

**Stojan Burnik<sup>1</sup>****Polona Palma<sup>2</sup>****Tanja Kajtna<sup>1\*</sup>****Zdenka Čebašek-Travnik<sup>3</sup>****PSYCHOACTIVE SUBSTANCES AND BELIEFS ABOUT SPORT****UŽIVANJE NEKATERIH PSIHOAKTIVNIH SNOVI V POVEZAVI S ŠPORTOM****ABSTRACT**

The use of psychoactive substances in our society is increasing. The abuse of these substances is detrimental to health, disrupts human relationships, decreases one's quality of life etc. Engaging in sport has often been suggested as a means of prevention and the purpose of our research was to establish correlations between the use of certain psychoactive substances (nicotine, caffeine, analgesics) and beliefs about sport activity held by students in ten faculties of the University of Ljubljana. Four hundred and fifty-nine students (237 males and 222 females) anonymously filled in a self-constructed questionnaire. The regular use of analgesics by male and female students was found to be correlated with negative beliefs about sport (males  $p=0.02$ , females  $p=0.04$ ). Non-smoking and occasionally smoking female students hold more positive beliefs about sport ( $p=0.00$ ) than regular smokers. Female smoker students and students of both sexes with more frequent use of analgesics show less interest in athletic activities. Students who regularly consume caffeine do not differ in their beliefs about sport from those who do not drink coffee regularly.

**Keywords:** university sport, nicotine, caffeine, analgesics

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**POVZETEK**

Uporaba psihoaktivnih substanc v našem okolju narašča, znano pa je, da zloraba teh substanc negativno vpliva na zdravje, kvari medosebne odnose in znižuje kakovost našega življenja. Ukvajanje s športom je pogosto omenjeno kot način preprečevanja zlorabe tovrstnih substanc in namen naše raziskave je bil ugotoviti, ali obstaja povezava med uporabo nekaterih psihoaktivnih substanc (nikotina, kofeina in analgetikov) in prepričanji o ukvajanju s športom pri študentih desetih fakultet Univerze v Ljubljani. V raziskavi je sodelovalo 459 študentov (237 moških in 222 žensk), ki so anonimno izpolnili lastno sestavljen vprašalnik. Ugotovili smo, da se redna uporaba analgetikov tako pri študentih kot študentkah povezuje z negativnimi prepričanji o športni aktivnosti (moški  $p=0.02$ , ženske  $p=0.04$ ). Študentke, ki ne kadijo ali kadijo le občasno, imajo bolj pozitivno mnenje o ukvajanju s športom kot študentke - kadike ( $p=0.00$ ). Študentke - kadike in študenti (tako moški kot ženske), ki pogosteje uporabljajo analgetike, kažejo manj zanimanja za ukvajanje s športom. Količina zaužite kave ozziroma uporaba kofeina se ni povezovala z mnenji o športni aktivnosti.

**Ključne besede:** univerzitetni šport, nikotin, kofein, analgetiki

## INTRODUCTION

Regular athletic activity has a positive impact on the development of motor abilities that are closely correlated to the health, psychological and social well-being of an individual. Physical education is a process through which an individual learns to appreciate the capacities of their body: what it can do, what it can achieve, how much it is capable of learning and how much progress it can make (Cooper, 1968). Positive attitudes to physical education in Swedish adolescents were related to a strong sense of coherence, high physical capacity, high leisure-time physical activity and little time spent watching television (Sollerhed, Ejertsson, & Apitzsch, 2005). Sport acts to prevent physical, psychological and other types of stress and helps preserve good health (Dishman, 1985). Athletic activities can help to efficiently fill young people's free time, helping them to not stray on to the streets where they may find less healthy, less productive or even perhaps crime-related activities. A lack of physical activity in adolescents is associated with a less healthy lifestyle, worse educational results and poor self-perceived health (Aarnio, Winter, Kujala, & Kaprio, 2002). The motivation for practising sport is an important factor of the personal development of university students. This motivation is a relatively stable and permanent quality which can be positively enforced by organised programmes of guided sport activity. The probability that someone will continue practising sport during and after finishing university depends not only on their motivational structure – interests, beliefs and motives – but also on the available conditions and possibilities. The University of Ljubljana tries to stimulate positive attitudes to sport by offering its students a wide range of sports and providing good conditions for students to participate in them.

Young people use and abuse legal and illegal psychoactive substances to various degrees. Although some authors have also explored the use and abuse of prescription drugs (Gliksman, Newton-Taylor, Adlaf, & Giesbrecht, 1997), the use of analgesics is rarely included in such surveys. In the last few years the use of prescription drugs by college students in the USA has increased substantially (Whitten, 2006). In Slovenia there is only one epidemiological study showing the level of use and abuse of psychoactive substances among university students (Gosar, Kuzman, Perhacič, Petrič, & Pšenica, 1984), although the use of analgesics was not included. Another survey of Slovenian students focused on smoking (Klepčec, 2005). In our research we tried to shed some light on the problem of using legal psychoactive substances such as nicotine, caffeine and analgesics and their correlation with beliefs about sport and practising sport among University of Ljubljana students.

The purpose of our research was to establish correlations between the use of certain psychoactive substances (nicotine, caffeine, analgesics) and beliefs about sport activity held by students in ten faculties of the University of Ljubljana and to see whether any differences exist between male and female students regarding their use of the abovementioned substances.

## METHODS

### Participants

Our sample consisted of 459 (237 male and 222 female) students (aged 19 to 25) from 10 faculties of the University of Ljubljana who attended a physical education class in the 2006/07 study year. All subjects gave their consent to participate in the study.

## Instruments

A self-constructed questionnaire with five sections was administered: demographic data, use of psychoactive substances, recreational habits, beliefs and attitudes to sport. We measured the frequency (never, a few times a year, a few times a month) of a student's use of certain psychoactive substances (alcohol, tobacco, caffeine, analgesics, illegal drugs), and surveyed their sport practices, beliefs about sport and attitudes to sport. Items were taken from previous studies (Petkovšek, 1987). There were 20 items on sport beliefs scored from 1 (I do not agree at all) to 5 (I completely agree), and three items on attitudes (frequency and quantity of physical activity) (Craig et al., 2003). Three items with a predominantly positive denotation (enhancing sport activity: items 11, 14, 20) and two items with a predominantly negative denotation (avoiding sport activity; items 1 and 19) were identified and included in further analysis.

## Procedure

The data were collected anonymously, the questionnaires were brought in to the sport practice waiting rooms before the activity started and were filled in by the subjects themselves without any help from the student investigator who later collected them. The data were processed using a chi-squared test with SPSS 16.0. Necessary corrections were made due to the small N in some cases.

## RESULTS

Table 1. Differences between male and female students in their use of caffeine, nicotine and analgesics

How often do you drink coffee and smoke?											
		never		a few times a month		afew times a week		daily		Chi <sup>2</sup>	Sig (Chi <sup>2</sup> )
		N	%	N	%	N	%	N	%		
caffeine	M	102	43.8	53	22.7	52	22.3	26	11.2	21.06	0.00
	F	73	33.2	32	14.5	59	26.8	56	25.5		
nicotine	M	168	72.7	28	12.1	13	5.6	22	9.5	1.26	0.74
	F	158	72.5	21	9.6	16	7.3	23	10.6		
How often do you use painkillers?											
		never		afew times a year		afew times a month		Chi <sup>2</sup>		Sig (Chi <sup>2</sup> )	
		N	%	N	%	N	%				
analgesics	M	167	72.9	49	21.4	13	5.7	111.92		0.00	
	F	58	26.5	75	34.2	86	39.3				

The results for our sample show that female students use significantly more analgesics ( $p=0.00$ ) and drink more coffee ( $p=0.00$ ) than males, although no gender differences were found for smoking.

We did not find a statistically significant correlations between the frequency of sport activities and the use of nicotine, caffeine or analgesics. We established statistically significant correlations in the frequency of use of the selected psychoactive substances (nicotine and analgesics but not caffeine) and some beliefs about sport, as shown in Table 2.

Table 2. Correlations between the frequency of use of analgesics and certain beliefs about sport

<b>Male students</b>		<b>How often do you use painkillers?</b>						<b>Chi<sup>2</sup></b>	<b>Sig (Chi<sup>2</sup>)</b>		
		never		afew times a year		afew times a month					
		N	%	N	%	N	%				
I would rather rest than practice sport since I'm often tired	I disagree completely	31	18.6	8	16.3	1	7.7		<b>15.97 0.04</b>		
	I disagree	51	30.5	18	36.7	1	7.7				
	I neither agree nor disagree	26	15.6	2	4.1	2	15.4				
	I agree	42	25.1	12	24.5	8	61.5				
	I agree completely	17	10.2	9	18.4	1	7.7				
	I disagree completely	6	3.6	1	2.0	1	8.3				
	I disagree	4	2.4	0	0.0	1	8.3				
Sport is healthy	I neither agree nor disagree	28	16.9	1	2.0	1	8.3	<b>17.89 0.02</b>			
	I agree	29	17.5	9	18.4	5	41.7				
	I agree completely	99	59.6	38	77.6	4	33.3				
<b>How often do you use painkillers?</b>											
<b>Female students</b>		never		afew times a year		afew times a month		<b>Chi<sup>2</sup></b>	<b>Sig (Chi<sup>2</sup>)</b>		
		N	%	N	%	N	%				
I would rather rest than practice sport since I'm often tired	I disagree completely	5	8.6	10	13.3	2	2.3		<b>16.01 0.04</b>		
	I disagree	28	48.3	26	34.7	24	27.9				
	I neither agree nor disagree	7	12.1	10	13.3	13	15.1				
	I agree	15	25.9	25	33.3	38	44.2				
	I agree completely	3	5.2	4	5.3	9	10.5				
	I disagree completely	0	0.0	2	2.7	5	5.8				
	I agree	21	36.2	22	29.3	20	23.3				
I will remain active even after I graduate	I agree completely	31	53.4	34	45.3	35	40.7	<b>15.94 0.04</b>			

The results in Table 2 show that the response "I disagree completely" is significantly more common among students (male and female) who more frequently use analgesics. The response "I agree completely" is significantly more common among males with less frequent use of analgesics. Among female students the frequent use of analgesics is associated with a negative belief about their sports activity in the future.

Table 3. Correlations between the frequency of smoking and certain beliefs about sport

Female students		How often do you smoke?								Chi <sup>2</sup>	Sig (Chi <sup>2</sup> )		
		never		a few times a month		a few times a week		Daily					
		N	%	N	%	N	%	N	%				
I would rather rest than practice sport since I'm often tired	I disagree completely	11	7.0	2	9.5	1	6.3	4	17.4				
	I disagree	65	41.1	6	28.6	2	12.5	4	17.4				
	I neither agree nor disagree	24	15.2	1	4.8	0	0.0	5	21.7	23.60	0.02		
	I agree	48	30.4	11	52.4	10	62.5	9	39.1				
	I agree completely	10	6.3	1	4.8	3	18.8	1	4.3				
I will remain physically active even after I graduate	I disagree completely	7	4.4	0	0.0	0	0.0	0	0.0				
	I disagree	7	4.4	0	0.0	1	6.3	4	17.4				
	I neither agree nor disagree	18	11.4	5	23.8	7	43.8	6	26.1	28.29	0.00		
	I agree	45	28.5	6	28.6	6	37.5	6	26.1				
	I agree completely	81	51.3	10	47.6	2	12.5	7	30.4				

The correlations between smoking and beliefs about sport for female students are presented in Table 3. Those who never smoke hold more positive beliefs about sports than frequent smokers.

## DISCUSSION

Studies have dealt with athletic activity among students and their use of psychoactive substances (McCabe, Teter, Boyd, Knight, & Wechsler, 2005; Peretti-Watel et al., 2003), but only a few have considered the use of analgesics by students (McCabe et al., 2005; Spence & Gauvin, 1996). The proportion of university athletes using analgesics is also rarely reported – 17.7% of participants have used major pain medications over the past 12 months (Spence & Gauvin, 1996) and the prevalence of unprescribed opioid use was 7% (McCabe et al., 2005). The share of analgesics users in our sample is larger (27.1% males and 73.5% females), probably because of the mixed population (not only athletes) and the use of all analgesics (not only opioids).

Our research shows that the use of psychoactive substances (nicotine and analgesics but not caffeine) is less extensive among students who have positive attitudes and beliefs regarding sport. Research results of previous studies confirm the positive correlation between physical activity and psychological health (Aarnio et al., 2002; Morgan & Goldston, 1987; Tušak, 1999), a reduction of anxiety and support for self-esteem (Boutcher & Landers, 1998; Sonstroem, 1984).

The attitudes of athletes to the use of psychoactive substances is especially important. Young people often identify themselves with athletes and see them as role models (Čebašek-Travnik & Burnik, 1998). Manufacturers of legal psychoactive substances (tobacco, alcohol, caffeine) engage famous athletes to advertise their products, introducing ambiguity to their (positive) messages about sport. Smoking cigarettes and the use of other tobacco products is also widespread among students in Slovenia (Klepec, 2005), although Slovenia is a country with a smoking prevalence of less than 25% (Zaletel-Kragelj, 2003). Žagar and Žagar (2000) stated that physical activity is

an important factor in smoking prevention; similar results have been found by others (Arvers & Choquet, 2003). Our research indicates that more non-smokers and occasional smokers (a few times a year or month) say they will continue practising sport even after they finish their education. Further, more non-smokers prefer to overcome tiredness with sports activity as opposed to resting.

Being in a good physical and psychological condition helps young people cope with stressful situations better. Involvement in sport can also prevent them from sitting in pubs and seeking a release of tension through psychoactive substances (Aarnio et al., 2002; Arvers & Choquet, 2003; Sollerhed et al., 2005). Even though our study is merely correlational in nature and confirms that physically active students use psychoactive substances less, future research could attempt to also address the influence of regular physical exercise on the use of psychoactive substances.

Future research should extend the area of research by verifying the participants' motivation and correlating that with the use of psychoactive substances – similar studies have already been carried out (Rockafellow & Saules, 2006) and we could compare our results with them and see whether the same applies to Slovenian students. We could also investigate the use of alcohol and compare students who take a physical education class with those who do not. Our study is limited to those students who take such classes and is also limited somewhat by the distributions of certain answers (in the chi-squared testing there were cases with a small N). All these limitations should be addressed in further studies.

Several authors stress the many useful and positive consequences of regular athletic activity (Čebašek-Travnik & Burnik, 1998; Arvers & Choquet, 2003; Dishman, 1985). Sport has proven to be useful in many ways and the question is how to further motivate students to practise sport regularly. Studies show that some patterns of activity and substance abuse are concerning (Musselman & Rutledge, 2010). We believe that with diverse and interesting physical education programmes we can and should offer possibilities to develop both recreational and competitive sport among students and create habits that will continue throughout their lives. When sport becomes a habit, it also becomes a value and can be kept up in later periods of life, thereby helping to maintain health, good relationships and satisfaction with oneself and reduce the (ab) use of psychoactive substances. The results of this study could serve as the basis for an experiment investigating the causal relationship between physical activity and the use of psychoactive substances.

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