

RELATIONSHIP BETWEEN SPORTS ACTIVITY, SMOKING AND ALCOHOL AND MARIJUANA ABUSE IN ELEMENTARY SCHOOL CHILDREN IN SLOVENIA

Veronika Lucija Kropej*, Mateja Videmšek**, Rado Pišot*.***

*Institute for Kinesiology Research at the Science and Research Centre of Koper, University of Primorska, Koper, Slovenia

**Faculty of Sport, University of Ljubljana, Ljubljana, Slovenia

***Faculty of Education, University of Primorska, Koper, Slovenia

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Prevention is the most effective remedy against drug abuse. On the one hand, physical activity triggers a series of factors which compel us to adopt healthy dietary behaviours and, on the other, it constitutes drug abuse prevention, as it is itself a kind of body and mind stimulant. The research at hand aims at establishing the degree of familiarity with and abuse of narcotic drugs (such as, for instance, cigarettes, alcohol and marijuana) in pupils in relation to the frequency of their engagement in sports activities. The sample comprised 748 children, 194 male and 189 female fourth graders (with an average age of 10 years \pm 5 months) and 201 male and 164 female seventh graders (with an average age of 13 years \pm 4 months). The indicated data were obtained within the framework of the project "Physical/sports activity for health" carried out by the Institute for Kinesiology Research at the Science and Research Centre of Koper, University of Primorska, Slovenia. We have applied the IPAQ survey instrument (International Physical Activity Questionnaire), which we had tailored somewhat to the age and specific features of respondents. For the purposes of establishing the relationship between non numeric variables, we have applied correspondence analysis. For numeric variables, we have applied the analysis of variance and the independent samples t-test. All hypotheses were verified at the 5% statistical risk level ($p = 0.05$). The results attested to a statistically significant relationship between sports activity, smoking and alcohol and marijuana abuse in pupils. The fact is that the drug abuse problem cannot be remedied in its entirety, but we could, however, alleviate it substantially. One of the most relevant factors in decreasing drug abuse is therefore also the engagement of youth in appropriate sports activities (during leisure time, in particular), which should be directed and planned accordingly by parents and teachers.

Keywords: Sports activity, smoking, alcohol, marijuana, children.

INTRODUCTION

Sports activity is an important means to achieving healthy dietary behaviour, as it exerts significant positive effects on physical and mental health. Movement or physical activity triggers a series of factors which compel us to adopt healthy dietary behaviours and constitutes drug abuse prevention, as it is itself a kind of body and mind stimulant. Lack of physical activity constitutes an obvious health risk factor, closely related to the emergence of numerous diseases affecting both human body and human well-being.

Alcohol, tobacco, LSD, cocaine, heroin, inhalants, marijuana, and similar substances rank among the most harmful narcotic drugs. All drugs, including less harmful substances, such as coffee (caffeine) and true tea (teine), are psychoactive or psychotropic substances, which in fact means that they affect the nervous system. Frequent exposure to drug effects results in neuroadaptation or adaptation of the nervous system (Čebašek-Travnik, 2004). The said adaptation is related to drug

seeking behaviour and the development of drug tolerance. In principle, it holds true that the younger the organism when it first encounters drugs (nicotine, for instance) the faster it will become dependent or addicted (Stergar, 2004).

One should look for reasons for drug abuse in the interdependent triangle adolescent - environment - drugs. It is rather important whether an individual is an explorer or a timid person, whether or not he or she is risk driven. An important role in determining the risk of an individual becoming a regular smoker, habitual alcoholic, and the like, is played by genes (Madden, Bucholz, Martin, & Heath, 2000; Bierut, Schuckit, Hesselbrock, & Reich, 2000). Namely, epidemiological studies (Anthony & Echeagaray-Wagner, 2000) have confirmed the existence of hereditary factors related to the misuse of a respective drug.

A powerful catalytic effect in the development of drug addiction (to nicotine, alcohol, cannabis, and similar) is exerted by the environmental factors which allow for and maintain addictive behaviour. It is of great

consequence whether or not an individual is born into a family where, for instance, tobacco is an every day fact of life (Stergar, 2004). Also ranking among the environmental factors are the low prices of and easy access to tobacco products and alcohol, further, smoking as an acceptable form of behaviour (among the young, in particular), and non compliance with legislation governing smoking reduction (Čebašek-Travnik, 2004). According to the researchers' opinion, traumatic events and stressful experience also contribute to the development of dependence or addiction (Little, 2000).

The consumption of any drug on a regular basis may lead to the consumption of any other drug. Alcoholism is ten times more frequent in smokers than in non smokers. Researchers have found also that alcoholics are frequently smokers, and vice versa (Istvan & Matarazzo, 1984; Glassman, 1990). In part, the causes there of are also genetic, however, thus far, it has not been discovered why does there exist a genetic connection between smoking and alcohol dependence (Madden, Bucholz, Martin, & Heath, 2000).

The World Health Organization has published the list of ten selected risk factors (WHO, 2002). It is evident there from that tobacco ranks first among the said risk factors, alcohol third and illicit drugs eighth.

If we consider the problem from the point of view of multiplicity, we see that the process of development into a nicotine addict takes the shape of a funnel. All children go through the initiation phase. A somewhat smaller number of children light their first cigarette and thus overstep the line that separates the inexperienced from the experienced. Fewer children persevere and continue with their smoking excursions. An even lesser number of adolescents persist further and continue practising smoking and only the smallest number of children turn into nicotine dependents (Stergar, 2004). The speed with which an individual drug takes effect determines the intensity of its potential for the development of dependence or addiction. Drinking or alcohol consumption affects the activity of opioid peptides, which consequently enhances the feeling of pleasure (Roberts, McDonald, Heyser, Kieffer, Matthes, Koob, & Gold, 2000). In addition to activating opioid peptides, alcohol consumption activates a specific serotonin receptor (responsible for regulation and control of mood, sleep, body temperature, appetite, etc.) which stimulates the activity of dopamine in the brain (a pleasure causing key element in the development of alcohol dependence) and thus contributes to the feeling of pleasure. Other drugs (marijuana, cocaine, morphine) have similar effects on the human organism. The consumption of alcohol and other drugs results also in altered mental disposition (anxiety, depression, drug craving). The intensity of psychological disturbances can be greater than that of physiological ones and the symptoms there of last longer than the physiological symptoms, there by increasing

the motivation for the reabuse of drugs (National Institute on Alcohol Abuse and Alcoholism, 2000).

Prevention is the most effective means of fighting drug abuse. In principle, it holds true that people who do not start taking drugs prior to the age of 25 will not have any serious problems in combating them later on in their lives (Hanson, 2002). National Institute on Drug Abuse, is of the opinion that in terms of drug abuse prevention there exist the so called risk and protective factors (Cire, 2002). The following are protective factors: strong and positive ties, parent control over the activities engaged in by children and their peers, clear rules applicable within the family, inclusion of parents in the lives of their children, school performance, strong ties between institutions (e.g. between school and religious organizations), and knowledge of principles regarding drug abuse. As for the risk factors, the following fall within the group: chaotic domestic environment (parents taking stimulants or parents suffering from mental illnesses), ineffective parenting or upbringing (in cases of problematic children, in particular), lack of ties between parents and children, inappropriate timid and aggressive behaviour in school, poor school performance, poor ability to establish contacts and poor social skills, socializing with peers inclined to deviant behaviour, and witnessing of drug use approval by family, school, working environment, peers and the broader social environment.

This research is aimed at establishing the degree of familiarity with and abuse of narcotic drugs (such as, for instance, cigarettes, alcohol and marijuana) of and by pupils in relation to the frequency of their engagement in sports activities.

METHODS

Participants

The sample of respondents was intentionally selected, namely, in such a manner as to cover as wide a spectrum of geographical areas in Slovenia as possible (stratified sampling). The sample comprised 748 children, 194 male and 189 female fourth graders (with an average age of 10 years \pm 5 months) and 201 male, 164 female seventh graders (with an average of 13 years \pm 4 months). The indicated research data were obtained within the framework of the target research project "Physical/sports activity for health" carried out by the Institute for Kinesiology Research at the Science and Research Centre of Koper, University of Primorska, Slovenia.

Instruments

We have applied the IPAQ survey instrument (International Physical Activity Questionnaire), which we had tailored somewhat to the age and specific features of respondents. The questionnaire contained 26 questions

relating to smoking, alcohol and drugs as well as a set of questions relating to a child's physical/sports activity. The answers to the questions were provided by the children. Prior to and following the completion of the questionnaire, the assistants provided help to the children by guiding them through individual questions.

Procedure

We have processed the data with the use of the statistical computer programme SPSS (Statistical Package for the Social Sciences), version 13.0. For numeric variables, we have applied, on the one hand, the method for verifying the assumption as to the difference between two arithmetic means (two groups) and, on the other, the analysis of variance (several groups), i. e. in addition to the basic statistics of variables. For the purposes of establishing the relationship between non numeric variables, we have applied correspondence analysis. All hypotheses were verified at the 5% statistical risk level ($p = 0.05$).

RESULTS

Smoking

The results have shown that children of this age group smoke very rarely. Namely, only a minimum share of children stated that they smoke occasionally (1%) or regularly (0.1%). We have established no significant gender and age differences between pupils with regard to the frequency of smoking. The results attested to a statistically significant relationship between sports activity and pupils' smoking habits.

It is evident from Fig. 1 that among the non smoking children attending the fourth and the seventh grades of primary school there are 55% of children who engage in sports activities frequently, 40% of those who engage in sports activities occasionally, and 5% of those who never engage in sports activities. Among children who smoke occasionally, all are frequently physically active. Among children who smoke regularly, 25% engage in sports activities frequently and 25% occasionally and there are as many as 50% of those who never engage in sports activities. Regarding the fact that there is insignificant number of subjects in the group of children who smoke frequently, it is not possible to come to any objective conclusion about the sports activity of these children.

We have established a statistically significant relationship also between the smoking habits of 13 year olds and the frequency of their engagement in sports activities with friends ($p = 0.022$).

It is evident from Fig. 2 that among the non smoking seventh graders there are 38% of children who frequently engage in sports activities with their friends, 47% of those who engage in sports activities occasionally, and

15% of those who never engage in sports activities. Among children who smoke regularly, none engages in sports activities with friends frequently or occasionally. All 100% declared they never engage in sports activities with friends.

Similar findings were established by Videmšek et al. (2002), namely girls who smoke only on special occasions engage in sports activities more frequently than girls who smoke all the time. The findings show that pupils from non smoking families generally engage in sports activities more frequently than pupils from smoking families. Ažman (2004) established that individuals who have smoked on several occasions engage in sports activities less frequently (67.1%) than those who have not (78.5%).

Alcohol

The majority of children have already tried alcoholic beverages (71% of seventh graders and 55% of fourth graders); in terms of statistical significance, a greater number of seventh graders than fourth graders have tried alcohol ($p = 0.000$). We have established that a greater number of boys (67%) than girls (58%) have tried alcohol ($p = 0.014$).

Among the fourth graders, 2% drink alcohol every day and as much as 7% at weekends. Among the seventh graders, nobody drinks alcohol on a daily basis and 4% drink alcohol at weekends. It was rather interesting to find that children drink alcohol most often in a domestic environment (82%), while 13% of children drink in the company of their friends and 5% of them alone without any company what so ever.

It is evident from Fig. 3 that, on average, children who have never tried alcohol spend daily more time walking (41 min/day) than children who have already tried alcohol (34 min/day); these differences are statistically significant ($p = 0.02$), even more so in fourth graders ($p = 0.028$).

Marijuana

We have established that 3% of children aged 10 and 13 have already tried drugs and that 0.2% of children have tried it on several occasions. We have established no statistically significant differences according to age and sex. Research results have shown a statistically significant relationship between drug use and engagement in sports activities.

It is evident from Fig. 4 that among children who have never tried drugs, 55% engage in sports activities frequently, 40% occasionally and 5% never. Among children who have tried drugs on a single occasion the majority (70%) engages in sports activities frequently, 30% occasionally and 0% never. However, regarding the small number of subjects in the group of children who take drugs frequently, these results can be spurious.

We have established a statistically significant relationship also between engagement in sports activities with friends and drug use ($p = 0.015$). Among children who have tried drugs on a single occasion, 52% engage in sports activities with friends frequently; further, among children who have never tried drugs, only 34% engage in sports activities with friends frequently; and among children who have taken drugs on several occasions, none engages in sports activities with friends.

The results have shown a statistically significant relationship also between drug use and the number of hours spent sitting during the week ($p = 0.027$); children who have tried drugs on several occasions spend significantly more time sitting (6.5 hours) than other children; it is interesting that children who have tried drugs on a single occasion spend the least time sitting during the week (3 hours) (Fig. 6).

Research results have shown a statistically significant relationship also between drug use and running ($p = 0.005$). We have established that, on average, it is children who have tried drugs on a single occasion that run most frequently (51 min/day), while children who have never tried drugs spend the least time running (27 min/day). On average, children who have taken drugs on several occasions spend running 30 minutes daily (Fig. 7). The results obtained for seventh graders are somewhat different (Fig. 7). On average, it is again children who have tried drugs on a single occasion that run most frequently (56 min/day). On average, seventh graders who have never tried drugs spend running 27 minutes daily. None of the seventh graders who have taken drugs on several occasions run.

The findings are both interesting and unexpected. It might be that curiosity, or a desire to try new things, or experimenting is the underlying cause of drug use on a single occasion in children who engage in sports activities most frequently. Gradually, one can establish the behavioural pattern of a child who has merely tried drugs on a single occasion and the behavioural pattern of a child who has taken drugs on several occasions. It seems that the former engages in sports activities on a much more frequent basis (even if compared to a child who has never tried drugs) and is perhaps even more restless. However, a child who has taken drugs on several occasions reflects entirely opposite characteristics: such a child is physically inactive and it is only logical that he/she spends more time sitting (either doing nothing or working/playing on a computer).

It is obvious that it is children who have tried drugs on a single occasion that stand out, as it is them who engage in sports activities most frequently, spend the most time running and the least time sitting during the week. Similarly, we can infer from the data that they are sociable, since it is they who most frequently engage in sports activities with friends (i. e. if compared to chil-

dren who have never tried drugs and children who have taken drugs on several occasions). Similar findings have been established by Čurković (2002) whose research studied the degree to which addicts engage in sports activities before becoming addicts (i. e. in the period from age 10 to age 17). The author aimed at establishing the difference between addicts and non addicts on a sample comprising of 3300 males aged between 18 and 25. The results have shown that in the period between the ages of 10 and 17 addicts engaged more frequently in organized sports activities than non addicts. On average, addicts spent more time engaging in sports activities on a daily and weekly basis than non addicts.

DISCUSSION

The finding that children who do not smoke engage in sports activities more frequently, both in general and with friends, than children who smoke, was expected. We are of the opinion that the reason thereof might be the fact that children who smoke have entirely different habits and interests than children who do not smoke. Sport gives an individual a sense of pleasure and strength, for which reason it constitutes a significant counterweight to smoking. In addition to the effects that are harmful to health, the smoking problem in adolescents is reflected also in the company that a child keeps. According to our opinion, it is a child's company that determines whether or not a child will engage in sports activities or experiment with stimulants during his/her leisure time. If a child's company engages in sports activities, the criteria are set primarily on the basis of peer performance level in individual sports. The best performing individual is a leader and an example followed by his/her peers.

The smoking problem in children is reflected in their deteriorated health status. In adolescents, smoking causes disturbed lung growth, early deterioration of lung function, cough, impaired breathing and asthma. Passive smoking is also harmful to children. In children, passive smoking increases the risk of infection of the respiratory system, aggravates asthma, gives rise to the occurrence of asthma and asthma related symptoms, and is related to recurring inflammation of the middle ear. According to the data of the World Health Organization, passive smoking constitutes a cause of from one third to one half of the syndromes of sudden infant death. In addition, smoking has long term consequences, as smokers most frequently die of cancer, lung diseases and cardiovascular diseases (Koprivnikar, 2005).

Another smoke or drug related problem occurs in the company that a child keeps or in a group with which a child interacts on a frequent basis. In school children, peer influence only increases with time, as it

Fig. 1
Frequency of engagement in physical/sports activity in relation to smoking

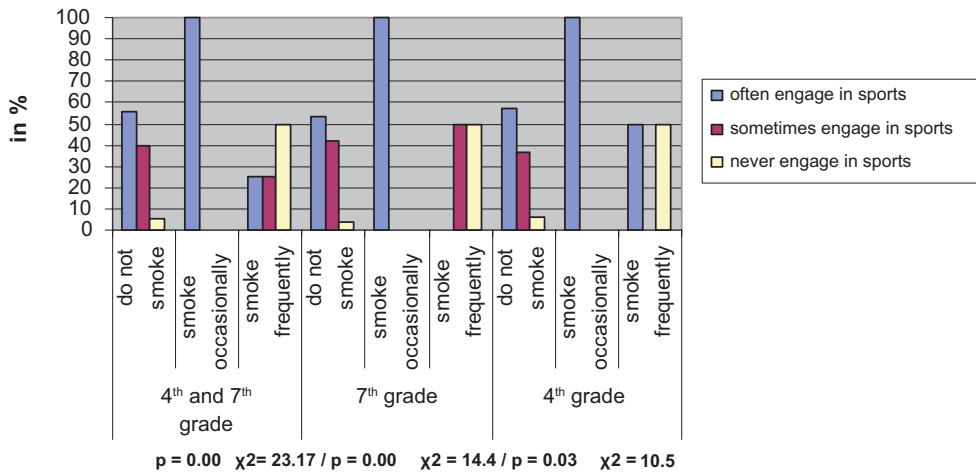


Fig. 2
Frequency of engagement in sports activities by seventh-graders with their friends in relation to smoking

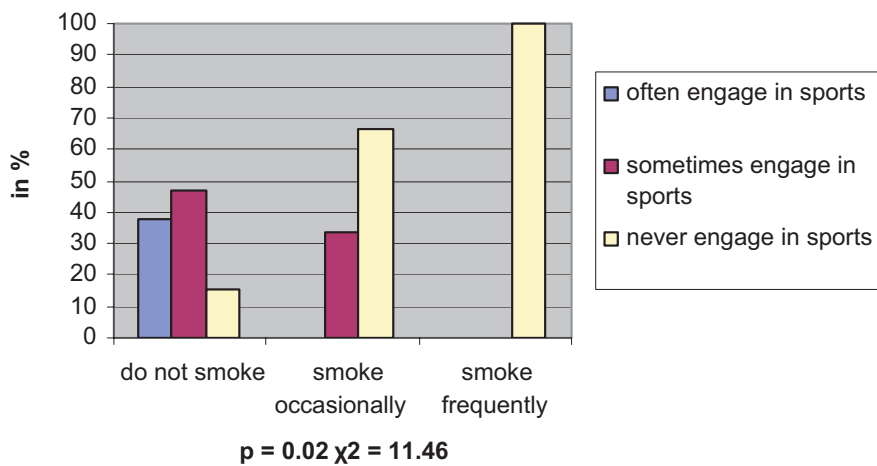


Fig. 3
Walking habits in relation to alcohol consumption

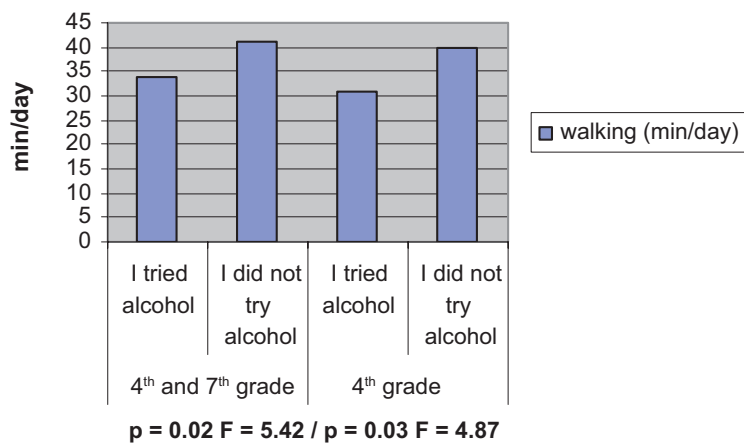


Fig. 4
Engagement in sports activity in relation to drug use

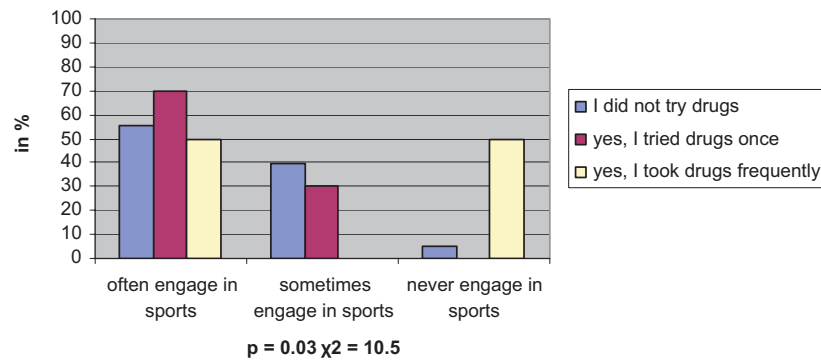


Fig. 5
Engagement in sports activity with friends in relation to drug use

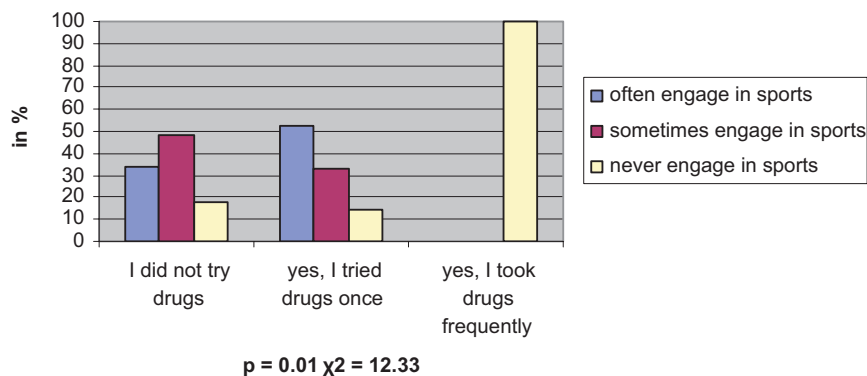
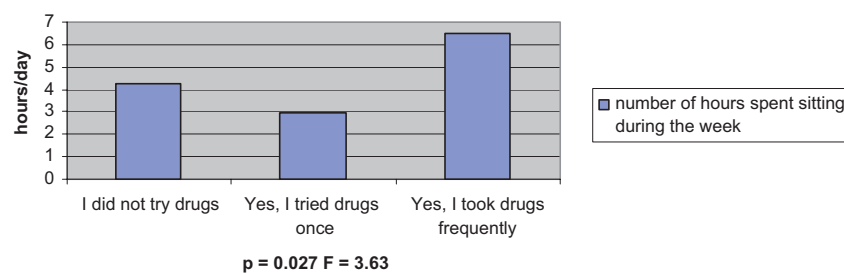


Fig. 6
Number of hours spent sitting during the week in relation to drug use

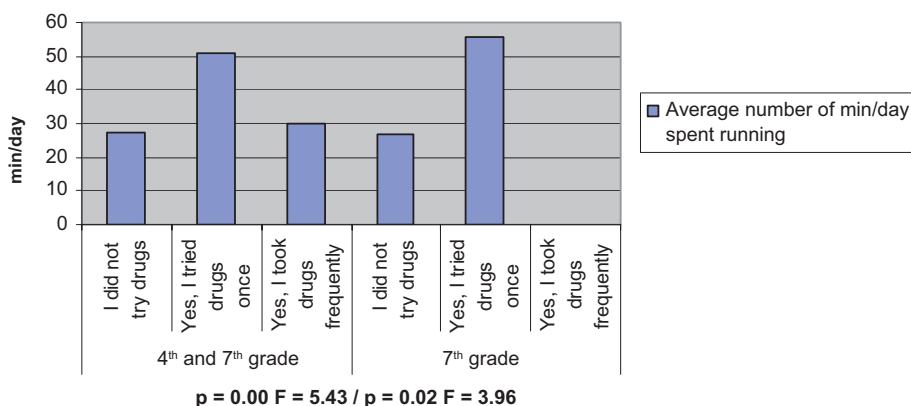


is extremely important for children to be part of a group that accepts them as equals (but in turn demands from them to abide by its specific principles and rules). If it is a question of a smoking group, a child will light his/her first cigarette sooner or later. However, at that point, the problems only begin, since such a group will not content itself with smoking, but will, almost simultaneously, indulge also in more harmful substances. At this point, we should stress that it is not a golden rule that every group succumbs to drugs sooner or later; however, it is a general rule that every group has its own specific

set of rules or principles and should an individual fail to abide by them or observe them, the group will, without fail, exclude such an individual from its midst (Bierman, Smooth, & Aumiller, 1993; Coie, 1990). The criteria for the formation or separation of groups are different, e. g. sporting interests, academic interests, racial characteristics, social status, drug abuse and delinquency (Brown, Mounts, Lamborn, & Steinberg, 1993; Eckert, 1989; Schofield, 1981).

The school system does prohibit smoking in school, but it has no influence whatsoever during the time

Fig. 7
Running in relation to drug use



a child spends outside school. After the classes, a child is left to his/her own devices and decides himself/herself what he/she will do during leisure time. For this very reason, educators, both parents and teachers, should motivate and encourage children to participate in various organized special interest activities. A teacher should serve as an example to children and provide them with support. Regretfully, though, more and more teachers break the rules and, which is even worse, in front of the children. The research carried out by Videmšek et al. (2002) has established that there are more than 15% of primary school gym teachers whom the pupils know to be smokers. Gym teachers are undoubtedly the very persons who should serve as an example to children, as an embodiment of a healthy lifestyle.

The research has shown that children who have not tried alcohol spend more time walking daily than children who have already tried alcohol. The finding that children who do not drink alcohol spend more time walking is not surprising; most likely, they are also more active in general. Why does a child start drinking alcohol? The reasons thereof could be found in the company that forces a child to drink alcohol or the environment that fails to provide a child with the possibilities to engage in healthy play, sports and pastime. They may be found in the domestic environment itself. It may be that a child drinks only occasionally, but it may also be that the overall picture is much more terrifying. Children who are witnesses to alcoholism bear the consequences thereof on their shoulders if they are not provided with proper support and guidance by someone else.

According to the opinion of Karpljuk et al. (2003), alcoholism in the family causes disputes and forces children to witness verbal and physical violence between parents, for which reason they are confused and often feel torn between the two parents to whom they are emotionally attached. As they miss the feeling of safety and

security which normally stems from the love between parents and a steady home, their emotional development cannot follow a normal course. Razboršek and Krištof (1988) believes that behavioural disturbances, or the so called lack of discipline syndrome, can be perceived in the majority of children of alcoholics. Such children are disobedient, rebellious and mendacious and they tend to skip school and run away from home, and so on. They fail to develop basic work habits and a sense of order, while their disturbing behaviour and people's reaction to it are causes of great concern. When a child is no longer able to cope with the pressures of the social environment, he/she starts coping with distress in his/her own way. It all begins with simple evasion or withdrawal, roving and/or pilferage. A child's school performance deteriorates and inappropriate behaviour in school becomes ever more frequent. As the school no longer tolerates such behaviour, parents exert an even greater pressure on their child and thus the tragedy continues. A child moves on from petty to grand larceny, prostitution and/or drugs. Rugelj (2000) believes that such adolescents see the solution to their problems in alcoholic stupor. However, as stupors, irrespective of their kind, never solve anything and only postpone the problems, the hurt and to stupor accustomed adolescents are, so to speak, again forced to drown their distress in alcohol. Regular intoxication is no longer a mere condition for the development of alcoholism, but also a very certain and obvious sign that such people are already alcoholics, even though in the early period of alcoholism.

The aim of our research was also to establish whether or not there exists a relationship between a child's engagement in sports activities and drug consumption. If we summarize the findings, we can say that children who have tried drugs (e. g. marijuana) on a single occasion engage in sports activities more frequently than children who have never taken any drugs. One of the

reasons thereof may be that more active and vivacious children tend to be fascinated by new things in their lives, one of them being drugs. However, we are of the opinion that such experimenting stems only from curiosity, for which reason it does not lead to addiction. We should emphasize that our analysis showed only a minimum share of children who have tried drugs on a single occasion (3%), while 0.2% of children have taken drugs on several occasions. Other children have had no experience with drugs.

We believe that a lively and curious child is more likely to try drugs if presented with an opportunity than a less vivacious and less inquisitive child. We have found that children who have tried drugs on a single occasion engage in sports activities more frequently than other children. This fact points to the finding that such children run more and sit less during the week than other children. For this reason, we suppose that their energy levels are higher. The finding that children who have tried drugs on a single occasion engage more frequently in sports activities with their friends attests to their sociable character. They crave the company of their peers. Quite to the contrary, among children who have taken drugs on several occasions (0.2% within the framework of our research), none engages in sports activities with friends. This means that drug abuse leads to asocial behaviour. However, in our opinion, the use of drugs on a single occasion stems from childish curiosity which, in most cases, has no consequences. This assumption was confirmed also by the research carried out by Videmšek et al. (2000). Although the research (Videmšek et al., 2006) which studied the relationship between drug abuse (alcohol, cigarettes, marijuana) and frequency of engaging in sports activities by 14 year olds failed to establish a statistically significant relationship, it nevertheless emphasizes that the provision of adequate physical/sports activities constitutes one of the most decisive factors in reducing drug abuse.

The young are impressionable and as they learn through imitation, they often imitate the example of teachers, representatives of the environment in which a child lives and grows up. However, it is not only school teachers and parents who embody the said environment, but older peers and advertisements in (mass) media as well. In the majority of developed countries, the promotion of cigarettes and alcohol is either prohibited or very limited. The television and film industries are the only two media where the tobacco industry can still advertise and promote its products. The world of fashion and film exerts a significant influence on a great mass of people all around the globe. Studies have shown that after seeing a film in which famous stars smoke cigarettes, American teenagers are 2.5 times more likely to start smoking (Institute of Public Health Kranj, 2005). This finding is thoroughly exploited by the tobacco industry which has chosen the most widespread medium, i. e.

the world of film and fashion, with a view to reaching potential smokers.

CONCLUSION

The main findings of the research were that children who do not smoke engage in sports activities more frequently, both in general and with friends, than children who smoke. The second finding was that children who have not tried alcohol spend more time walking daily than children who have already tried alcohol. The last finding was that children who have tried marijuana on a single occasion engage in sports activities more frequently than children who have never taken any drugs. One of the reasons thereof may be that more active and vivacious children tend to be fascinated by new things in their lives, one of them being drugs. However, we are of the opinion that such experimenting stems only from curiosity, for which reason it does not lead to addiction.

Although dissuasion, prevention and prohibition in the area of drug abuse undoubtedly constitute the measures which might contribute to the decrease in these vicious habits, we believe that the young could be dissuaded from drug abuse mainly by a well organized quality lifestyle. Individuals with steady employment most likely satisfy their needs by engaging in activities that correspond to their wants, for which reason they do not feel such a great need for various "substitutes". The fact is that the drug abuse problem cannot be remedied in its entirety, but we could, however, alleviate it substantially. One of the most relevant factors in decreasing drug abuse is therefore also the engagement of youth in appropriate sports activities, during leisure time, in particular, which should be directed and planned accordingly by parents and teachers alike.

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**VZTAH MEZI SPORTOVNÍ AKTIVITOU,
KOUŘENÍM A UŽÍVÁNÍM ALKOHOLU
A MARIHUANY U DĚTÍ
NA ZÁKLADNÍCH ŠKOLÁCH VE SLOVINSKU
(Souhrn anglického textu)**

Prevence představuje nejúčinnější prostředek proti užívání drog. Na jedné straně vytváří tělesná aktivita řadu faktorů, které vedou k přijetí zdravých stravovacích návyků, na druhé straně představuje prevenci užívání

drog, protože sama o sobě určitým způsobem stimuluje tělo i mysl. Cílem provedeného výzkumu bylo stanovit stupeň obeznamenosti s návykovými látkami a jejich užíváním (například cigarety, alkohol a marihuana) u dětí ve vztahu k frekvenci jejich zapojení do sportovních aktivit. Vzorek obsahoval 748 dětí, z čehož bylo 194 žáků a 189 žáků čtvrtých tříd (jejichž průměrný věk byl 10 let \pm 5 měsíců), a 201 žáků a 164 žáků sedmých tříd (jejichž průměrný věk byl 13 let \pm 4 měsíce). Uvedené údaje byly získány v rámci projektu „Tělesná/sportovní aktivita pro zdraví“ probíhajícího v Ústavu kinesiologického výzkumu ve Vědeckém a výzkumném středisku Primorske univerzity ve slovinském Koperu. Použili jsme dotazník IPAQ (International Physical Activity Questionnaire), který jsme poněkud upravili pro věk a specifické vlastnosti respondentů. Pro stanovení vztahu mezi nečíselnými proměnnými jsme použili korepondenční analýzu. Pro číselné proměnné jsme použili analýzu variance a t-testy nezávislých vzorků. Všechny hypotézy byly ověřovány s 5% statistickou úrovní rizika ($p = 0,05$). Výsledky potvrdily u žáků statisticky významný vztah mezi sportovní aktivitou, kouřením a užíváním alkoholu a marihuany. Faktem je, že i když problém užívání drog nemůže být zcela odstraněn, mohli bychom ho zásadním způsobem redukovat. Jedním z nejdůležitějších faktorů pro snižování užívání drog je proto rovněž zapojení mládeže do vhodných sportovních aktivit (zvláště ve volném čase), což by mělo být řízeno a plánováno rodiči a učiteli.

Klíčová slova: sportovní aktivita, kouření, alkohol, marihuana, děti.

Veronika L. Kropelj, Ph.D.



University of Primorska
Science and research
centre of Koper
Garibaldijeva 1
6000 Koper
Slovenia

Education and previous work experience

She defended her Ph.D. thesis at University of Ljubljana, Faculty of Sports. Now she works at the Institute for kinesiology research at the Science and research centre of Koper, Slovenia. Her research activities are focused on: kinesiology, environment impact (motor/sport activity, factors of healthy living) on the child's holistic (biological, psychological and social) development.

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