclists, young cyclists, and cycling team managers found the PEAS scale in the whole sample of 36.12±10.09, and, when comparing groups, the oldest of them were significantly more lenient towards doping than elite cyclist and future physical trainers [12]. Research on the group of female cyclists and triathletes showed an overall PEAS score of 34.02±12.74 for the whole sample, with 36.63±14.27 in cyclists and 32.37±11.41 in female triathletes [11]. In a study of 340 Polish athletes of 13 different sports using the short 11-item version of PEAS (range: 11–66, and giving a theoretical middle point of 38.5), scores of 20.11±8.27 were obtained [23].

The obtained results of low tolerance for performance-enhancing drugs (PED) also confirm the answers to additional questions of the author’s questionnaire. Over half of the respondents believed that doping is not common in sports. Completely different results were found among personal trainers carried out in 2020 [31], where almost 90% of respondents recognized that doping is common in sport, and as much as 20% confirmed that it is impossible to
achieve very good results in a sport without doping. In the case of athletes with disabilities, only five people indicated that doping is needed to succeed.

According to 23% of respondents, doping substances are easily available. In the case of research on personal trainers, the group which provided such an answer was much more extensive (35%) [31]. According to athletes with disabilities, the dealers and trainers in gyms are most often responsible for distributing substances. However, almost 1/3 of respondents indicated that they are professionally connected with sports (coaches in sports clubs, activists, and sports physicians). Similar results were obtained in a study on personal trainers, where, according to the respondents, dealers were mainly responsible for the distribution [31]. The results of studies by other authors indicated managers [12,14] and trainers [16] among those who mostly provided doping substances. Among the respondents, only 2 people were urged to use doping, whereas in the studies of other authors this number was higher in Spanish technical football (5%) [15], and among personal trainers (11%) [31].

For most respondents, doping is perceived as inconsistent with the values of sport and it is a fraud. Similar findings were presented by Morente-Sánchez et al. [11,15]. Despite the fact that most respondents referred negatively to doping as it distorts the meaning of sport and gives unfair results, there were eight people among athletes with disabilities for whom doping was an individual matter, and for six people, it was a necessity in the modern world. In other studies, there were more people who indicated that using prohibited substances is not wrong or that it is an individual matter [1,11,28]. Among athletes, 10% knew a person who used doping, which is also a smaller percentage than those presented in previous studies [1,11,14,28]. However, none of the respondents admitted to using doping, although such answers were given in studies by previous authors, as in a group of 750 Greek elite athletes, 4.3% admitted to using doping [8], in the study of Uvacsek et al. [27], this was 14.6%, and a report by Pitsh, Emrich, and Klein [17] indicated almost 26% of 448 elite athletes admitting to having taken prohibited substances.

According to the respondents, education is the most appropriate solution to combat doping in sports. Similar results can be found in studies by Morente-Sánchez et al. [13], Alaranta et al. [1], Backhouse & McKenna [2], and Morente-Sánchez & Zabala [14]. It is hard to disagree with the fact that showing and explaining what doping is and what its consequences are to children and adolescents engaging in physical activity can increase their awareness of prohibited substances in their further careers. A large number of respondents also added that more doping controls should be carried out.

Conclusions

The analysis of the results of this study showed that the level of lack of tolerance amongst athletes with disabilities is higher than in able-bodied athletes, as presented in previous studies by various authors. The results also indicate that the vast majority of athletes with disabilities had negative attitudes toward using forbidden performance-enhancing substances, and more than half had explicitly stated that doping is not common in sport and that it is not easy to get it. The majority admitted that you can achieve very good results in a sport without the use of doping and have not been persuaded to take prohibited substances. Undoubtedly, hesitant answers to the questions point to the lack of awareness of doping among a large group of athletes with disabilities. The growing list of prohibited substances published by WADA means that contestants may not be aware of doping. Lack of knowledge, however, does not justify any athlete. Therefore, in line with the postulates of other researchers dealing with opinions and attitudes on doping, we also wanted to emphasize the value of education. Even minor sports organizations should introduce anti-doping education programmes for both junior athletes and those with many years of experience. The study showed that the majority of athletes with disabilities were against the use of performance-enhancing substances, but there were also people who considered doping a must in modern sport. The respondents also included those who considered that using doping is an individual matter, which indicates that there are people taking prohibited doping substances among their closest friends, or that they used doping themselves.

The limitation of this study was the difference between the PEAS scale in English and Spanish and its Polish version. The Polish version differs in the number of items. However, there is very little research on the subject of attitudes of athletes towards doping, which should also refer to world results while this was the aim of this study. Research on this topic should continue to be expanded and further research should focus on selected sports, as is being done among non-disabled athletes.

Conflicts of Interest: The authors declare no conflict of interest

Acknowledgements: Thanks to the cooperation of the Polish Paralympic Committee we were able to reach a group of athletes with disabilities.
Funding: This work was supported by the University of Physical Education in Krakow (Akademia Wychowania Fizycznego w Krakowie): Grant 188/BS/INS/2019-20.

Institutional Review Board Statement: The research project gained the approval of the Commission on Research Ethics at the Institute of Applied Psychology of the University of Jagiellonian in Krakow (Opinion No. 54/ 28.10.2019).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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