

# STYLE OF THINKING ABOUT DOPING AMONG SPORTSPERSONS: CHARACTERIZING THE ATTITUDES OF RISK-TAKERS AND RISK-AVOIDERS

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**ABSTRACT:** The aim of the study is to describe the style of thinking about doping among risk-takers and risk-avoiders in three hypothetical situations varying according to the level of objective probability of an anti-doping test. A group of competitive athletes was assessed (N=23; modern pentathlon), mean age ~16.7 years, mean experience in sport 8 years. As the criterion for categorisation of athletes into risk-takers (N=6) and risk-avoiders (N=9), the scope of personally accepted risk in a situation of very high probability of an anti-doping test was assumed. An experimental technique developed for the use of these studies was applied to measure: 1) individual hierarchy of values possible to be lost as a consequence of using doping; 2) personally accepted level of risk of losing values in the three experimental situations: a) low objective risk (2 to 10), b) medium objective risk (5 to 10), c) high objective risk (8 to 10). In the attitude of the risk-avoiders the reluctance to risk the loss of each studied value grows together with the increase of the objective danger until the critical moment that they do not exceed (null risk tolerance). In the style of thinking of the risk-avoiders about doping, a logical translation occurs between what they value most and what they protect most. In the attitude of the risk-takers there is no such translation, and moreover, together with the increase of the objective danger of losing the valued goods, the readiness to sacrifice them as the result of the risky decisions does not weaken. The true character of a risk-taker and the personal need to take risks is revealed most strongly under circumstances of a high probability of losing the mostly highly valued goods. The risk-avoiders value their emotional health significantly more highly than do the risk-takers, while for the risk-takers winning medals is valued significantly more highly.

**KEY WORDS:** doping, risk-takers, risk-avoiders, style of thinking

## INTRODUCTION

The sportsperson's decision to use or not use doping is a piece of information on an individual level of accepted risk, which means the acceptance of all the consequences resulting from such a choice. According to some researchers, the preferred strategy when taking risky decisions is the minimization of defeat, which would mean that the person pays more attention to the possibility of a potential defeat than the possibility of a potential win [3,4]. If we assume this is correct, it would mean that the athlete assesses the decision about using doping as more risky the higher the probability of negative consequences and the greater the extent of expected loss.

In turn, the observations made in laboratory experiments, which are only a simulation of the real danger and risk, suggest frequent use of the strategy of maximizing profits by a decision-maker. According to the rule of expected value by choosing between different variants the decision-maker assesses which of them provides the highest probability of achieving the greatest benefit [18,20].

And what is the situation in professional sport? Which of the strategies seems to be more obvious – maximizations of profits or minimization of loss? From the observer's point of view, in support

of the second option is the fact that the potential loss (threat to life and health) seems to be disproportionately high compared to potential profits (medal, prestige, gratification) [7]. However, when estimating the scale of loss and probability of the loss as well as in the case of assessment of the scale of profits and chances to achieve them, decision-makers apply heuristic rules of various levels of accuracy that determine tendencies for deviation in a certain direction of inference. The consequence of their application is the presence of highly diverse levels of personally accepted risk [1,11,18].

Our studies showed that at least for some athletes knowledge about objective dangers has no influence on the internal acceptance of risk; regardless of the circumstances they remain careful, even in the case of a low probability of an anti-doping test. It is also obvious that for some of the studied persons, knowledge about a highly probable doping violation turned out to be an insufficient deterrent from the urge to take risk [3,9,12].

Without negating the legitimacy of the thesis about risk-takers and risk-avoiders, we can certainly assume that modern professional sport bears the hallmarks of this area of human activity that is

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a burden with a particular risk and threat to health or even life. This happens on one hand through creating possibilities to win very prestigious prizes which, with sport competition increased to the limit, turns out to be very difficult to win. On the other hand, it creates the temptation to break the rules in order to achieve success through the application of agents banned for non-medical purposes [7,8,16].

Based on the above assumptions, a series of tests was planned in the Department of Psychology of the Institute of Sport to gain insight into the psychological mechanisms responsible for risk-taking decisions of doping use [9–13]. The aim of the study was to describe the process of taking decisions about using or not using banned agents by declared risk-takers and declared risk-avoiders. In the operational sense, the point of view was taken of loss made by a sportsperson, not potential profits, so what can be lost, which the objective risk of losing given values is in the perception of an athlete and what the personal, subjective and acceptable risk is to lose these values in the style of thinking of a sport person.

The purpose of this paper is to describe how risk-takers and risk-avoiders behave in the three experimental situations, varied in terms of objective danger. The fundamental question is whether the scale of personally accepted risk by risk-takers and risk-avoiders depends on the importance of what they can lose as the consequence of such an attitude; within which goods (hierarchy of values) there are similarities and differences between both groups, and whether there is a logical connection in their perception between what they value, and what they are ready to lose.

## MATERIALS AND METHODS

24 persons doing modern pentathlon were tested (8 girls and 16 boys; mean age 16.7 years; mean experience in sport 8 years). The questionnaire "Accepted level of risk of using doping" (author H. Mroczkowska) was used, with answers kept anonymous. With its help two sets of information were obtained:

1) Individual ranking of respected values, determining the scale of potential loss as a consequence of doping; the task of a tested person is to rank the six values according to the grade of difficulty – easiness of coming to terms with the loss of each of them. The scoring from 1 to 6 points was assumed, whereby the higher numerical value means higher significance ascribed to a given value. The studied values are loss of health, loss of medal, loss of scoring place, loss of physical attractiveness, loss of mental balance, loss of material reward and loss of respect of others.

2) Personally accepted level of risk of losing each of the studied values in three experimental situations:

- low real risk of doping violation (2 cases for 10 possible);
- medium real risk of doping violation (5 cases for 10 possible);
- high real risk of doping violation (8 cases for 10 possible).

The task of the tested person was to assess on the scale 0–100% what risk of losing each of values he/she would tend to take and accept in the three hypothetical situations of varied, objective probability of doping violation (a, b, c).

The technique used to obtain the above data has an experimental character and was not standardized, and due to that its psychometric properties were not provided.

As the criterion for dividing subjects into a risk-taker group (N-6) and risk-avoiders (N-9) the scale of personally accepted risk only in the situation of a high real probability of an anti-doping test was arbitrarily assumed. Only those persons were included in the group of risk-avoiders who in the situation of a high probability would not take any risk (0%) of losing any of the studied values that may be lost as a consequence of an anti-doping test. Those tested persons were included in the group of risk-takers who in the situation of a high probability of an anti-doping test would take at least 20% risk, calculated as a mean of summed risk assessments for each value that may be lost as a consequence of doping use.

The statistical analysis of the results was carried out using " $\chi^2$ " in the form of an "F" function. In order to avoid confirmation of researcher's expectations a priori and due to the small group size we did not perform more complex statistical operations [17].

## RESULTS

In the scheme of the studies six values were taken into consideration that the athlete may lose as a consequence of doping use. Their ranking according to the importance criterion reflects the individual hierarchy of values, which means what counts more and what less in the perception of an athlete. The Figure 1 shows the distribution of ranks of these values for two arbitrarily distinguished groups – risk-avoiders and risk-takers.

In the structure of the values, for the six studied goods possible to be lost, within the scope of as many as four of them a high convergence in the assessment of their importance is observed between risk-avoiders and risk-takers. Facing the potential danger of loss, both groups value health (5,2; 4,9) and respect of others (4,3; 4,6) equally high and most, and equally low and lowest the material reward (2,2; 1,7). What completely distinguishes the two groups is the significance they ascribe to two other values, i.e. emotional balance and medals. The risk-avoiders value mental health significantly higher than the risk-takers (4,3; 2,8), while the risk-takers value winning medals significantly higher than the risk-avoiders (3,5; 2,2).

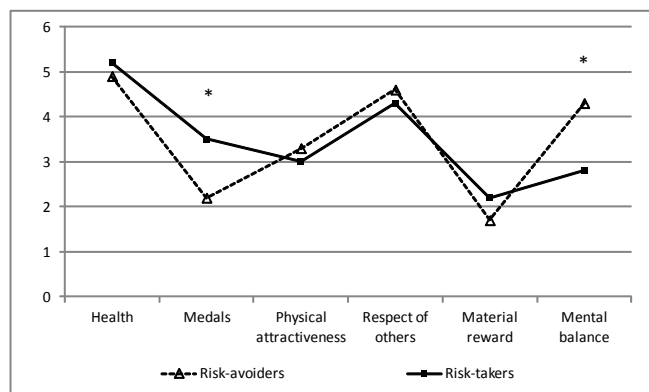


FIG. 1. ESTIMATED RANKS OF VALUES POSSIBLE TO LOSE IN THE GROUP OF RISK-TAKERS (N-6) AND RISK-AVOIDERS (N-9)

Note: \* -  $p < 0.05$

**TABLE 1.** PERCENTAGE MEAN VALUES AND SD OF PERSONALLY ACCEPTED RISK BY RISK-AVOIDERS AND RISK-TAKERS IN THREE EXPERIMENTAL SITUATIONS

Objective risk level	Low		Medium		High	
	Risk-takers	Risk-avoiders	Risk-takers	Risk-avoiders	Risk-takers	Risk-avoiders
Health	31.7 ± 22.9	5.6 ± 5.8	34.2 ± 30.1	1.7 ± 2.5	21.7 ± 16.3	0
Medals	56.7 ± 31.1	30.0 ± 32.5	48.3 ± 22.5	16.7 ± 24.4	45.0 ± 20.2	0
Physical attractiveness	32.5 ± 20.2	6.1 ± 11.4	25.8 ± 17.7	1.1 ± 2.2	24.2 ± 13.2	0
Respect of others	32.5 ± 16.4	7.8 ± 14.6	43.3 ± 21.4	4.4 ± 11.6	45.0 ± 30.8	0
Material reward	64.2 ± 21.8	52.8 ± 29.0	63.3 ± 21.1	28.3 ± 31.3	48.3 ± 24.6	0
Mental balance	30.0 ± 21.2	22.8 ± 36.5	28.3 ± 23.8	14.4 ± 32.4	29.2 ± 25.6	0
Σ	41.3	20.9	40.5	11.1	35.6	

Table 1 shows data for both groups regarding personally accepted risk of losing any values in the conditions of low, medium and high probability of an anti-doping test.

The average risk which the risk-takers would take in the circumstances of low risk is ~41% (from the calculation of the means referring to the six values treated in total). If we consider each value that may be lost not self-dependently then it turns out that the attitude of the declared risk-takers is not very varied, but rather dichotomous. With almost ~60% probability they would come to terms with the loss of two goods that according to the ranking belong to external values, i.e. medals (approx. 57%) and material reward (approx. 64%). In the perception of risk-takers, due to their importance, they had the lowest place in the value hierarchy. In turn, referring to other goods, the accepted level of their loss is definitely lower and not very varied; it ranges between 30 and 33%. This means that in conditions of low risk, the goods most highly valued by the risk-takers, i.e. health and respect of others, are not particularly or more protected than other values. These observations as well as the similarities and differences in relation to the risk-avoiders are illustrated in Figure 2.

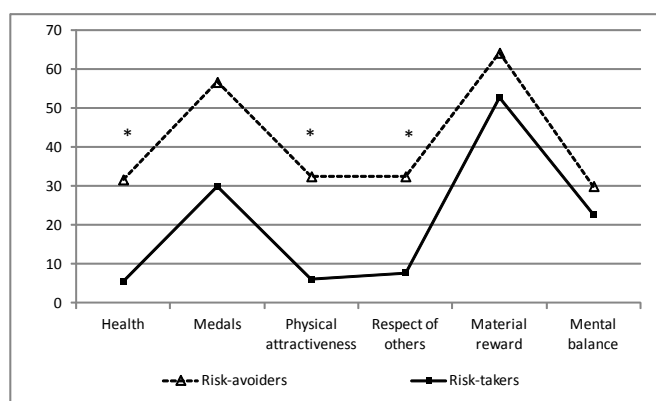
In the circumstances of a low objective danger the attitude of the risk-avoiders turns out to be more varied than the attitude of the risk-takers. Within the two values there is a great convergence in the scale of the accepted risk by both groups and concerning the emotional balance and the material reward. In reference to the latter, the risk-avoiders accept definitely a high – on a similar level as the risk-takers – probability to lose the least valued good.

In turn, within the three values, i.e. health, respect of others and physical attractiveness, even in the conditions of a low probability of a violation, the risk-avoiders manifest a particularly careful attitude. The personally accepted risk of their loss is low and significantly lower than the risk-takers and is in the range 6-8%. Two among these values reached in the perception of the risk-avoiders the two highest ranks in the hierarchy. Generally, the average level of personally accepted risk of losing all goods in total by the risk-avoiders is approximately 21%, which means that it is lower by 20% compared to the risk-takers.

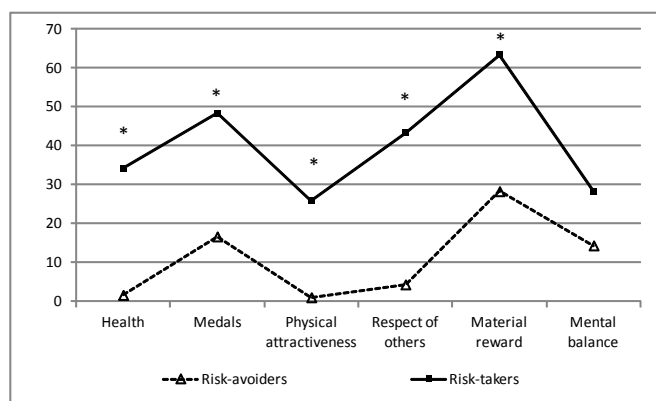
The next problem is to check how both groups of athletes react with the increase of danger of an anti-doping test on the medium

risk level. The distribution of the accepted risk of losing individual values in the attitude of the risk-avoiders and the risk-takes is shown in Figure 3.

In the circumstances of increasing risk the differences in the acceptance of risk between the risk-avoiders and the risk-takers become deeper and this concerns the danger of losing all the studied goods. The observed progression of differences in the personal attitude towards risk turns out to be the consequence of changes in the style of thinking about doping by both risk-avoiders and



**FIG. 2.** SIMILARITIES AND DIFFERENCES BETWEEN RISK-TAKERS AND RISK-AVOIDERS IN THE PERSONALLY ACCEPTED RISK OF LOSING PARTICULAR GOODS IN THE CONDITIONS OF LOW RISK  
Note: \* - p<0.05



**FIG. 3.** DISTRIBUTION OF ACCEPTED RISK OF LOSING INDIVIDUAL VALUES AMONG RISK-TAKERS AND RISK-AVOIDERS IN THE CONDITIONS OF MEDIUM RISK  
Note: \* - p<0.05

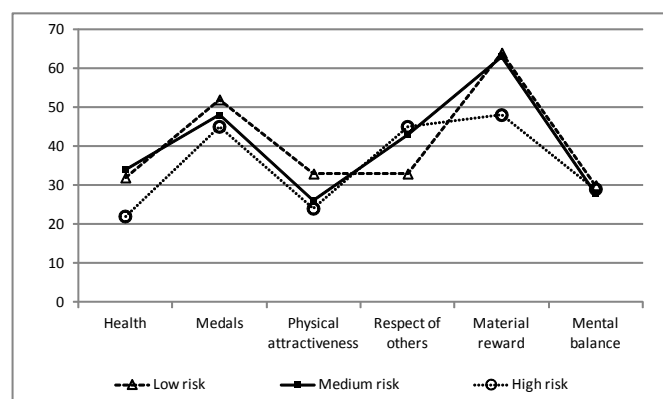
risk-takers independently of each other. Firstly, in spite of the increase of the objective probability of a doping violation, the average level of the personally accepted risk in the group of risk-takers remains at a similar level as in the conditions of low risk (~40%). Secondly, what characterizes them in a particular way is the fact that in the conditions of increasing risk there occurred an increase in personal approval of losing two goods most highly valued by the risk-takers, i.e. health and respect of others.

In the group of risk-avoiders the increase of the objective danger results in flattening of the “curve”, reflecting decreases of personally accepted risk of losing individual goods. Contrary to the risk-takers the decreases concern all the values and the average level of accepted risk is ~11%. As a consequence, within the values particularly protected even in the conditions of low risk, in the circumstances of increased danger the level of acceptance of their loss is minimized to 1.1% concerning physical attractiveness, 1.7% concerning health and 4.4% concerning the possibility to lose respect of others. For the risk-avoiders the next increase of an objective danger leads to a complete plateau, which means that they would not take any risk to lose any of the values as the result of doping use (this was a criterion to distinguish the group of risk-avoiders).

Because of that the last stage of the analysis concerns only risk-takers and aims at checking how they react in the conditions of a very high probability of a doping violation (8 cases for 10). The Figure 4 shows the process of changes in the scale of personally accepted risk of losing individual goods in three experimental situations (varied due to the scale of the objective risk of a violation).

It turns out that the average risk which the risk-takers would take personally in the circumstances of a very high risk is not significantly different from the declared ones in the conditions of a low risk as well as in the conditions of a medium risk (~41 → 40 → 36%). Moreover, within these three values, i.e. medals, respect of others and material reward, they would take a high (almost 50%) risk of losing them.

The attitude of the risk-takers towards two values deserves special attention. Firstly, it turns out that the attitude towards the threat of losing emotional balance as a consequence of doping use is constant



**FIG. 4.** LEVEL OF PERSONALLY ACCEPTED RISK OF LOSING GOODS BY THE RISK-TAKERS IN THREE EXPERIMENTAL SITUATIONS

Note: \* -  $p < 0.05$

and does not undergo any fluctuation independently of the real danger of a doping violation. Secondly, in relation to the values highly respected by risk-takers, which is the respect of others, the constant progression in accepting higher and higher probability of its loss (~32 → 43 → 45%) is observed.

## DISCUSSION

Does the above presented analysis suggest an answer to the question in the introduction about the decision strategy of maximizing profits/minimizing loss that describes the style of thinking of the risk-avoiders and risk-takers? The fact that both groups differ in the style of thinking about doping does not raise doubts and this concerns the importance structure of goods, i.e. the hierarchy of acknowledged values as well as a scale of accepted risk of losing these goods as a consequence of risky decisions.

As for the structure of the values, independently from the need of risk, both groups value highly and the highest health and respect of others. What distinguishes them is a significantly higher value ascribed to mental balance by the risk-avoiders and significantly higher value ascribed to achieving medals by the risk-takers.

The differentiating values (possible to be lost as a consequence of doping) belong to completely different sets of personal goods. Considering the criterion of division of goods into the internal and external, the emotional balance proving the personal integrity definitely belongs to the internal goods while the winning (losing) of a medal definitely belongs to the external values [2]. By taking into account the criterion of the perspective of action and the time consequences of this action, the emotional balance is a value whose loss appears in a remote time frame while the loss of a medal is a value whose loss as a consequence of doping is immediate [6]. If we assume both value criteria as accurate in the description of sport reality then we may conclude that risk-avoiders are more internally motivated compared to risk-takers; they manifest an attitude of stronger protection of personal than material goods and perceive their sport career in a broader time perspective than risk-takers.

As for the second aspect of the studies, i.e. the scale of personally accepted risk, then the caution and risk taking of the athletes manifests itself in the conditions of low risk as well as a high risk, and the differences between both attitudes becomes greater together with the increase of the objective danger. The progression of differences in personally accepted risk of losing goods suggests in turn different styles of thinking about doping in the risk-avoiders and the risk-takers.

In the attitude of the risk-avoiders two internally coherent trends can be noted. Firstly, the aversion to risk of losing any good grows together with the increase of objective threat to the moment of reaching a critical point of danger which they do not exceed. Secondly, in the style of thinking of the risk-avoiders there occurs a logical translation between what they value and the internal approval of losing that. Already in the conditions of a low danger the particularly respected values such as health or respect of others are also particularly pro-

tected; together with the increasing objective danger of their loss the internal acceptance of a risky decision decreases to zero. These data suggest that the risk-avoiders definitely prefer the strategy of minimizing the loss, especially within the area of goods particularly protected.

In the attitude of the risk-takers, a weak or no relation is observed between the scale of danger and the personal willingness to take risk. Together with the increasing objective danger, the readiness to devote to lose some goods, especially from the set of external values, is basically not decreasing. Moreover, the data suggest that the actual attitude of the risk-takers manifests itself more in the conditions of very high than low or medium risk. Two observed observations attest to that: firstly, the increase of the objective danger may result in the raise of personal willingness to take risk; secondly, a weak or no relation is observed between what the risk-takers value and how far they take the attitude to protect it.

The attitude of risk-takers towards highly respected goods seems to be simply irrational and illogical. The paradox seems to be a weak but constant progression in accepting the probability of losing the most highly valued goods. It can be questioned whether the above observation and the lack of translation between what is valued and what is protected reveal the real nature of a risk-taker or a gambler. The data suggest that satisfying the need of risk (adrenaline dose) becomes possible when they stake on the most highly valued goods [5].

However, it should not be forgotten that there are doping dangers of which the sportspersons are not always aware. The open character of a ban list [15] and the cases of the presence of doping agents in nutritional supplements [14] may cause that the tested persons do

not observe at all certain aspects of violating anti-doping regulations. This requires detailed studies. The above remark is justified towards risk-takers as well as risk-avoiders.

## CONCLUSIONS

The presented data obtained in a very small study group warrant caution but also the necessity to take up further studies on a broader population and to look for deeper psychological mechanisms that would explain the syndrome of an irrational and illogical risk-taker. The above analysis does not provide direct evidence whether the psychological mechanisms explaining this syndrome have a main cognitive background (schemes of perceiving reality) or more emotional background (elevated need for stimulation). It is not doubtful that risk-takers do not follow the strategy of minimizing loss. However, the question remains open whether they are motivated by the profit strategy or, what is more likely, hidden cognitive-emotional schemes.

From the point of view of an observer, risk-takers undoubtedly appear as persons applying heuristic rules towards underestimating the real dangers for themselves. But the danger of such an attitude has a much greater scope and is much more alarming. So, it results from the studies of experimental psychology that cautious persons can be quite easily seduced by the attitude of the risk-takers, and the latter are absolutely not convinced by the arguments and the attitude of the risk-avoiders. Cautious persons, even if they a majority in the group, are not able to change the attitude of the declared risk-takers [19].

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