WORLD ANTI-DOPING AGENCY

SEVASTOPOL NATIONAL TECHNICAL UNIVERSITY

FINAL REPORT

DOPING PREVALENCE AMONG UNIVERSITY STUDENTS IN UKRAINE: A STUDY OF KNOWLEDGE, ATTITUDES AND BEHAVIOR

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SUMMARY

This study examined the attitude towards doping and behaviour regarding doping amongst Ukrainian students. The sample consists of both Sports students and Polytechnics students. The first part of the study includes material of self-reported data of mass survey amongst students. The second part deals with focus groups' interview materials in order to deeper investigate driving forces of doping behaviour.

It has been established that the doping prevalence in Ukraine might affect nearly 10 % of university students. Prevalence of doping varies greatly with level of sports' results, kind of sports activity, and the aims of engaging in sport. Representatives of strength and cyclical kinds of sports are at a higher risk of doping prevalence.

The opinion that using doping can lead to better sport results and development of muscles is widespread among Sports students, while Polytechnics students mostly consider that doping can improve appearance and increase muscles.

In spite of the widespread opinion of doping pernicious effect on health, the opinion of athletes has an essential distinction from common beliefs. Sports-oriented students consider that doping does not impact on health negatively if it is used in a reasonable way. Among athletes the opinion that doping in small doses and in reasonable proportions would be beneficial is widespread.

Our results suggest that doping use has a moral legitimacy among the majority of athletes, and this point determines doping use. The motive of "necessity" looks like a mature explanation – an ideological scheme. One of the main reasons of doping use that athletes indicated was the self-affirmation motive, reaching high sport results, material welfare.

A considerable proportion of students have lack of knowledge, in terms of side-effects, sources of information and testing procedure.

A vast proportion of high performance athletes have admitted positive attitude towards doping. One of the main reasons to take a risk of using doping is an opportunity to have a compensation (tangible, social, ideological) for harm to health.

This indicated that driving forces of doping behaviour among sports students are mainly described by the self-affirmation motive, which in turn resulted in pecuniary component.

The findings highlight a gap between policy and student behaviour regarding doping. The evidence from these results may provide arguments for governing bodies and serve as a platform in creating educational programs for main stakeholders.

OBJECTIVES

Project examined the following issues:

- Attitude towards doping and behaviour regarding doping amongst Ukrainian students.
- Comparison of attitudes towards doping of Sports students and Polytechnics students
- Establishing socio-psychological determinants of doping behaviour

INTRODUCTION

Background and Significance

So far research on doping has mostly focused on the prevalence of doping among European countries. Studies on attitudes towards doping in the Ukraine are, however, few and far between. Before Ukraine became independent it was thought that doping related problems were a far cry from the Ukrainian society. Since doping is also a serious ethical and social problem, attitudes hold the key to understanding its use. Little is being done to educate, raise awareness about the negative health effects and to guard youth against using doping in the Ukraine. This shows that Ukraine has no anti-doping experience.

In our research we divided students' population into two categories: sport-oriented students who succeed in a particular kind of sport and amateur sport-oriented students who do not intend to take part in a competition.

From this point of view we conduct our research within students from Physical Education Academies (Sports students) and from Polytechnic Universities (Polytechnics students).

Therefore, this research could reveal the current state of doping problems and help identify the most important needs and interventional steps with scientific support in anti-doping education.

Findings from the study will contribute to other scientific research related to anti-doping efforts.

Literature Review

Probably one of the earliest mentions of using doping in order to improve sports performance has been known since the 1950s [24]. During the 1980s

evidence emerged that the use of doping had spread to non-athletic adolescents in the USA [25]
The use of androgenic anabolic steroids with non-medical purpose among male adolescents in the USA has been reported continuously ever since. [25].
The self-declared doping use has been admitted in a number of researches carried out in European countries [4, 11, 14].

In order to answer a question about doping prevalence among Ukrainian youth we make an extensive search of literature, which was conducted using electronic resources, and analysis of material of Ukrainian conferences. The search strategy employed keywords for drug use in sport: “doping” in both Russian and Ukrainian languages. The following electronics resources were used:

1. National Ukrainian government library - http://www.nbuv.gov.ua/db/opac.html

2. National Russian Library of sport information - http://lib.sportedu.ru/Catalog.idc

3. Scientific journal of Ukraine: Pedagogic, psychology, medical-biological problems of physical training and sport - http://www.sportsscience.org/html/sedite.html

Four resources in total were found which contain the word “doping”. Compared to a search of the keyword “doping” in English in PubMed it was rather meagre. A great number of investigations concerning doping ‘attitudes’, ‘beliefs’, ‘knowledge’, ‘perspectives’, ‘opinions’ has been carried out in Europe and other countries. This fact indicates that the problem of doping and the subjects related to doping is absolutely unelaborated in Ukraine. However, foreign (non-Ukrainian) scientists have already widely investigated the problems related social aspects of doping.

Considerable evidence indicates that the use of doping may involve 3–5% of students, whichever substance is used. For example, studies carried out in Sweden [1] with 5,827 students, aged 13–20, and in Denver, Colorado [2] with 6,930 high school students, showed that 3,6 % and 4.0%, respectively had used banned substances at least once in their past. Furthermore, in [4] was reported that 5.6% of students aged 14 to 18 and living in 7 different areas, mostly in northern Italy admitted having been used substances to improve muscular-mass or athletic results. Also it was well established that doping prevalence is higher among males than females and among sports competitors and also increases with age and the level of competition. This opinion may moreover turn out to be well founded in [9], as 4.7 percent of the male students and 3.2 percent of the female students who admitted to having used steroids. Also studies carried out among Canadians students [8] show that students who use steroids are more likely to participate in school sponsored athletics than non-users. This shows that sports requiring strength training, including body building, football, wrestling, and track and field, have more reported users than other sports [8]. In this research it has been pointed out that anabolic-androgenic steroid use is often intended to alter body build as opposed to accentuating sport performance. Many young Canadians use a variety of other substances in attempts to improve sport performance.

What is more, there were significant differences between steroid users and non-users in knowledge about the effects of anabolic-androgenic steroids on the body: steroid users knew less than non-users.

In research carried out by the group of researcher with 1351 high school students in Norway [3] it was pointed out that the lifetime prevalence for use of anabolic steroids was 3.6% for males and 0.6% for females. In all, 27.9% of the respondents reported having at least one acquaintance that used or had used anabolic steroids. Moreover, use of anabolic steroids and having acquaintances using such drugs were strongly related to use of other substances such as alcohol, nicotine, and narcotics.

Also researchers VandenBerg P, Neumark-Sztainer D, Cafri G, Wall M in [7] examined the prevalence, persistence, secular and longitudinal trends, and predictors of steroid use in a diverse sample of adolescents. Steroid use was not stable across time, although the risk of use at time 2 was higher for girls and for boys who used steroids at time 1. Developmentally, steroid use decreased as adolescents grew older. According to the scientific paper [6] it was indicated that the use of anabolic steroids (from 1989-1996) among adolescent males and females has decreased significantly during a long-term comparison. Contrary to that fact, in research [14], which was conducted among French preadolescent athletes it has been shown that the number of users increases with age, and so does the daily and weekly frequency of use. However, this could explain that the prevalence of doping among teenagers and students is not different substantially. For example, in research [15] it has been reported that prior or ongoing anabolic steroid is used by 5.3% of female high school students. In other words it seems that the prevalence of doping among teenagers is not stable, but while they grow up the prevalence become stable and is determined by the reasons for using doping.

Some researchers have already tried to answer the question: “are there signs or symptoms that could indicate use of a prohibited substance?” For instance, frequent alcohol intoxication and involvement in power sports may predict the use of anabolic steroids in high school students [16]. In papers [2, 7, 10, 11] the links between prohibited substance use, sex, number of hours of practice a week, and the use of psychoactive drugs such as alcohol, tobacco or cannabis have been shown. They lay stress on predictors of use: for male students this included wanting to weigh more and reporting higher use of healthy weight-control behaviours.

To determine which social and psychological determinants contribute to the decision to use performance-enhancing drugs (PED), investigators in the Netherlands surveyed 144 adult gym users [27]. Attitudes, personal norms, self-efficacy and social influences, were compared with background characteristics (attitudes, social influences and self-efficacy) to determine which factor had the greatest influence on intention to use PED. Respondents

were divided into three groups: current users (15% of population), former users (18% of population) and non-PED users. Of the total number of respondents, 29% acknowledged intention to use PED in the future.

The results showed that previous use of PED was the most powerful predictor of intention to use PED in the future. Personal norms that supported reaching the objective at no cost also influenced an athlete decision toward considering using PED. In addition, current and former PED users displayed overly optimistic attitudes about how PED would enhance their performance and overestimated the number of colleagues and competitors also using PED.

On the other hand, in [2] it was reported that compromising behavior, such as substance use, fighting, and sexual risk-taking is a better predictor of adolescent steroid use than participation in sports. This study is the first documented detailed assessment of high school students' knowledge of the risks of anabolic-androgenic steroids. It shows knowledge deficits regarding potential side effects. Users of anabolic-androgenic steroids were less likely than nonusers to acknowledge the risks of anabolic-androgenic steroids. Only 18% of students claim to have been informed about anabolic-androgenic steroids by physicians.

In research paper (Petroczi A) that doping behaviour influenced by an attitude toward the end goal. Winning orientation was the only variable with a significant relationship to doping attitude. Also, this research reveals attitudes toward doping did not significantly influence doping behaviour. Doping beliefs considered to be the variable which has a significant relationship to doping behaviour. But this finding does not extrapolate into using PED.

Numerous studies have pointed out that an athlete’s use of drugs in sport could be attributed to a complex interaction of personal and environmental factors (Nicholson and Agnew, 1989; Tricker, Cook, and McGuire, 1989). Possible contributing environmental factors include the attitudes of the peer group and parents, accessibility to drugs, and cultural norms and values (Polich, Ellichson, Reuter, and Kahan, 1984; Tricker and Connolly, 1997).

Sports orientation can also be defined as a factor that influence on attitudes toward goal achievement and towards doping. Researchers [Sas-Nowosielski] defined goal achievement in terms of task orientation or ego orientation. It was found that athletes who were more ego-oriented declared the most favourable attitudes toward doping. According to this study, a high “task orientation” can over-ride any degree of ego orientation and produce negative attitudes toward doping. The goal orientation is influenced by the environment in which athletes compete. A “mastery climate” creates an environment that fosters “being the best you can be”. A “performance climate” fosters an orientation toward “winning at any cost”.

Investigators at Kingston University, UK [21], claiming that self-reported data in studying doping behaviour can be characterised by under-reporting developed a model evaluation tool to get beyond expressed beliefs and attitudes and measure unconscious attitudes toward doping. This research grounded on the idea of “implicit attitudes”. Researchers adapted the Implicit Associations Test (IAT) which has “the capacity to uncover automatic evaluative bias toward doping among self-confessed users and was able to predict behaviour in hypothetical situations above and beyond the explicit measures” in order to compare implicit doping attitudes to those measured via a self-reported questionnaire. The finding from this study is that the correlation between the implicit and explicit attitudes was weaker for those students who were also athletes. This suggests a discrepancy between what they say and what they implicitly believe about their behaviour.

The authors claim that the decision to choice in the use of banned performance substances practice is not an automatic response. Despite what they may answer, those athletes with preferentially implicit attitudes toward doping may be disposed to use PED when they meet doping opportunities.

Trying to find a way to influence the decision-making process in doping behaviour, the same researchers [19] developed the life-cycle model of performance enhancement. This model grounded on the “expectancy theory”.

According to “expectancy theory” behaviour is driven by expected positive outcomes while at the same time, made less likely by expected negative outcomes.

The life-cycle model is based upon the assumption that doping behaviour is a natural progression of habitual participation in acceptable means of performance enhancement. This model also assumes that doping is a “functional” use of drugs to achieve a desired outcome and differs from recreational and social drug abuse as well as focuses on the decision-making process involved in choosing any method of performance enhancement. From practical point of view this model suggests that doping is a rational, as well as intentional behaviour and intervention points should influence the decision making process.

In our previous investigation [17, 18] concerning health-compromising behaviours among students the prevalence of drugs, recreational drugs, alcohol and cigarettes was estimated. A vast majority of studies point out that there is a link between prohibited substance use and health-compromising behaviour. Thus, it appears that Ukrainian students might face the problems related to doping.

As far as Ukrainian students are concerned there are a lot of questions that remain open.

To begin with, it is well evident that when Ukraine was one of the Soviet republics in the past the problems of doping were dissembled by the authorities. Since then little has been done to investigate the doping prevalence among youth, to assess attitudes towards doping and knowledge about doping of the main targeted group – students.

Secondly, in the Ukraine there is no particular educational work among youth to prevent doping use. The result that was obtained by foreign scientists shows that doping does exist among students, whatever their level of sports or leisure

participation. These results could be extended to the Ukraine, as young people throughout Europe are similar.

Thus, the following question needs to be answered: “does doping also affect students in the Ukraine in everyday life, and is it present in both sexes, at all levels and in all types of sport, and in those for whom improved physical performance is not always the main goal?”

These questions are important in the field of prevention, so that the most relevant populations can be targeted and effective education programmes can be designed.

METHODOLOGY

Research Design and Method:

The sample:

Students of the Kharkov State Academy of Physical Culture and Sport (in Kharkov) – 209;
Students of the Tavrida National University, department of Physical Culture and Sport (in Simferopol) – 112;
Students of the Sevastopol National Technical University (in Sevastopol) – 84;
Students of the Kharkov National Technical University "KPI" (in Kharkov) – 439;
Total sample size was 844 students.

Table 1

Demographic distribution of participating students

Demographic Characteristics	N	% of N
Sport and Physical Education Students	321	38.0
Polytechnics students	523	62.0
Age groups:		
18	183	21.7
19	204	24.2
20	177	21.0
21	129	15.3
22	98	11.6
23 >	53	6.3
Gender:		
Male	674	79.9
Female	170	20.1
Sports category:		
Game sport	367	43.5
Strength sport	163	19.3
Athletics sport	206	24.4
Coordination sport	108	12.8
Sports level:		
Extra high (International competitors)	103	12.2
High (All-Ukraine competitors)	164	19.4
Amateur (no completion, or local level only)	577	68.4

Methods

The self-reported questionnaires, designed and tested beforehand on 100 students aged 18-22. There are two questionnaires suggested: “Knowledge of doping” and “Attitudes towards doping and behaviour”.

Questionnaire “Knowledge of doping in sport” consists of questions aimed to assess information concerned with the awareness of the prohibited list of doping substances and harm of doping. The questionnaire: “Attitudes towards doping and behaviour” consist of a 2 parts:

Part 1 is aimed at common information about age, sex, their sport experience, their way of life and whether they take, took or will take doping to enhance their sport performance, improve appearance, cheat in other human activities, use it as recreational drugs.

Also the following question was used: “is doping out of necessity or essential for success in sports or to improve performance?”
Semi-open questions were included: who was it who encouraged athletes to take doping? (coach, friends, doctor, others). Why do you avoid taking doping? (because of side effects, because it is illegal, other reasons). Do you have someone to consult you about doping? (coach, friends, doctor, others, I would rather not consult about doping). How do you know about the side effects of doping? (TV, books, newspapers, coach, friends, others).

At the second stage we specified questions of questionnaires and made investigation with the help of deep interview in four focus-groups.
By combining both quantitative and qualitative data, we aimed to cross validate the findings and to reach a greater understanding of the research aims. A total of 40 male and female athletes (mean average age 20.6 years) from 8 different kinds of sports attended 4 focus groups to investigate athletes’ attitudes toward doping.
The recruitment criterion was being a student of a university and engaging in sport practice on international and all-Ukrainian level of competitions.

Transcripts of the focus group discussions were analyzed through a series of iterative readings, after which the data were systematically categorized into codes line by line, using NVivo qualitative analytic software
Each focus group consists of 10 athletes.

Based on interview results among focus-groups we suggested 5 scenarios

Part 2 is aimed at the subjects to give a reaction to 5 scenarios:
1. You are a student and want to increase your chances of getting a university football scholarship. One of the ways to get a scholarship is using doping.
2. A weak student has been entered to a new group of students. His group mates embarrass him by mocking him for being weak and lean. He wants to use steroids to improve his muscle definition and get a leader's qualities.
3. You are a father/mother of a talented child. Yours coach told you that your child had to train harder in order to win, because being only talented is not enough to succeed. You are aware of the risk that doping might increase physical performance but at the same time it might lead to health problems. But you extremely want your child to be a winner. Also, your child told you that being a winner is the only way to enter a prestigious university for him.
4. You are a sports coach. Your salary depends on the success of your students. Some of them are not gifted enough to bring you fame. A doctor told to you that the only way for them to succeed is to take doping otherwise these students will be dismissed and as a consequence you could lose your job.
5. You have suddenly become aware that one of your best friends has cheated and used a prohibited substance in order to win the competition.

a) You are only a fan of this sport because of your friend;
b) You had taken part in this competition, too, and you were the runner up and hold the second position after your friend.

RESULTS AND DISCUSSION

Attitude towards doping and behaviour regarding doping amongst Ukrainian students

The respondents were asked to answer a question if they could consider doping as norm for modern sport. These results are given in table 1.

Table 1

Percent and number of the respondents' answers to the question: "Is doping a norm for modern sport?"

Answers	Sports students (Percent/number)	Polytechnics students (Percent/number)
Doping is evil, it should not be present in sport at all	38/122	65/340
No, but it could be used in exceptional circumstances;	47/151	28/146
Yes, the use of doping in sport is a norm and should be legalised;	9/29	4/21
I don't know.	6/19	3/16

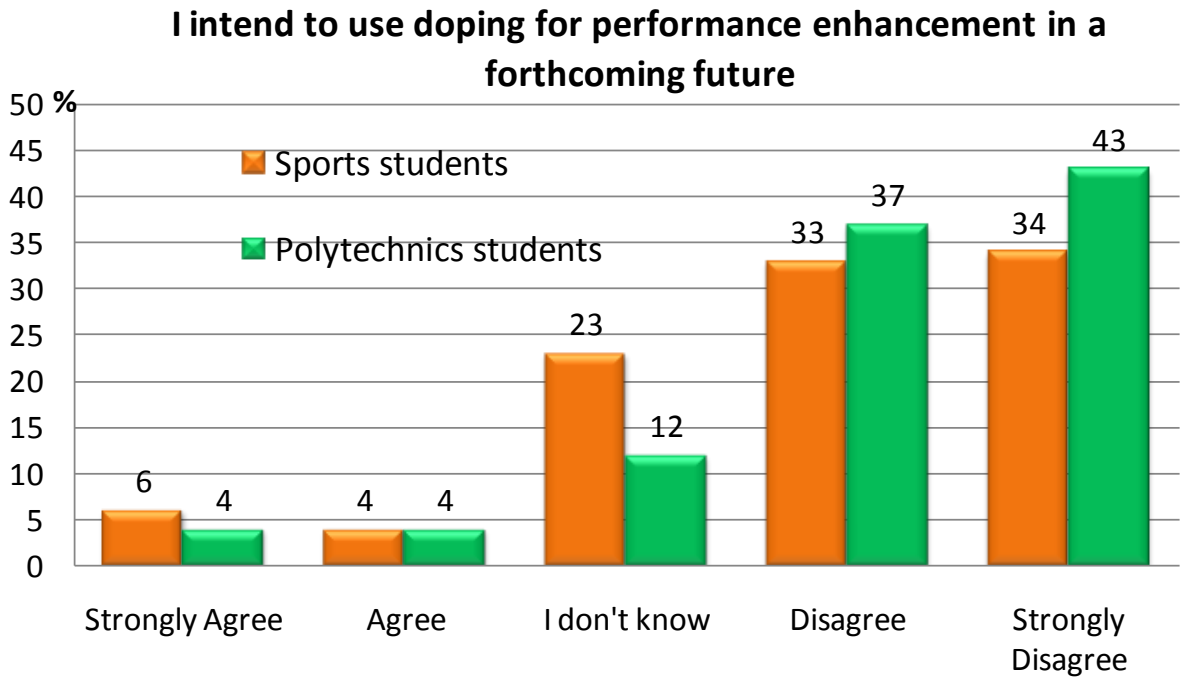
It can be seen that 38 % of Sports students reject the idea of doping as a necessary part of sport. On the other hand, the vast majority of students (47 %,) do not consider doping as a norm, but admit its use in exceptional circumstances. One out of ten respondents (9%) claims that doping is a norm for sport and should be legalised.

On the contrary, 65 % of Polytechnics students reject the use of doping in sports; one third (28 %) admitted that it could be used in exceptional circumstances. A minority of Polytechnics students (4 %) consider that doping should be legalised.

Overall, the number of respondents who are loyal to doping practice in sport is higher amongst Sports students in comparison with Polytechnics students (χ^2=11.8, p<0,05).

Figure 1 indicates the proportion of respondents' answers regarding their intention of doping use to enhance performance in the future.

Figure 1. Percent of respondents' intention of using doping



It could be clearly seen that categories "disagree" and "strongly disagree" accounted for the majority of answers (67 % and 80 % for Sports students and Polytechnics students, respectively).

On the other hand, almost one out ten students in Ukraine claim that they intend to use doping to enhance performance in the future. This is indicated by the fact that categories "strongly agree" and "agree" accounted for 10% and 8 % of Sports students and Polytechnics students, respectively.
Potentially, this proportion of answers shows that doping might affect nearly 10 % of students.

The focus groups' data shows us deeper understanding of doping prevalence in Ukrainian sport. The most frequently cited notion associated with doping in sport was inevitable.

Soccer player: *If we speak about high performance sport I consider that it is impossible to compete. I cannot claim if it is beneficial or bad but it is silly (to struggle with doping – note).*
Wrestler 3: *Of course, the doping topic is crucial to me, mostly due to the fact that all high sports achievements are grounding on doping use. That is why I think that high performance sport without doping cannot exist.*
Track and field runner*: I completely agree to the use of doping, and have experienced its benefits myself. All sportsmen in my area tend to use doping in all levels of competition.*
Fencer: *I agree that elite sport without doping cannot exist. But I object to its use in other sports because there are a kinds of sports where doping is not a key point. For example, in my sport anabolic steroids do not play a fundamental role.*

The vast majority of focus groups' respondents blame coaches, doctors and high levels of competition in spreading doping practices.

It is interesting to note that in last doping scandals the majority of respondents tended to blame athletes, coaches and doctors, mostly because they cannot remove doping from the organism or are unable to mask doping traces.

Moderator*: What is your attitude towards athletes who use doping?*

Weightlifter 1: *Well, it is absurd when Furosemiduin has been enrolled in the banned substances' list. (All group members: yes, yes). It is a usual diuretic. Even pregnant women use it. And you should to be dismissed for that. Also, if you have high levels of caffeine. You could even be banned because of certain food.*
Soccer player*: Often athletes themselves do not know what they are taking. In my sport, team sport, it is difficult. Often I have been given vitamins, but I cannot imagine what kind of vitamins I took.*
Powerlifter*: I agree, too. During the Olympic games all skiers use doping substances. And it is the problem of the coach or the athletes that they do not clear themselves before competition starts. They are guilty.*
Skier*: Athletes, at present, are aware of what they are doing when they enter a sports team. No matter whether they are informed or not it is the doctors' responsibility if someone has been caught.*

Track and field runner 2: *I think that it is an athlete's fault because he knew what his responsibility was. And I feel no pity to him. No emotion at all. Here people are aware of what they might face.*
Wrestler 3: *Well, I feel pity to them, because they were persuaded to use doping. I have a friend who is a boxer. He travels to training camp. All of them are young guys. They have been given pills. They face an ultimatum - either you take doping or you must leave training camp. From this side I feel pity for athletes.*

This revealed that amongst sportsmen doping was associated with inevitability, where the core thought that training without the use of complex pharmacology was not possible. Focus groups' respondents see doping effects as positive influence on recovery processes during intensive training sessions.

Moderator: *Which factors force you to use doping?*

Wrestler 3: *Personal training, especially before competitions. It is extremely difficult to cope with work loads. I mean it is hard to cope with the loads because they are constantly increasing.*
Track and field runner: *I think that it is inevitable for me. Having two training sessions per day is hard. Something needs to be used in order to recover.*
Fencer*: Well, I agree that doping should only be used with the aim of recovering - only after a trauma or during the preparatory period before competition but not during the competition itself.*
Orientirer 1: *I, too, think that doping should only be used during preparation for competition but not when competing. Orally consumed or intravenous vitamins, for example.*
Track and field runner 2: *It is widely known that most you are most likely to harm yourself if you do not use pills. If you do you are much less at risk of that. Regarding doping I think that it is absolutely normal, however, I still do not train so hard that I would consider doping to be necessary.*

The analysis of these materials indicated that in "commonplace theories" which are associated with doping, motive of inevitability has a double side sense. First sense is verbatim – the desire of recovery and increase sport performance and second is socio-psychological, which associated with locus of control. At the second side of sense, it is supposed that athletes' decisions of doping use accepted under pressure (coaches, using doping of others that makes it impossible to compete without adequate pharmacological decisions). Within

this context the motive of “extreme necessity” opposes to “chance” motives. The chance is being chosen by the athlete, while “extreme necessity” is provoked or forces him to behave undesirably.

The motive of “necessity” looks like a mature explanation – ideological scheme. This is indicated by the fact that one of the main reasons of doping use that athletes indicated was the self-affirmation motive, reaching high sport results, material welfare.

Powerlifter: *At first, man should be strong and outstanding by nature. That is why it is psychologically important to become strong with the help of steroids. Moreover, it is the fastest way to become strong. What is more, it helps with career promotion.*
Weightlifter*: First of all, it is sport results - receiving a reward.*
Track and field runner: *Everyone wants to be better, that is all. The most successful athletes attain a presidential scholarship.*

Moderator*: What do you think about such aspects such as making a good impression on those surrounding you?*

Weightlifter*: Personally I have no intention to pump my muscles in order to become outstanding.*
Weightlifter 2*: In any way it helps to become distinguished amongst others.*
Powerlifter: *If you are “pumped” it means you are noticeable everywhere. But if you are not no one will pay attention to you. To become distinguished is the main reason for why we came to the gym. In the beginning we are not going to the gym in order to become champions but so that someone glances at us and says: “Look, what a cool guy!”. This is the reason why we started going to the gym in the first place.*
All*: Yes, for self-respect.*
Track and field runner: *As far as my sport is concerned it is slightly different. In bodybuilding muscle mass is the key motivator. As for myself, it is difficult to say. Yes, I strive to enhance my results which I represent to other people as a winner - naturally, that raises my authority*.

The answers of respondents to the question about coaches’ attitude toward doping were from “proposed to try” to “strongly reject” and “connivance”.

Track and field runner: *My coach proposed me some kind of pills. I have a relapse and plateau, so he proposed.*

***Skier**: Well, my coach cannot make out in pharmacology therefore everything happens under the doctor's control.*
***Wrestler 3**: My coach has a negative attitude towards doping but things stimulators are beneficial.*
***Weightlifter1**: My coach does not discuss this topic with me. If you use doping it is your choice. Nobody says – do not use it. I think that my coach is rather indifferent.*
***Orienteerer**: He has other methods which he suggested to me.*

Comparison of knowledge and attitudes towards doping of Sports students and Polytechnics students

Motives that might influence doping use decision has been established with the help of the question "Students could use doping in cases of… ". Respondents were asked to assess the reasons for students to use doping on a scale of 1 to 5 in which 1 = "strongly agree", 2 = "agree", 3 = "don't know", 4 = "disagree" and 5 = "strongly disagree". The mean and rank order of each choice of doping use is given in table 3.

Table 3.

Score and rank order of respondents rating answers in question: "Students could use doping in cases of… "

Respondents' answers	Sports students		Polytechnics students	
	Score	Rank order	Score	Rank order
Achieving better results in sport	514	1	938	3
Increasing their muscle mass	515	2	732	1
Increasing their self-confidence	517	3	1235	4
Improving their appearance	580	4	821	2
Pressure by others	912	5	1742	7
Use of medication	1145	6	1544	5
Accidently	1381	7	1649	6

The top three reasons for using doping among Sports students are concerned with achieving better results in sport, increasing muscle mass, increasing self-confidence. Meanwhile Polytechnics students thought that students could use doping if they wanted to increase their muscle mass, improve appearance, achieve better sport results. Both Sports students and Polytechnics students consider that the uses of doping by accident and as medication are quite rare occurrences. It is interesting to note that among Sports students the reason for using doping under pressure by other has a higher level, meanwhile, Polytechnics students relegate this reason to the lowest position.

Among Sports students is widely thought that using doping could lead to better sport results and increase of muscle mass, while Polytechnics students mostly consider that doping could improve appearance and develop muscles.

Except for impelling motives we investigate motives that could limit doping use amongst the student population. Students were asked a question “which factors could deter students from using doping?” (figure 1)

The most important factor that could deter doping use among Sports students is harm to their health. 46 % (n=147) of respondents indicated this as “very significant”. At the second position in the category is “very significant” Sports students put “afraid of punishments and sanctions” – 37 % (n=119). Desire for honest competition was indicated by 32 % (n=102).

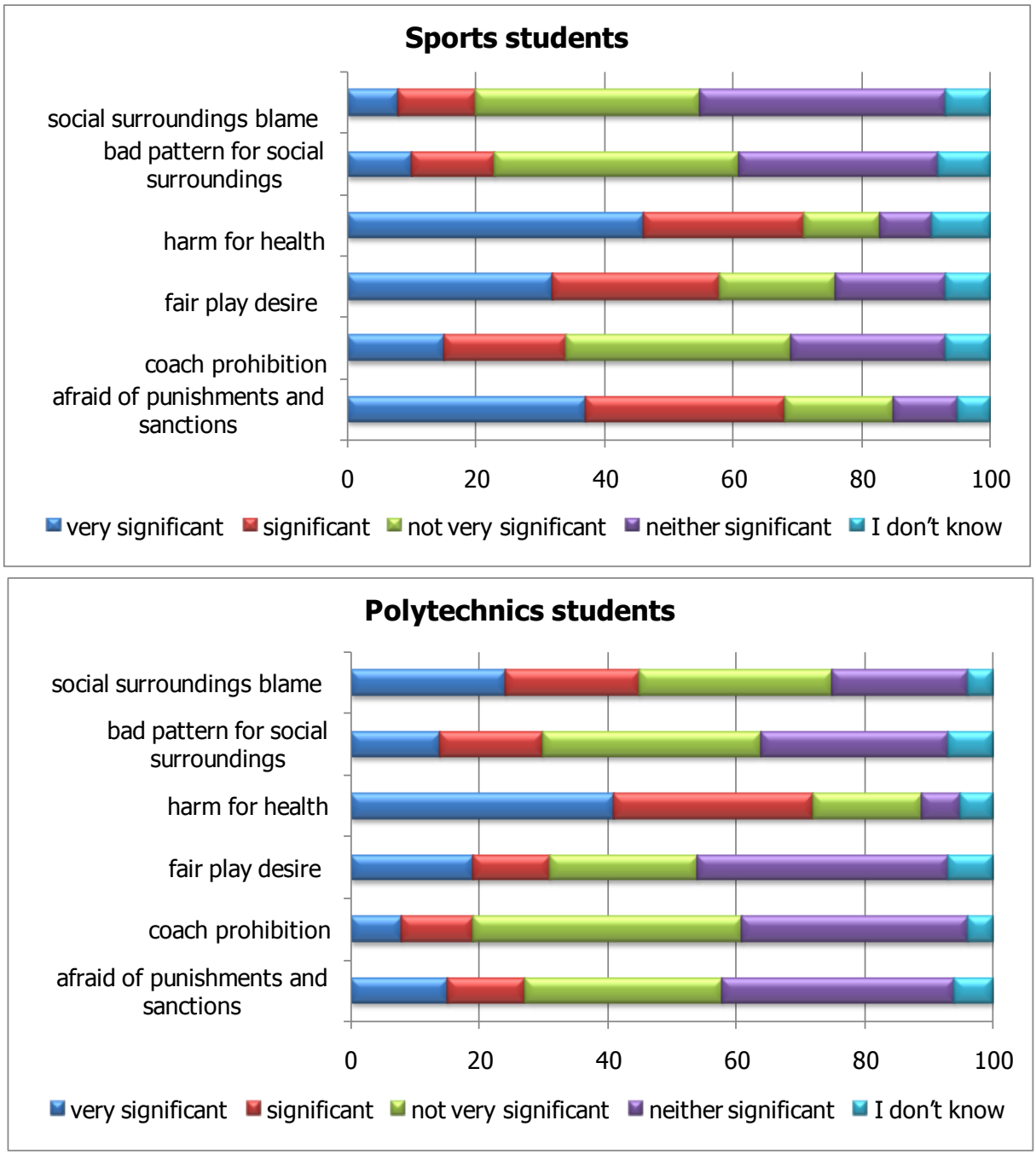
The implications of these results are that Sports students should be more aware of the negative side-effects of doping.

Moreover, they may be interested in fair competition and consider punishment and sanctions to be more advantageous means of deterring doping use.
In contrast, prohibition from coach, bad pattern for social surrounding and blame from social surrounding of Sports students were seen as negligible.

Answers to the question “which factors could deter students from using doping?” given by Polytechnics students is also shown in figure 2.

Among Polytechnics students “harm for health” was also considered as “very significant” and “significant” by the highest number of respondents – 72 % (n=231).

Figure 2. Answers' distribution to the question "which factors could deter students from using doping?"



Polytechnics students in contrast to Sports students put "social surroundings blame" in second position – 45 % (n=144). Desire for fair play competition is "very significant" or "significant" for 31 % (n=99) of the students. Factors "bad pattern for social surroundings" accounted in categories "very significant" and "significant" - 30 % (n=96) of respondents.

Polytechnics students relegate factor "punishments and sanctions" to the fifth position. Factor "coach prohibition" is in sixth place.

These results demonstrate awareness of possible harmful health effects of doping by the great majority of respondents. The difference in position of the punishment and sanction factor among Sport student and Polytechnics students could be explained by the fact that Sports students are closer to sports environment and take part in various sport competitions where they might face doping control procedures, while Polytechnics students are considered less oriented towards competition. From this point of view, it is interesting to note that coach prohibition for them is not considered as a serious matter which they might treat as means of deterrence.
On the other hand, Sports students treat the "blame from social surroundings" factor as a key factor which could prevent them from doping use.

In spite the awareness of negative side-effects of doping, a considerable quantity of focus groups' respondents seem to think that doping does not have a negative impact on health if it is used reasonably.

Here, results of a mass survey present the greatest disagreement between focus groups' data. The explanation of this might be the following points. Firstly, the sport performance level of focus groups' respondents is higher. Secondly, in spite of widespread opinion of doping pernicious effect on health, focus group interviews indicated that opinion of athletes has an essential distinction from common thoughts.

Orientirer *: The main point is not what you use, but how you use it. I don't understand why people everywhere are shouting that doping is bad for health? 90 % of them are not familiar with how to use it. The main reason is how you take it. In general, I don't think about my health, because I know what I use and what I attain.*
Powerlifter*: Well, you have to think when you are train. Read literature, visit the doctor, consult medical staff. I think that in strength sports agitation is required. It depends on what kind of substances you use, in which dosage, so that there is less harm to health and the results will rise.*
Track and field runner: *In regards to health, most people do not care about it, especially when it comes to elite sport.*

These results reveal that in general athletes assess doping substances as harmful to health, but still tend to use it because they are certain that in small dosages and when knowingly doping may even be beneficial.

Trivial speculations of “doping benefits” in high performance sport may be considered as mythologem, which in turns undermines the idea of “necessity” of using banned substances. This mythologem consist of cognitive, valuable and normative components where the main important component is the normative component. The reason of this component is that sport is beyond ethics. The moral part of sport is only interesting to athletes if it does not interfere with their aims, or it is not interesting at all.

Soccer player: *Elite sport – big money. In elite sport there is no moral. Every man stands for himself.*
Weightlifter 3*: I want to play fair. But if everyone competes fair...*
Soccer player 2*: If one plays fair, but ten are cheating - there is no sense or point.*

Moderator: *What is your attitude to the phrase “The result justifies the means” with regard to our topic?*

Track and field runner: *It depends on what the result is. In terms of want to reach, especially at present – no. But if the aim is to win an important competition - then yes, I think that it is normal if it is taken reasonably. Any particular situation requires an individual approach.*
Orienteerer*: I agree. It is all depends on the value of the result. If the aim is high, any means of achieving it is acceptable. I think it is normal when done competently.*

Moderator: *What about conscience?*

Orienteerer: *Conscience? There is no conscience.*

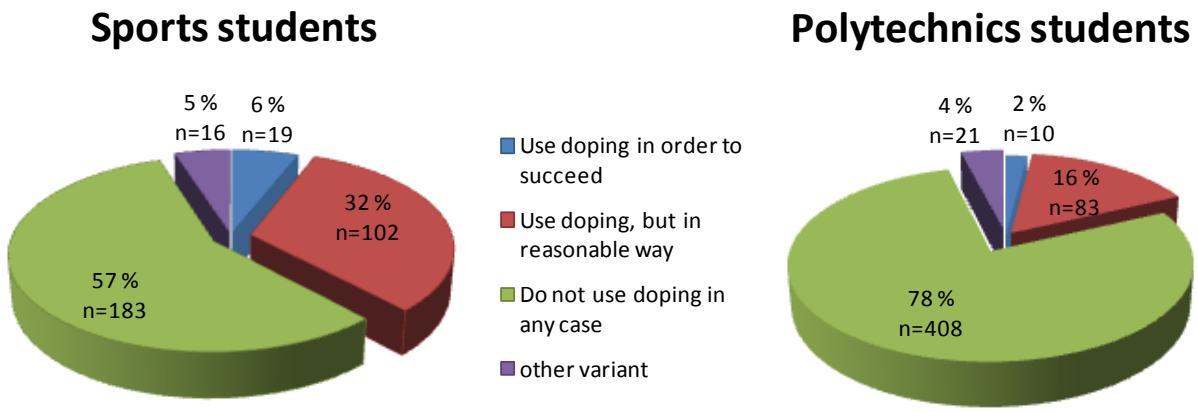
These results show that doping use has a moral legitimacy amongst the majority of young athletes, and this point, in many ways, determines its use.
The vast majority of respondents agree that athletes that use doping are giving a bad example for the youth. But the considerable number of respondents expressed an opinion that example of imitation should be in terms of sport results only, but not in terms of moral values.

Soccer player: *From the moral point of view, it is not possible to say that athletes use doping. It is not known. There are rumours only.*
Wrestler 1: *In fact, an athlete does not consider themselves as being guilty. Even if they were caught, they still do not admit "Yes, I am innocent, I simply*

use legitimate drugs!" . For a child a famous sportsman is an idol, he will believe in him, but not in those who blame him.

The graph on “figure 3” indicates the percentage of respondents’ answers regarding advice for their relatives.

Figure 3. Percentage of respondents’ answers to the question “If you relatives or close friends engaged in sports, what would you advise them?”

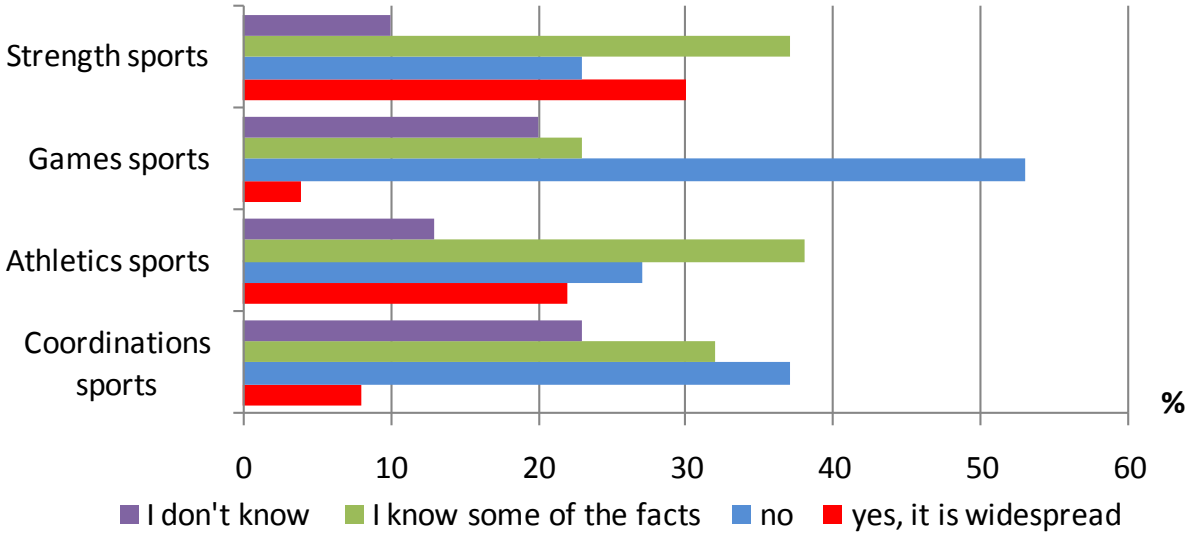


The majority of respondents would not advise their relatives or friends to use doping. This is shown by the fact that 57 % of Sports students and 78 % of Polytechnics students choose category “do not use doping in any cases”.
The minority of both students’ categories would advise their relatives or friends to use doping, because high achievements in sport are the main aim; six in one hundred Sports students and two in one hundred amongst Polytechnics students.
Every third Sports student (32%) would propose their relatives or friends to use doping but in a “reasonable“ way, in order not to be caught. Amongst Polytechnics students the number who would advise their relatives or friends is smaller - 16 %.

These results indicate that Sports students and Polytechnics students have different perceptions of using doping. A possible explanation for this finding may be that Sports students tend to consider doping less unethical than Polytechnics students. It appears that nearly 40 % of respondents could induce novice sportsmen towards doping use.

The bar chart in “Figure 4” shows the proportion of respondents who are aware of their colleagues using doping in order to increase their sports performance.

Figure 4. Percent of respondents’ answers to the question “Do you know any of you colleagues who use doping to increase sports performance?”



The percentage of respondents who declare that doping is widespread among their colleagues is significantly higher for strength sport (30 %) (χ^2=16.1, p<0,05) in comparison with game sports (4 %) and athletic sport (23 %) than coordination sport (8 %), (χ^2=12.4, p<0,05). Between participants of strength and athletic sport was no significant difference in terms of prevalence estimation among group mates (χ^2=4.1, p=0,15).

For strength sport the percentage of students thinking that their peers would have use doping was 67.4% whereas among game sports and coordination only 34.5% of students have an opinion that their peers would choose doping for sport performance (t = 2.89, p < 0.01).

This seems to be in line with Backhouse [23], reported that prevalence of anabolic steroid use within the bodybuilding and weight lifting community is believed to be higher than within other groups of athletes. On the other hand, this data indicates only athletes’ familiarity with the involvement of their colleagues in the use of doping substances. On balance, these results show that nearly 40 % of respondents familiar with some facts of doping use by their

colleagues and support the contention that students are engaging in doping practices.

Interviews among focus group' respondents show that all participants are aware of the doping use in their surroundings. Representatives of strength and cyclical kind of sports have indicated high prevalence of doping, thus confirming the data of the mass survey.

Weightlifter*: Power-lifting, weightlifting. Most athletes use doping, of course. I cannot claim that all of them do, but definitely the majority.*
Powerlifter*: Everything depends on the level of competition. For example, where people are amateurs they do not use it. If they are seriously engaged in for sports, all of them do. That guy says: "All wrestlers use it! I even know the newcomers who do it, too".*
Skier*: Ski racing, in general, is treated as a sport for horses. It is a kind of sport where doping is widely used, especially in modern times. And it is our doctors' merit because they attain such a level that the international federation, international organizations cannot detect these drugs.*
Boxer*: Everything depends on the kind of sport. In boxing, of course, we could train without any substances, but in weight-lifting? If at least one weight-lifter will be clean on a competition that is would be nice.*
Track and field runner 2*: The doping topic is discussed often, during training sessions, and practice sessions. And many boast about doping use. They say how many pills they have taken. Once I have been told " I can eat a handful of pills" . Someone does it.*

According to the False Consensus theory [20], individuals may to overestimate the extent to which others think and behave as they do, especially if the behaviour is considered to be socially unacceptable. This phenomenon is explained by a motivational and cognitive process resulting in people believing that their own action is a relatively common behaviour [21] .
The false consensus effect tends to exaggerate the trust that individuals place on their own beliefs, even if they are wrong.
That is, over-estimating a particular behaviour indicates that the person who makes the estimate (and overestimates the behaviour) is likely to be engaged in the same behaviour.

In this report students who do not use doping typically underestimated and users overestimated prevalence of doping practice.

Figure 5 indicates proportion of respondents' answers related to affordability of banned substances. In fact, the availability of doping is thought to be one amongst factors that influence on doping behaviour. The more easily available are doping, then the more likely those with positive attitudes towards doping commit to doping use.

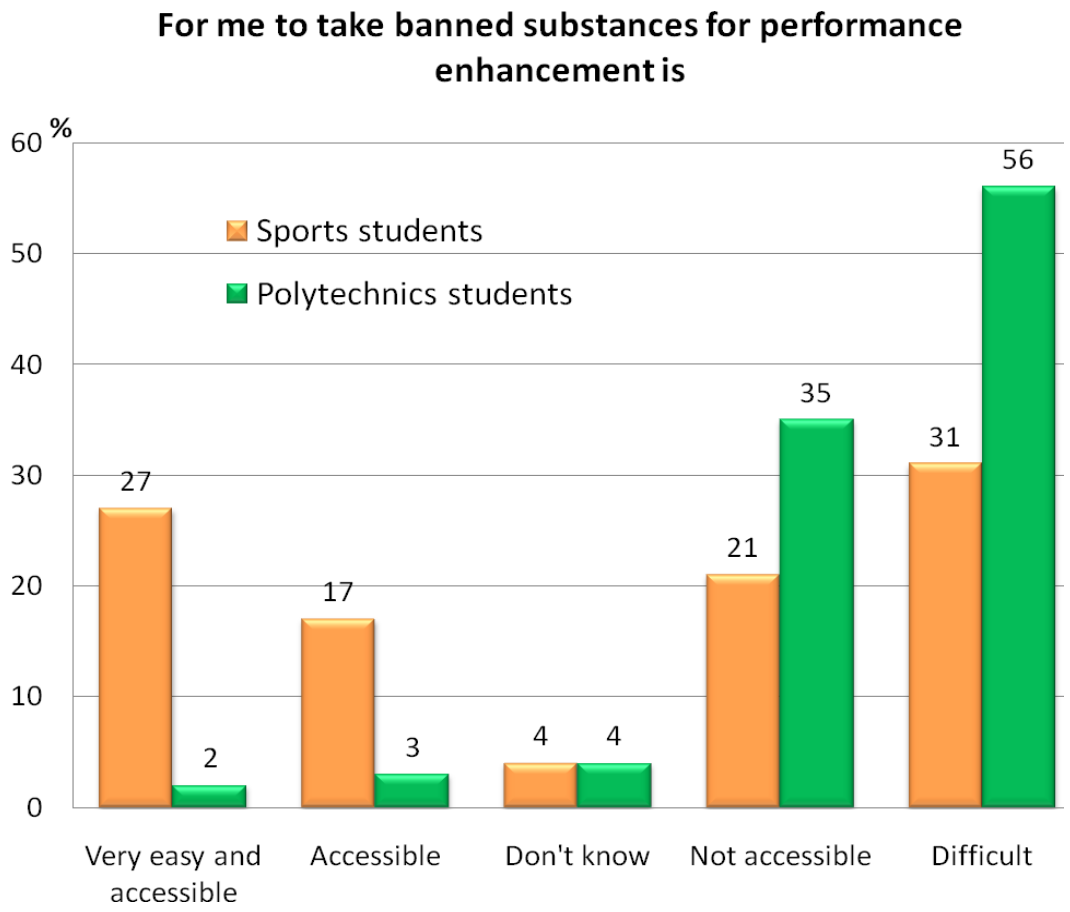


Figure 5. Perceive affordability of PED

Nearly 44 % of Sport students suggest that using banned performance enhancement drugs for them is easy and accessible. The same level of availability is relates to 5 % of Polytechnic students. The difference is statistically significant (χ^2=21.1, p<0,05).
On the other hand, nearly 52 % Sport students and 91 % Polytechnic students found such affordability as "not accessible" or "difficult" for them.

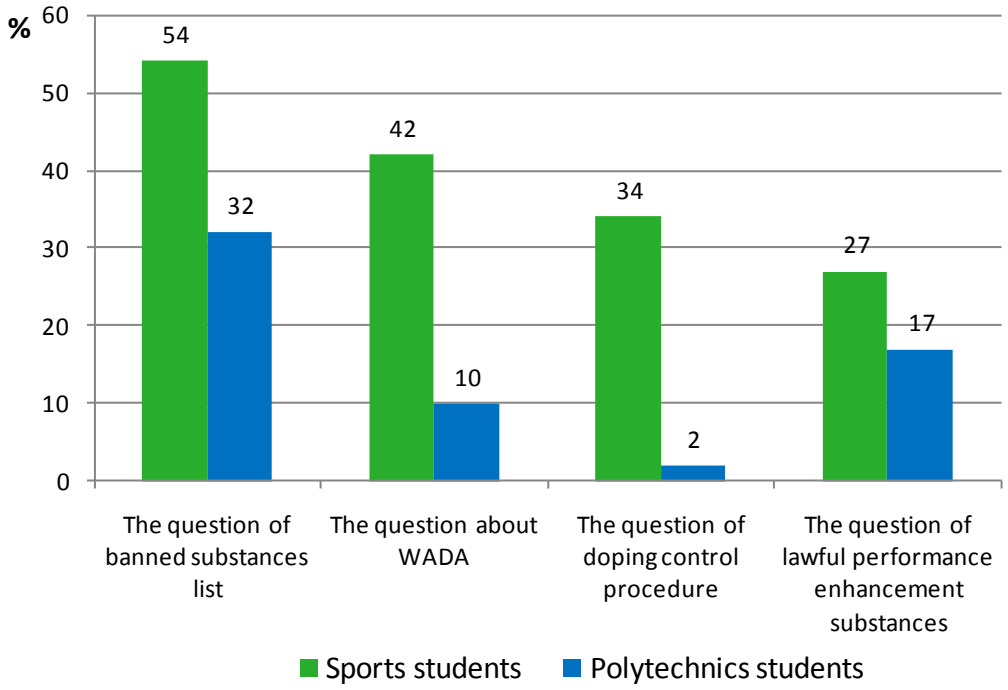
The differences in a perceived affordability between sport level statuses were insignificant. High sport level vs. amateur sport level (χ^2=1.13, p=0,25).

One of the important doping issues is the degree of interest in this topic.
The interest in the topic about doping is superficial and explained as an episodic achievement of information from TV and during discussions with friends.

This could explain low level of respondents' awareness about questions concerning doping knowledge (Figure 6). Only in one question – question about awareness of banned substances list - level of satisfactory answers was more than 54 % for Sports students and almost three out of ten Polytechnics students are aware of the banned substance list.

The rest of the questions were more difficult for students to answer.

Figure 6. Proportion of satisfactory answers related to doping knowledge among Sports students and Polytechnics students



For example, less than 35 % of all answers concerning doping control procedure were satisfactory. The number of Polytechnics students who give satisfactory answers about doping control procedure was negligible (2 %). However, 17 % of Polytechnics students gave satisfactory answers about lawful performance enhancing substances and compared to Sports students there was a small difference. On the other hand, only 10 % of Polytechnics students know about WADA, while among Sports students the number of positive

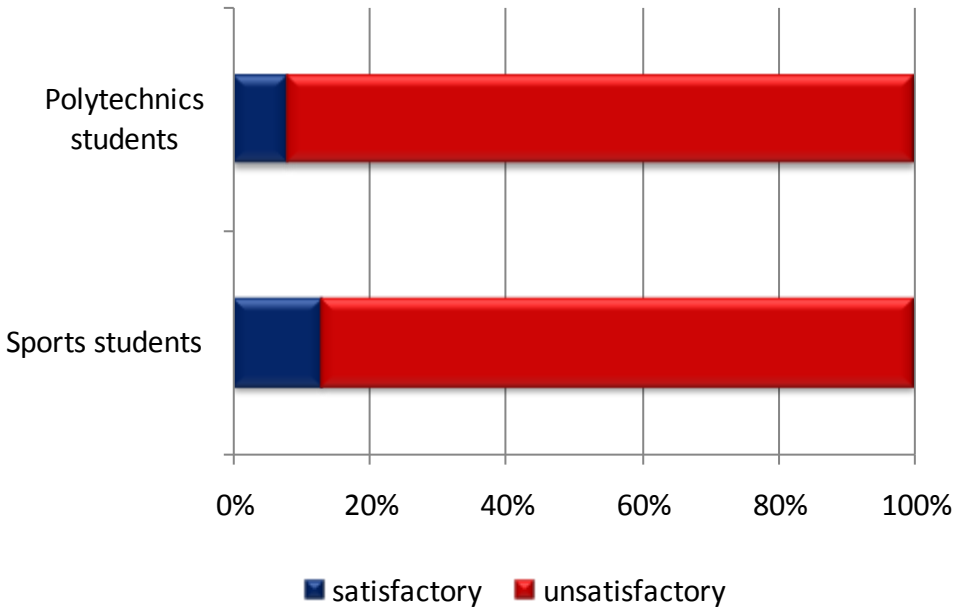
answers is higher – 43 %. Overall, Sports students have a greater knowledge of doping than their colleagues who study in Polytechnic universities.

The degree of knowledge was significantly higher for males in comparison with females, as well as level of sport performance.
The proportion of males that were able to specify at least three prohibited substances was significantly higher - 85 % against 9 % (χ^2=48.6, p< 0,05). The proportion of athletes that specify at least three prohibited substances was 85% for "extra high" level of sport, that was significantly higher (χ^2=37.1, p< 0,05) than 24 % for "high level" and only 10 % for "amateur", which was significantly lower than percentage of a "high level" (χ^2=15.6, p< 0,05).

At least 9 % of females were aware of WADA and 6 % of doping control procedures, which is significantly lower when compared with males - 42 % (χ^2=38.2, p< 0,05) and 36 % (χ^2=32.6, p< 0,05) respectively.

Respondents were also asked to specify some negative side-effects resulting from steroid use. If the respondent states 3 or more side effects, their answer is considered to be satisfactory. These results are given in figure 7.

Figure 7. Answers of respondents to the question "Can you specify any negative side-effect resulting from steroid use?"



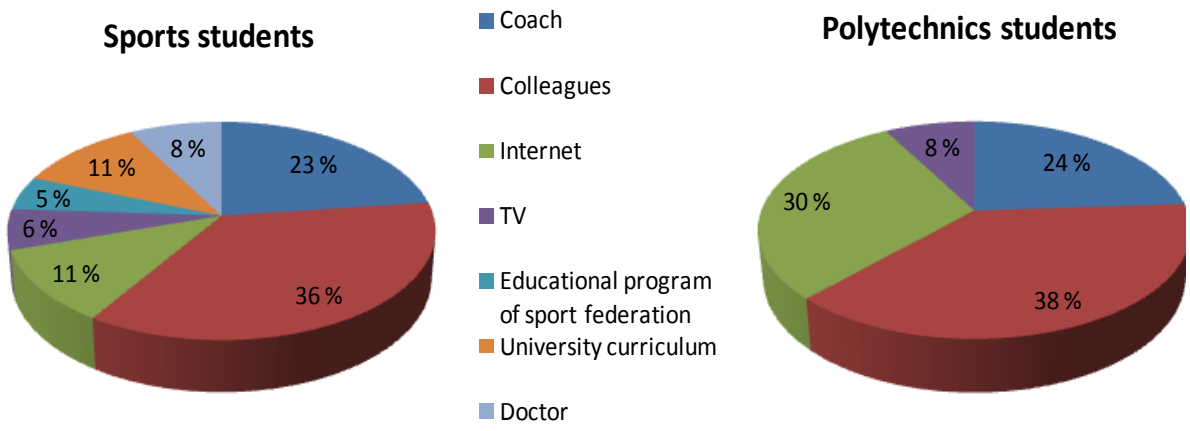
It can be clearly seen that the amount of satisfactory answers is less than 20 % in two groups of students with a little advantage of Sports students (13 %

versus 8%, no statistical differences were found (χ^2=8.2, p=0.276)). The most common cited negative side effects were impotency (n=56), hypertension (n=32), harm to reproductive function (n=12). Only 3 persons out of 844 indicated psychological dependence as one of the negative side effect. It is interesting to note, as it was previously established that one of the main factors which deter students from using doping is its harm to health - in terms of this negative effect the students' knowledge is scarce.

The pie-charts in a figure 8 compare sources of information about doping among Sports students and Polytechnics students in Ukraine. The majority of students receive their information concerning doping from their colleagues or friends.

This category accounted 36 % in Sports students and 38 % in Polytechnics students. The coach plays an important role in supplying students with information. This is shown by the fact that among Sports students the coach category is in second position with 23 %, and among Polytechnics students it is in third position with 24 %.

Figure 8. Self-reported sources of students' knowledge.



Except for obtaining information from colleagues Polytechnics students use the internet to gather information. One out of three Polytechnics students put the internet category in second position, while only 11 % of Sport students indicated category internet as a main source.

A minority of Polytechnics students, only 8 %, indicated category TV as a main source, also this category accounted for 6 % of Sports students' answers.

The educational programs of sports federations regarding anti-doping measures are still not as effective as it ought to be in Ukraine. This is exemplified by the fact that only 8 % of Sports students indicated educational programmes of sport federations as a main source and particularly these programmes do not touch Polytechnics students.

The University curriculum program in Ukraine is provided only for Sports students and this category as a main source of doping information accounted 11 % of Sports students. Only one in twenty Sports students consults a doctor regarding.

All in all, our data suggests that a considerable proportion of students lack knowledge in terms of side-effects, sources of information and testing procedures. This behaviour may increase the chances of accidentally committing a doping-related offence.

Socio-psychological determinants of doping behaviour

The interest in the topic about doping is higher in those kinds of sports where the doping prevalence is supposed to be higher. The participants of the discussion came to the conclusion that frequency of doping use depends on competitiveness' level. Representatives of strength sport do not deny of their involvement in the use of doping, as well as show great awareness of doping effect mechanisms and show a desire to improve their doping competence.

***Moderator**: What are the most common issues of your interest?*
***Weight-lifter**: The main issue for me is that weigh-lifting is a power sport, but on the other hand, rumour has it, that the use of doping may result in impotence, increased aggression, slowness and so on. I want to say that weight-lifting is associated with the indicated problem. But it is not true.*
***Weightlifter 4**: I only listening and discussing.*
***Wrestler 1**: I, too, only this discuss with friends, sometimes read literature.*
***Soccer player**: I don't think about it. It only concerns high level sports.*
***Boxing**: I am interested because I can succeed.*
***Power-lifter**: I am interested, too. I am going to stay in sport, maybe became a coach, therefore I have to know all about doping issues.*
***Weight-lifter**: I have communicated with people who have been using doping for a long period of time. Those are absolutely healthy people. They have*

families, children. They have a particular course, then buy more modern and expensive new drugs. And they recover their liver, clear it.
***Wrestler**: I have first-hand knowledge of doping.*

Focus groups' respondents show a great dispersion of opinions regarding to struggle with doping.

***Weight-lifter1 :** It is pointless, sport will would be destroyed.*
***Power-lifter**: Well, control is needed, of course. If the use of doping is allowed it would create monsters out of people.*
***Weight-lifter 2:** I am satisfied with the present situation.*

***Moderator**: Do you mean that you support the "*cat-*and*-mouse *game" between doping producers and doping control organisations?*

***Power-lifter**: Of course, and not only due to harm to health. It is a great turnover beyond country. Black market is the same as the drug market. This is money.*
***Skier**: My proposition is to control sales and productions of banned substances inside the country, but not to forbid them completely. Even to become a team member is difficult.*

Focus groups' respondents expressed the opinion that the search of new effective training methods is needed, so as to displace doping from sport. On the other hand, focus groups' respondents showed disagreement with proposition to equalize doping with drugs and to enact criminal responsibility for doping use.

***Weight-lifter 3**: (to the question associated with criminal responsibility for doping use) What? Legendary people put into prison?*
***Power-lifter**: Doping cannot be stopped. I cannot understand how authorities will be able to imprison a person who glorifies the name of the country. Let them adopt such drugs that do not harm health.*

Also, focus groups' respondents showed an opinion for establishing more severe punishments from sport organizations for doping use.
***Track and field runner**: We need to forbid doping. Discuss official results. Make them in lowest cost. I propose to make punishments for doping more severe, maybe even criminal responsibility. Or disqualification's term can be prolonged*

so that athletes would really be afraid of using dope, maybe for the rest of their lives.

It is interesting to note, that the higher level of performance of an athlete's the more often he expressed an opinion for more "severe punishment".

Apparently, they realize real aspects of the problem and consider that the most effective way to solve doping problems is to establish more severe sanctions.
Even though the vast majority of respondents do not indicate close relationship between doping and drugs, some of them have admitted a particular similarity between them.

***Fencer**: I agree. Doping may stand equal to drugs because of its effects. Those psychological and chemical influences may be the same as drugs' influences.*
***Track and field runner**: I consider doping to be equal to drugs because people who use them cannot keep up the same level of results without using doping. And if they are planning to train further, they cannot without doping at all.*

***Moderator**: Do you think that there is dependence?*

***Track and field runner**: Yes, there is dependence.*
***Power-lifter:** Yes, and in bodybuilding cocaine is treated as a banned substance. But many friends of mine who are bodybuilders use cocaine.*

Also, respondents show different points of view.

***Skier**: It is not wise to put doping in equality with drugs!*
***Orienteerer**: I consider that doping and drugs are different issues.*
***Weight-lifter** 3: It is interesting to me why it is thought that steroids are drugs? What about those who drink vodka (beverage that consist alcohol)? Youth drinks both that and beer, and what about smoking? It, too, is a drug addiction. But people use steroids to reach a particular goal, to achieve results; that is why doping is not a drug.*

In the final part of the investigation, shorthand records of focus groups' interviews have been exposed to content analysis procedure.
As a category for analysis the following criteria have been chosen.

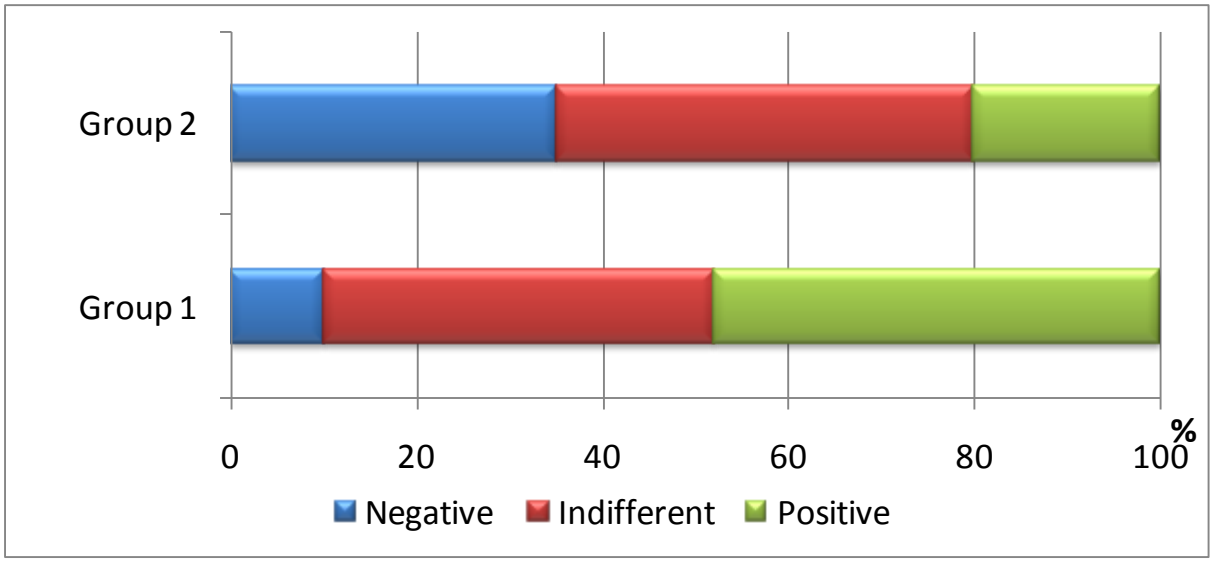
1. Doping perception by athletes themselves. The indicators were positive, negative and indifferent statements of respondents.

2. Statement regarding to doping prevalence in sport. The indicators were high or low doping prevalence in all and in particular kind of sport.

The figure 9 shows the percent number of positive, negative and indifferent statements that assesses doping. According, to the figure the number of persons who have a positive attitude towards doping amongst two groups was 31 %, where as those who had a neutral attitude was 40 %. The proportion of negative statement was 28,3 %.

It can be clearly seen that the proportion of statements varies considerably across two groups and that students of different kinds of sport have different attitude towards doping.

Figure 9. Attitudes toward doping (grounded on the content analysis procedure)



In group 2, which consist of strength sport participants, the positive statements was higher by 12,3 % in comparison with group 1, which consist of participants of coordination sport.

An analysis of total number of statements, associated with doping prevalence shows that 82 out of 100 indicators showed that doping is widespread in sport. Moreover, there is no statistical difference among the two groups. What is more, 49 % admitted having used doping in the past.
Interviews in focus-groups show that students' attitudes towards doping vary considerably. Regardless of the context their attitude tends to change.

There are various environmental factors that might influence their attitude towards doping behaviour. To investigate a social role influence on doping behaviour the respondents' were then asked to react to 5 fictitious scenarios in which doping behaviour was contextualized in different social role that could be associated with public surrounding of students (table 4).

Table 4. Scenarios and their description

Scenarios	Description
Getting scholarship	Student who wants to increase his chances of getting a university football scholarship and one of the ways to get a scholarship is using doping.
Weak student – improve appearance	Student who entered to a new group of students. His group mates embarrass him by mocking him for being weak and lean. He wants to use steroids to improve his muscle definition and get leader qualities.
Parent	Your coach told you that your child had to train harder in order to win, because being only talented is not enough to succeed. You are aware of the risk that doping might lead to health problems but at the same time it might increase physical performance. But you extremely want your child to be a winner. Also, your child told you that being a winner is the only way to enter a prestigious university for him.
Coach	Respondents were asked to imagine that they were coaches. The coach's salary depends on the success of his students. Some of them are not gifted enough to bring him fame. A doctor told him that the only way for them to succeed is to take doping otherwise these students will be dismissed and as a consequence coach could lose his job.
Friend fun	You are a fan of some kind of sport. Your best friend succeeds in this sport, but suddenly you learnt that he cheated using doping.
Friend competitor	You are a good sportsman and regularly take part in various competitions. In one of the competition you hold the second position, after your colleague. After some time you became aware that he uses doping.

The respondents proposed to give their reasons of using doping in each situation (table 5).

Table 5. Respondents' numbers and percentages of who approve or reject using doping in proposed scenarios

Scenarios	**Sports students (n=326)**				**Polytechnics students (n=330)**			
	Approve		Reject		Approve		Reject	
	% of n	n	% of n	n	% of n	n	% of n	n
Getting scholarship	19.0	62	81.0	264	3.0	10	97.0	320
Weak student – improve appearance	3.7	12	96.3	314	14.2	47	85.8	283
Parent	0.6	2	99.4	324	1.5	5	98.5	325
Coach	14.1	46	85.9	280	0.6	2	99.4	328
Friend fun	1.2	4	98.8	322	0.9	3	99.1	327
Friend competitor	2.5	8	97.5	318	1.2	4	98.8	326

The scenario results showed that most students rejected using doping, but some social roles create higher prevalence of doping practice.

For Sports students the percentage of respondents who approved using doping was higher for the "Getting a scholarship" scenario (19%). The next scenario with high percentage of students approving doping was "Coach" - 14,1%. In scenario with weak students wanting to improve appearance, the percentage of students who approved doping use was 3,7 %. In the rest of the scenarios number of students who approved doping use was negligible.

On the other hand, Polytechnics students who are generally considered to be less sport oriented mostly approved doping use in the scenario with a weak student (14,2 %) and in the "Getting a scholarship" scenario (3%). In the rest of the scenarios respondents' reaction was generally negative.

These data correspond with obtained results related to motives of doping use among Sports students and Polytechnics students (table 3).

One of the main reasons to risk using doping is a possibility to compensation (tangible, social, ideological) for harm to health. This indicated that driving forces of doping behaviour among Sports students are mainly described by self-affirmation motive which in turns resulted in pecuniary component.
Among Polytechnics students self-affirmation motive in doping use mostly resulted in improving appearance. Students may seek to enhance their social status and win peer approval by increasing their masculinity, they also may discount the risk associated with achieving those ends.

Given the pro-active and self-regulating aspects of social cognitive theory, they may surround themselves with those who support their attitudes and behaviours (Irwin, 1997).

From this point of view, it is interesting to note that students themselves mostly perceive others who use doping negatively. This is indicated by the fact, that almost 99 % of both Sport and Polytechnics students reject doping use in scenarios with “friend”. Also, as parents students are against the use of doping by their children, and it seems that they tend to create a negative attitude towards doping.

This phenomenon is reflected in so-called double moral standards. Sports environment is perceived by subjects as a special society in which societal defects may be justified, while key social norms are sacrificed for sports results.

Conclusion

The report

The report by Sevastopol National Technical University to investigate social aspects of doping problems in Ukraine, **Doping prevalence among university students in Ukraine: a study of knowledge, attitudes and behaviour,** examined attitudes towards doping and behaviour regarding doping amongst Ukrainian students. This report plays an important role to supply Ukraine with initial data that will provide insights into doping problems, with implication for future interventions.

The World Anti-Doping Agency, grounded on prior work of investigators from the Sevastopol National Technical University, Kharkiv State Academy of Physical Culture, Tavrida National University, sought to address this gap by funding a research project to identify major barriers faced in creating effective anti-doping strategy in Ukraine. Through a combination of surveys, focus groups, and interviews in four cities in Ukraine, investigators gathered information from the experiences of respondents and developed recommendations for future policy, planning, and practice to address identified gaps.

Findings

The percentage of our sample that self-reported that they would use doping for performance enhancement in a nearest future does fall within the range 8-10%. Our data also implies that doping does not affect only athletes but also students that engage in for sport with recreational aims.

Prevalence of doping varies greatly within the level of sports' results, kind of sports activity, and the aims of engaging in sports.
Our data indicate that Sports students and Polytechnics students have different perceptions of using doping. A possible explanation for this finding may be that Sports students tend to consider doping less unethical than Polytechnics students.

Sports students claim that doping practice among their colleagues is widespread. While Polytechnics students expressed less extent of doping prevalence among their colleagues. Also, representatives of strength and

cyclical kind of sports are at higher risk of doping prevalence. This is indicated by the fact, that they overestimated prevalence of doping practice within their surroundings. According to the False Consensus Theory overestimating a particular behaviour indicates that the person who overestimates the behaviour is more in favour to commit the same act.

The use of doping supported by Sports students for better sport results and increased muscle, while Polytechnics students mostly consider doping to improve appearance and increase muscles.

In spite of widespread opinion of doping pernicious effect on health, focus group interviews indicated that opinion of athletes has an essential distinction from common beliefs. Sports-oriented students consider that doping does not impact on health negatively if it is used reasonably. Among athletes the opinion that doping in small dosages and in reasonable proportions can be beneficial is widespread.

Our results suggest that doping use has moral legitimacy amongst the majority of students' athletes, and this point, in many ways, determines doping use.

Among athletes who participate in competitions, doping is associated with inevitability, where the core thought is an "*inevitability of training without complex pharmacology*". They consider doping effects as the positive influence on recovery processes during intensive training sessions. Moreover, the motive of inevitability has a double-sided sense. The first sense is the desire to recover and increase sports performance and the second sense is socio-psychological aspects.

Athletes' decisions to use doping can be made under pressure (coaches, other athletes using doping that makes it impossible to compete without adequately pharmacological decisions). Within this context the motive of "extreme necessity" opposes to "chance" motives. The chance is chosen by an athlete, while "extreme necessity" provokes him or forces him towards undesirable behaviour.

The motive of "necessity" looks like a mature explanation – an ideological scheme. This is indicated by the fact that one of the main reasons of doping use that athletes indicated was self-affirmation motive, reaching high sport s results, material welfare.

The interest in the doping topic is superficial, and it is explained by an episodic acquirement of information from TV and during discussions with friends. Also, Polytechnics students collect information mostly from internet recourses. Taking into account the fact that the vast proportion of internet recourses are supported by doubtful sources, this may only increase committing a doping-related offence.

The educational programs of sport federations regarding doping issues are not effective in Ukraine. Only 8 % of Sport students receive information from this source and this program do not touch students that involve in sport practice with recreational aims.

Our data suggests a considerable lack of knowledge in a large proportion of students in terms of side-effects, sources of information and testing procedure.

Students' attitudes towards doping vary considerably. Regardless of the context their attitude tends to be changed.
Despite of the majority of students rejecting doping use, some social roles create special conditions for higher prevalence of doping practice.

A vast proportion of high performance athletes have admitted positive attitude toward doping during focus group discussion. One of the main reasons to take a risk of using doping is an opportunity to have a compensation (tangible, social, ideological) for harm to health. This indicated that impelling forces of doping behaviour among Sports students is mainly described by the self-affirmation motive which in turns resulted in pecuniary component.

Among Polytechnics students the self-affirmation motive in doping use mostly resulted in improving appearance. Students may seek to enhance their social status and win peer approval by increasing their masculinity, they also may discount the risk associated with achieving those goals.

Thus, sports environment is perceived by subjects as a special society in which societal defects may be justified, while key social norms are sacrificed for main results.

The findings highlight a gap between educational policy and students' behaviour regarding doping. The evidence from these results may provide arguments for governing bodies and serve as a platform in creating educational programs for main stakeholders.

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Effect of research on Professional Development

Materials of the project have been used in a Master diploma in physical education and sports sciences of a student of Sevastopol National Technical University.

The results of the project have initiated the theme “The struggle for clean sports in Ukraine: social and cultural factors influence athletes’ decision to use doping” that has been proposed to Petro Jazyk Scholars Program at the University of Toronto.

Implications for Prevention programmes

The result of the research have indicated that sport federations’ educational programs are not effective and particularly do not reach the targeted groups. Moreover, the project revealed that doping use has a moral legitimacy amongst majority of athletes, and this determines doping use. That point should be considered, while educational programs are being developed.

As far as Ukraine is concerned, anti-doping educational programs have to be implemented through sport federations and also through curriculum program of Universities and Sport Schools.

The results of this project had been used in adoption of the educational programs for Ukraine Weightlifting Federation, and for Football Federation of Ukraine.

There is a programme at the developmental stage for the High University course “Olympic and Professional Sport” which touches various aspects of doping problems.

Disseminations

PUBLICATIONS:

Papers in refereed Journals

Bondarev D., Galchinskiy V. **Doping problems: sociological aspects and behavior determinants**. Slobojanskiy Sports Scientific Practical Journal. 2009. № 3. P. 280 —284. (in Russian)
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Bondarev D., Sirenko R. **Knowledge, attitude and behaviour regarding doping use**. XIV – st International Congress "Olympic Sports and Sport for All. October 5 -8, 2010. Kyiv, Ukraine
http://www.congress2010.com.ua/en/

SEMINARS and PRESENTATIONS:

Bondarev D. Social psychological determinants of doping behaviour amongst Ukrainian athletes. Lviv State University of Physical Culture, Summer School for Sport Coaches and Sports administrative staff, 5 June 2009, Lviv, Ukraine

Bondarev D. Performance enhancement substances in strength sport, 20 November 2009, Weightlifting Federation of Ukraine Annual Symposium, Kiev, Ukraine

Bondarev D. Doping among Ukrainian Athletes: Friends of mine use it and I will… Sevastopol National Technical University, Physical Education Society Annual Meeting, 21 January 2009, Sevastopol, Ukraine

CHAPTER IN A SCIENTIFIC REPORT

Annual report of the research project (№ of the state registration 0106U12600), approved by the department of scientific and technical development Ministry of Science and Education of Ukraine on 2007– 2008 “The increasing of physical education efficiency of students**”** carried out at the Physical Education and Sport Department, Sevastopol National technical University.