

# ATTITUDES TOWARD DOPING AMONG POLISH ATHLETES MEASURED WITH THE POLISH VERSION OF PETROCZI'S PERFORMANCE ENHANCEMENT ATTITUDE SCALE

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## Abstract

**Introduction.** The aim of the study was twofold. The first aim was to specify attitudes toward using performance-enhancing drugs (doping) among athletes practising different sports disciplines. The second aim was to present the Polish version and validation of the Performance Enhancement Attitude Scale (PEAS). **Material and methods.** A total of 340 athletes (173 males and 167 females) took part in the study. They represented 13 sport disciplines. The study was conducted in Central Sports Centres in Poland. Athletes' attitudes were assessed using the Performance Enhancement Attitude Scale (PEAS). **Results.** The study revealed that athletes generally were not tolerant in relation to illegal performance-enhancing substances in sport. However, men were more permissive toward illegal performance enhancement than women. The other important factor, apart from gender, was the amount of contact between competitors. The lowest values were found for sports where athletes competed parallel to each other, medium values were recorded for sports where athletes were in close contact, and the highest values were found in the group of athletes having no contact with the competitors. Our analyses also confirmed that the 11-item version of PEAS has the best fit indices and therefore is most recommended for use among Polish athletes. **Conclusions.** The Polish version of PEAS is recommended in its 11-item version, and its reliability was confirmed. According to the findings of the study, Polish athletes rather do not approve of doping behaviours. Men were more likely to use illegal substances than women. The most positive attitude towards doping was found for sport disciplines where there is no contact with the competitor.

**Key words:** sport, doping, athletes, PEAS

## Introduction

According to the World Anti-Doping Code, "doping is fundamentally contrary to the spirit of sport" [1]. However, this phenomenon is widespread in high-performance sport, as was disclosed in a recent 2015 report of the CIRC on cycling or the 2016 WADA report on Russian sport. Moreover, it is also present in youth sport and even amateur sport. Efforts aimed at countering doping practices are based on two kinds of activities, one type being mainly reactive (controlling athletes and sanctioning those who have violated anti-doping rules) and the other rather proactive, namely anti-doping education. Within the latter, understanding the attitudes of athletes toward doping is an important goal which can contribute to initiatives developing attitudes that can predispose individuals to anti-doping behaviours. Attitudes in general, and attitudes toward specific issues in particular, are operationalised differently, and therefore various measures are used in studies dealing with the problem of doping attitudes in athletes. One of the measures that has gained international recognition [2, 3, 4, 5] is the Performance Enhancement Attitude Scale (PEAS) [6], which, in the original version, is a 17-item six-point Likert-type scale assessing the tolerance of athletes toward doping use in sport (the higher the score on PEAS, the more permissive the attitude to doping).

According to Morente-Sánchez, Femia-Marzo, and Zabala [3], the scale should be tested in various cultural contexts and languages, and "the adaptation and psychometric validation of this scale to other widely spoken languages is an important issue to facilitate cross-cultural comparisons".

Therefore, the purpose of the study was to assess attitudes toward doping in Polish athletes with a Polish version of PEAS.

## Material and methods

Participants of the study were 340 athletes (173 males and 167 females) aged  $18.20 \pm 3.93$  years, practising 13 sports disciplines: athletics (track, throwing, and jumping events), track cycling, canoeing, field hockey, volleyball, squash, fencing, judo, rowing, powerlifting, weightlifting, speed skating, and archery. The length of the athletes' training experience was  $5.96 \pm 3.34$  years. The data were collected in the Central Sports Centres in Zakopane, Wałcz, Szczyrk, and Spała from November to December 2016. Every fourth (26.47%) respondent was a member of the national team in their sport. As far as the level of their sport performance is concerned, they had the following classes in the Polish system, starting from the highest to the lowest one: 35 (10.29%) had the international championship class, 76 (22.35%) had the championship class, 65 (19.12%) had the first

class, while the remaining ones had the second or third class. The athletes' attitudes were assessed using the Performance Enhancement Attitude Scale (PEAS) [7]. The questionnaire consists of 17 items evaluated on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree), which are aggregated, giving a total score ranging from 17 to 102. The tool was translated into Polish in accordance with the translation-back translation procedure. The reliability of the scale was calculated by means of the internal consistency method using Cronbach's  $\alpha$  coefficient, assuming a cut-off value of 0.7 as a threshold of acceptable reliability. Validity was determined using confirmatory factor analysis (CFA). All calculations were made in Statistica 13 (Statsoft).

## Results

### Reliability and validity of the Polish version of PEAS

As mentioned above, the reliability of PEAS was measured by means of the method of internal consistency using Cronbach's alpha coefficient. The reliability turned out to be high, reaching an  $\alpha$  value of 0.89; removing either of the items did not raise  $\alpha$  above this threshold and actually lowered it below the value of 0.88. Confirmatory factor analysis revealed that the original 17-item scale was only marginally well fit to the data ( $\chi^2/df = 3.22$ ; RMSEA = 0.07, GFI = 0.90, AGFI = 0.90, NNFI = 0.85). Only the NNFI value was slightly lower than the recommended 0.90. Therefore, following the suggestions

of other researchers, we used a shortened version of the scale. The best fit indices were observed in the alternative 11-item version of the scale ( $\chi^2/df = 3.02$ , RMSEA = 0.06, GFI = 0.93, AGFI = 0.90, NFI = 0.90, NNFI = 0.92). All parameters of the model were significant at  $p < 0.05$ , with the values ranging from 0.59 to 0.92. The translation of the items of the Performance Enhancement Attitude Scale and the descriptive statistics are presented in Table 1.

### Attitudes toward doping as measured by PEAS

The mean value for the 11-item version of PEAS among athletes was 20.11 (SD = 8.27), with the range between 11 (which is also the lowest possible score in the scale meaning complete lack of approval with regard to item statements) and 56. Male athletes declared more positive attitudes than female athletes, with moderate effect size. Taking into account the type of sport practised by the athletes, there was significant difference between sports with different amounts of contact between athletes ( $F_{(2, 337)} = 4.86$ ,  $p = 0.008$ ,  $\eta^2 = 0.03$ ). The post-hoc analysis revealed that the scores were significantly higher among athletes practising sports with no contact between competitors (like power lifters, shot putters, gymnasts, etc.) than among athletes practising sports in which opponents are in close contact when competing against each other (for example combat sports) or compete side by side (for example, track athletes) (see Table 2 for detailed results). Differences between sports categorised on the basis of the dominant mo-

Table 1. Means, 95% CI, and standard deviations of the Polish translation of PEAS

Items	M	CI -95%	CI+ 95%	SD
Legalising performance enhancements would be beneficial for sports. (Zalegalizowanie dopingu byłoby korzystne dla sportu.)	1.62	1.50	1.74	1.14
Doping is necessary to be competitive. (Doping jest konieczny, aby mieć szansę w rywalizacji.)	1.55	1.44	1.66	1.02
The risks related to doping are exaggerated. (Ryzyko przypisywane stosowaniu dopingu jest przesadzone.)	1.88	1.75	2.00	1.17
Recreational drugs give the motivation to train and compete at the highest level. (Rekreacyjne środki dopingujące zapewniają motywację do trenowania i rywalizowania na najwyższym poziomie.)	1.90	1.78	2.03	1.15
Athletes should not feel guilty about breaking the rules and taking performance-enhancing drugs. (Sportowcy stosujący doping nie powinni czuć wyrzutów sumienia z powodu naruszenia przepisów antidopingowych.)	1.55	1.44	1.66	1.04
Athletes are pressured to take performance-enhancing drugs. (Sportowcy są pod presją, by brać środki dopingujące.)	2.36	2.22	2.49	1.27
Doping is an unavoidable part of competitive sport. (Doping jest nieuniknionym elementem sportu wyczynowego.)	1.82	1.69	1.94	1.17
Athletes often lose time due to injuries, and drugs can help to make up for the lost time. (Sportowcy często tracą czas z powodu kontuzji, a środki dopingujące pomagają nadrobić te straty.)	2.09	1.97	2.22	1.18
Doping is not cheating since everyone does it. (Doping nie jest oszustwem, bo wszyscy go stosują.)	1.58	1.47	1.68	0.95
Only the quality of performance should matter, not the way athletes achieve it. (Liczyć powinny się jedynie wyniki sportowców, a nie sposób, w jaki je osiągają.)	1.77	1.65	1.88	1.09
There is no difference between drugs, fibreglass poles, and speedy swimsuits that are all used to enhance performance. (Nie ma żadnej różnicy między dopingiem, tyczkami z włókna szklanego czy kombinezonami hydrodynamicznymi, bo wszystkie one są stosowane w celu poprawiania wyników.)	2.00	1.88	2.12	1.14

**Table 2.** Descriptive statistics and comparison between different categories of athletes

	Mean (SD)	Comparison
Total sample	20.11 (8.28)	
Female athletes	18.55 (7.08)	$t_{(338)} = 3.46; p < 0.001$ Cohen's $d = 0.38$
Male athletes	21.61 (9.06)	
Sports disciplines according to amount of contact between competitors		
Where athletes compete side by side (a)	19.19 (7.24)	$F_{(2, 337)} = 4.86, p = 0.008$ post hoc: a, b < c $\eta^2 = 0.03$
Where athletes are in close contact (b)	20.27 (8.44)	
Where there is no contact between athletes (c)	23.11 (10.61)	
Sports disciplines according to predominant motor component		
Power-endurance	19.70 (7.54)	$F_{(5, 334)} = 1.26, p = 0.282$
Endurance	19.27 (7.93)	
Speed-strength	20.41 (8.08)	
Power	22.06 (10.33)	
Technical	17.90 (6.10)	
Mixed	22.92 (10.27)	

tor component were insignificant. However, when individual disciplines were compared, ANOVA revealed a significant difference ( $F_{(21, 318)} = 1.70; p = 0.03; \eta^2 = 0.10$ ). As the post hoc analysis revealed, there were two groups of athletes, weight lifters ( $M = 28.00, CI \pm 95\% = 18.79-37.21$ ) and powerlifters ( $M = 28.47, CI \pm 95\% = 24.60-32.34$ ), whose scores were significantly higher and reflected a more permissive attitude toward doping use in sports than was the case for the remaining athletes. The lowest score was observed among speed skaters ( $M = 15.60, CI \pm 95\% = 10.56-20.64$ ).

### Discussion

The purpose of this study was, first, to identify attitudes toward using performance-enhancing drugs (doping) among athletes practising different sports disciplines and, second, to validate the Polish version of the Performance Enhancement Attitude Scale (PEAS) [6]. PEAS was chosen because it is internationally recognised as an effective tool for measuring attitudes toward doping in sport. It has proven to be reliable in various nations and languages, therefore enabling comparisons between the results of different studies. Morente-Sánchez, Femia-Marzo, and Zabala [3] stated that PEAS may play an important role in doping prevention, functioning as a “standard measure-

ment instrument to assess attitudes towards doping so that data were reliable and valid, and practical applications could be developed efficiently”. However, despite its growing popularity, PEAS has also been criticised based on mixed and conflicting data on its reliability and validity. Therefore, several modifications have been made to this scale, most of which aimed at reducing the number of statements to those resulting in improving its psychometric value. Our analyses confirmed that the shortened 11-item version of PEAS better fit the data than the original 17-item instrument. It should be noted, however, that some scholars found that even further reductions in the number of items in the instrument may be most beneficial, which has resulted in authors proposing 6-item [8] or 8-item [9] versions of the scale. The divergences observed may be partially dependent on the characteristics of the sample, as attitudes and factors underlying them may be different in adult and adolescent athletes as well as across nations [3, 10, 11]. Our findings suggest that in Polish athletes, an 11-item version of PEAS is most recommended.

In regards to the attitudes of the athletes surveyed in our study, it was found that, overall, they had a rather negative attitude toward using illegal performance-enhancing substances in sport. Contrary to the results of studies of Spanish [3], Ugandan [4], or Australian [11] athletes, although in line with other findings [10], a significant effect of gender on doping attitudes was found, with males being more permissive than women. A significant difference was found between athletes classified according to the criterion of the amount of contact between competitors. Those who practised non-contact sports had significantly higher scores than those who were in close contact with each other (as in team or combat sports) or competed side by side (like in swimming, cycling, or running). Considering that the moral reasoning and moral actions of athletes depend on the sports discipline, with team sports and/or high-contact sports predisposing to less mature moral reasoning [12, 13, 14] than is the case with non-athletes and athletes practising individual sports, our results seem somewhat surprising. After all, attitudes toward using illegal performance-enhancing drugs belong to a broader category of attitudes toward moral values in sport. On the other hand, one should bear in mind that our sample of athletes practising individual sports included powerlifters and weightlifters, who scored significantly higher in PEAS than other athletes.

### Conclusions

Although actual doping behaviours are related to many factors, not necessarily connected with athletes' personality [15], determining the attitudes of various groups of athletes (males and females or athletes practising various sports disciplines) toward doping may have implications for anti-doping education [16]. Therefore, reliable and valid measures of such attitudes are needed. PEAS [17], though not without reservations, is recognised as such a tool, and has been adopted in several countries, enabling international comparisons, even if one takes into consideration that various versions of the scale – containing from 6 to 17 items – are applied. In our sample, the 11-item Polish version demonstrated the best model fit and internal consistency, and we believe that it can be used to assess attitudes in Polish athletes.

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