

Full Length Research Paper

Estimated state of health and stress among truck drivers with regard to participating in recreational sport activities

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This study aimed at determining the frequency of truck drivers' participation in recreational sport activities, and to find out whether there is a relationship between their own estimated state of health and stress with regard to participating in recreational sport activities. The study included 102 participants, professional truck drivers, of whom 92 (90%) were men and 10 (10%) women. The obtained data were processed with the SPSS computer programme. Research has shown that only 13.7% of the participants are engaged in a sports activity at least 2 or 3 times a week, 54% of the participants only once a month or more often they are not at all engaged in sport activities. Their free time is too passive, as supported by their smoking of cigarettes and drinking of alcohol. We also established a relationship between the truck drivers' own estimated state of health and stress, and their participation in recreational sport activities. Professional truck drivers have difficulties arranging the schedule of regular sport activities, in particular because their schedule is largely variable and not predetermined. Employers and the designers of motorway rest areas can help them by arranging mini sports parks or mini fitness areas. Healthy and mentally sharp and rested drivers will be able to transport goods safely and quickly. In addition, they will be absent from work less due to sick leave and obtain forms of stress relief.

Key words: Truck drivers, estimated state of health, estimated state of stress, sport activities.

INTRODUCTION

A professional driver is a person who operates a vehicle in road traffic and is therefore the most important factor in the transport sector. This area is stipulated in detail in the Road Transport Act (ZPCP-2, Official Gazette of the Republic of Slovenia, 2011), first published on 14 December 2006 in the Official Gazette of the Republic of Slovenia, no. 131/2006. The Act lays down the conditions and methods of performing the service of goods and passenger transport in domestic and international road

traffic as well as the bodies authorised to implement and supervise implementation of this Act. Professional drivers perform a specific activity involving the transport of different types of goods or persons in a special working environment and under special working conditions.

According to data from the Statistical Office of the Republic of Slovenia (Statistical Office of the Republic of Slovenia, Standard Classification of Occupations) occupations are classified in nine main groups, further divided into subgroups. In line with the Standard Classification of Occupations, Group 8 includes all plant and machine operators, whereas Subgroup 832 includes the drivers of road vehicles. This article delves into the

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practice of sport and examines the assessed state of health and stress of people falling into subcategory 8324 which includes the drivers of trucks, heavy trucks, semi-trailer trucks and road tankers. In the rest of the text the abbreviated version "truck driver" will be used to denote both male and female professional drivers of a truck, heavy truck, semi-trailer truck and road tanker.

This profession was selected on purpose because it involves a group of people working in special conditions and leading an uncommon lifestyle. Namely, a driver's large goods vehicle is at the same time their office, kitchen, living room and bedroom. Truck drivers are thus forced to work in a sedentary position and maintain a specific, mostly unhealthy lifestyle as a consequence of their working time and working conditions.

The effect of physical activity on estimations of the experience of stress and of the state of health

Sport is an efficient way of coping with stress because already the mere fact that one dedicates their leisure time to a healthy physical activity is a source of enjoyment and relaxation for them (Tušak and Berčič, 2003; Bertonecelj and Kovač, 2009). Sport, especially endurance activities, reduces general malaise and even depression by stimulating the secretion of the hormones of happiness such as catecholamines, norepinephrine, serotonin and beta-endorphins. This results in a release of tension. Activities aimed at developing endurance not only reduce the level of stress hormones in the body but also calm the central nervous system down, thus improving our mental balance. The body produces more derivatives of morphine, for example, endorphins, with an immediate and long-lasting anti-depression effect. This not only improves one's mental state but also decreases feelings of anxiety (Pišot and Završnik, 2004).

In all developed and also less-developed countries people are becoming increasingly aware that regular sport activity is crucial to boosting and maintaining health, regardless of one's age. Many countries and companies invest heavily in prevention programmes aimed at improving health which also include a sport activity (Pišot and Završnik, 2002). Sila (2002) established a high correlation between physically active adults and a high estimation of the state of their health compared to those physically less active or non-active. He also established a high correlation between the frequency of sport activity and greater care for one's health. The results of studies conducted in Slovenia show that it is mostly healthy people who take up recreational sports. This applies to all age groups, especially the elderly. The number of physically active women is lower than that of men, whereas the number of "sick" women is twice the number of "sick" men (Fras, 2002). It can easily be assumed that healthy people bring an economic "benefit" to their country and the organisations they work for because their

productivity is higher, they take sick leave less often and thus the costs of health insurance for the employees and the elder population are reduced (Pišot and Završnik, 2002). Physical activity which improves health and health per se are no longer in the interest of each individual alone but also generate positive effects for society as a whole. It is therefore vital for an employed person to fit a regular sport activity into their working day (Bilban, 2004). A regular sport activity is positively correlated with a healthy lifestyle as it contributes substantially to the maintenance, strengthening and protection of health (Berčič, 2005) while also increasing productivity (Bilban, 2002). There is no need to engage in a very intensive physical activity to see persuasive positive results – moderate physical activity will do. An example of a sufficient physical activity which is accessible to all age groups in the population is regular fast walking (Fras, 2002) as a predominant way of human movement which goes hand in hand with other activities associated with the development of functional abilities. Aerobic physical activity has favourable effects on everyone by activating the muscles of the legs and arms, heart, lungs and joints – almost the whole body. It is an activity which ends in gasping for breath and heavy perspiration, while also increasing the heart rate. To achieve a beneficial effect of a regular aerobic activity the minimum frequency of the activity must be three times a week for half an hour (Karpljuk et al., 2002). Moreover, the intensity of the activity must be sufficient, measured in terms of heart beats per minute (Karpljuk et al., 2004). The positive effects of the sport exercise last only while the practice of sport is regular, and start diminishing immediately after regular physical activity stops (Karpljuk et al., 2003).

Physical activity as an important factor of truck drivers' healthy lifestyles

A healthy way of living cannot do without a regular sport activity which positively correlates with a healthy lifestyle by contributing substantially to the maintenance, strengthening and protection of health (Berčič, 2005), as well as by increasing productivity (Bilban, 2002; Bertonecelj et al., 2009; Pavlič et al., 2011). As discussed by Berčič (2002), an active lifestyle contributes considerably to the overall quality of life since, by protecting the health of all age groups, a regular sport activity is crucial to the promotion of health. Insufficient sport activity constitutes an important risk factor of developing different chronic diseases such as arthritis, stroke, osteoporosis, high blood pressure, obesity, diabetes (Sila, 2002; Fras, 2002; Završnik and Pišot, 2005; Blinc and Bresjanac, 2006; Sila, 2007) and many psychological disorders such as stress, anxiety and depression (Fox and Khattar, 2004; Fras et al., 2005), which is why the need and motivation to shift from a passive to an active lifestyle are even greater.

Researchers claim that these diseases could be largely avoided if people included a suitably intensive, planned and regular sport activity in their leisure time.

The lifestyle of professional truck drivers is unforgiving due to their working hours, unenviable working conditions and lack of possibilities to practice sports. It is difficult to imagine that a professional truck driver is able to adequately prepare in their leisure time for high-level sports competitions. Drivers often say that, after several hours of driving, they can hardly wait to sit down again.

Many large and small transport companies are closely associated with sport, but not from the perspective discussed in this article. Sport is one of the best ways to boost publicity and improve a company's visibility among the public at large, which is why a financial investment in sport is an efficient approach to advertising. The lists of sport clubs and sporting events sponsored by the largest Slovenian transport companies are relatively long. All of these investments in competitive sport are highly commendable, yet the companies often fail to recognise the importance of their own employees' sport activity.

The organisations which promote professional truck drivers' interests organise different competitions. However, these are not sports competitions but driving skill contests using different polygons where drivers strive to overcome road obstacles within the shortest possible time. Every year the Association of Drivers and Mechanics of Slovenia organises a national professional drivers' working competition. Large manufacturers of goods vehicles also organise national or even international championships, putting to the forefront the accuracy, safety and economy of driving, yet the main emphasis is not on sports contents but on drivers socialising with their colleagues. There are also exceptions to the rule, mostly among the biggest Slovenian transport companies; namely, Intereuropa organised the first sporting and social event called "Intereuropiada" already back in 1976. In 2005 these sports games featured 20 teams, with more than 560 competitors. In 2002 the results of a survey conducted among the participants showed that the employees were satisfied (45%) and very satisfied (48%) with the games, whereas only 2% of the total 98 respondents were dissatisfied. The survey also showed that most (89%) participants participated in the games to unwind and socialise. They competed in beach volleyball, boules, relay running, tug-of-war and games without frontiers called a "Logistic Chain" (Kozlovič, 2002).

In winter they meet on ski slopes; the Winter Games of the Viator and Vektor Group were attended by 300 skiers, with more than 200 competing in the giant slalom (Tomšič, 2008). In 2010, 108 skiers participated and 90 of them competed (Mak Uhan, 2010). The employees' discontent with the current economic situation, increasing workload and constant fear of losing their job are also reflected in the level of their participation in sporting and social events organised by trade union associations. The financial crisis undoubtedly takes its share for this situation,

which is why in the past few years many events of this type were cancelled.

With regard to both examples mentioned before of a good sports practice, it should be noted that the games are attended by all employees and not only by professional drivers, so it is difficult to determine the exact share of professional truck drivers. Another problem is that the games take place once a year, whereas a beneficial effect of sport on health is only achieved through a regular sport activity.

Our study aimed to establish how frequently truck drivers engage in a sport activity and identify any correlation between the estimated state of health and estimates of the experience of work-related stress with regard to their practicing of sport.

Research hypotheses

Based on the introduction, the subject, the problem and the purpose of the study the following hypotheses were formulated:

H₁: There are statistically significant differences between the estimations of truck drivers' state of health and their practice of sport.

H₂: There are statistically significant differences between the estimations of the work-related stress of truck drivers and their practice of sport.

METHODS

Study subjects

The quantitative research was conducted using an undefined-purpose sample of professional truck drivers from different Slovenian regions.

The study encompassed 102 (1.39% of the population) professional drivers of whom 92 (90%) were male and 10 (10%) female.

The subjects were divided into four age groups: 28 (27%) were included in the group of "up to 30 years", 35 (34%) "from 31 to 40 years", 25 (25%) "from 41 to 50 years" and 14 (14%) in the group of "aged 51 years and more". The average weight of all subjects was 89.7 kg, that is, 76.2 kg for the women and 91.2 kg for the men. The body mass index (BMI) was calculated and the average BMI was 27.56, that is, 27.56 for men and 27.21 for women.

The BMI of 20.6% of the respondents was below 25 so they were classified as normally fed people exposed to an average risk of other clinical problems, whereas the remaining 81 (97.4%) were too obese and were exposed to an increased or moderately increased risk of other clinical problems. Three of them (2.9%) fell into the 2nd degree obesity group, exposed to a very high risk.

Study instruments

The drivers filled out a survey questionnaire. Before the survey they were informed of the purpose of the study and instructed on how to complete the questionnaire. Owing to the specificity of the profession the survey questionnaires were written in the Slovenian

Table 1. Study subjects' ways of spending their leisure time.

Ways of spending leisure time	Frequency			Percentage		
	Women	Men	Total	Women	Men	Total
I sleep	6	28	34	60.0	30.4	33.3
I watch TV	8	50	58	80.0	54.3	56.9
I practice sport	2	25	27	20.0	27.2	26.5
I attend sporting events	0	11	11	0.0	12.0	10.8
I take part in cultural events	1	6	7	10.0	6.5	6.9
I spend time with my family	5	51	56	50.0	55.4	54.9
I socialise with my friends	8	54	62	80.0	58.7	60.8
I read	0	2	2	0.0	2.2	2.0

and Croatian languages. It was possible to complete the questionnaire in electronic form. The survey questionnaire enquired about the following:

1. Socio-demographic details (gender, age, body height and weight, marital status, number of children, employment, length of service, work experience)
2. Quality of life (working hours, satisfaction at work, working conditions)
3. Physical/sport activity (way of spending leisure time, frequency of engaging in sport, method of practicing a regular sport activity, ability to walk without interruption, effect of the sport activity on the sense of well-being at work)
4. State of health (self-assessment of the state of health, diseases, frequency of exposure to stress, smoking, drinking alcohol, taking painkillers, relationship between pain and the job, satisfaction with body weight).

Procedure

The data were collected between 15 July and 21 December 2010 using field surveys and an online questionnaire. The subjects were invited to complete the questionnaire either through a personal approach or by an invitation published on a website. The subjects participated in the survey on a voluntary basis and their responses were analysed anonymously. Statistical processing was performed using the statistical package for the social sciences (SPSS) 17.0 and Microsoft Office Excel 2003 software which was used for data analysis and processing. The hypotheses were verified using the Mann-Whitney U test and Wilcoxon Rank-Sum test.

RESULTS

Descriptive statistics

The study aimed to establish estimations of the state of health and stress experienced by truck drivers with regard to their sport activity and therefore our first goal was to find out how the drivers spend their leisure time given that they are required to work in a sedentary position, in a very restricted space (Table 1).

The respondents were allowed to choose several answers so the sum total of frequencies exceeds the number of study subjects. Most subjects socialise with friends in their leisure time, namely men chose this answer 54 times (58.7% of all surveyed men) and women

8 times (80% of all surveyed women). The same share of women watch TV in their leisure time (80% of all surveyed women) and this activity was ranked third with the men (54.3% of all surveyed men). With the men, the second most frequent way of spending leisure time (55.4% of all surveyed men) was spending time with the family, which was reported by at least 50% of women (4th place), whereas 60% of the women sleep during their leisure time (3rd place).

The frequency of the following activities drops in descending order: engaging in a sport activity (20 and 27.2% of the surveyed women and men, respectively), attending sporting events (0 and 12% of the surveyed women and men, respectively), taking part in cultural events (10 and 6.5% of the surveyed women and men, respectively) and reading (0 and 2.2% of the surveyed women and men, respectively).

An important finding of the study is that only 13.7% of the subjects practice sport at least twice a week which, according to some criteria, is the minimum frequency of an activity to consider it regular. More than one-half, namely 54%, of the study subjects practice a sport only once a month or never at all. The physically active respondents were asked to specify the type of sport they practice. Multiple answers were possible; the most frequently practiced sport was football, followed by basketball (Table 2).

Testing of hypotheses

The first hypothesis that there are statistically significant differences between the drivers' estimates of the state of their health and their engaging in a physical activity was tested using the Mann-Whitney U test. Hypothesis 1 can be confirmed as Tables 3 and 4 show statistically significant differences between the drivers' estimated state of health and their engaging in a physical activity ($P=0.005$). The second hypothesis that there are statistically significant differences between the drivers' estimated work-related stress and their engaging in a physical activity was also confirmed, as the Mann-Whitney U test revealed statistically significant

Table 2. The study subjects' frequencies of engaging in sport.

Frequency of sport	Frequency	Percentage	Cumulative percentage
Every day	2	2.0	2.0
2 to 3 times a week	12	11.8	13.7
Once a week	21	20.6	34.3
2 to 3 times a month	11	10.8	45.1
Once a month	25	24.5	69.6
Never	31	30.4	100.0
Total	102	100.0	

Table 3. Ranking of state of health with regard to sport activity.

	Rank			
	Physical activity	N	RA	RT
State of health	Yes	26	39.56	1028.50
	No	76	55.59	4224.50
	Total	102		

N, number; RA, rank average; RT, rank total.

Table 4. Mann-Whitney test statistics.

Test statistics	
	State of health
Mann-Whitney U	677.500
Wilcoxon W	1028.500
Z	-2.795
Asymp. Sig. (2-tailed)	0.005
GV: physical activity	

Sig., statistical significance; Mann-Whitney U, Mann-Whitney U statistics; Wilcoxon W, value of Wilcoxon statistics (Ws); Z, standardised value; GV, grouping variable.

Table 5. Ranking of stress with regard to physical activity.

	Rank			
	Physical activity	N	RA	RT
Stress	Yes	26	38.42	999.00
	No	76	55.97	4254.00
	Total	102		

N, Number; RA, rank average; RT, rank total.

differences between the drivers' assessments of work-related stress and their engaging in a physical activity (Tables 5 and 6).

DISCUSSION

The present study revealed the alarming fact that some

Table 6. Mann-Whitney test statistics.

Test statistics	
	Stress
Mann-Whitney U	648.000
Wilcoxon W	999.000
Z	-2.987
Asymp. Sig. (2-tailed)	0.003
GV: physical activity	

Sig., Statistical significance; Z, standardised value; GV, grouping variable.

truck drivers never engage in any sports. Up to 30.4% of the respondents chose this answer, with their number increasing with the age group. This situation corroborates findings of the latest studies involving the non-active population in Slovenia which show that 37.9% of the population was non-active and an additional 18.5% minimally active, that is, 56.4% in total. The figures from our research are even worse. After combining the last two groups of truck drivers who engage in a sport activity less than twice a month and could easily be considered physically non-active, the overall percentage soared to 59%, thus exceeding the statistics for Slovenia by 2.6% (Sila and Starc, 2007).

The physical/sport activity for health study conducted in 2004 found that 29.6% of adults (average age: 45.4 years) were regularly physically active, 29.4% occasionally and 42% never. It was established that the practicing of sport decreases with age, mainly in the group of irregularly physically active people. Those who regularly practice a sport remain faithful to physical activity and lead an active lifestyle also at a late age. The most frequently chosen sport activities include: walking (59%), swimming (29%), cycling (26%), skiing (16%), mountaineering (13%) and running (12%) (Pišot and Završnik, 2004). As regards truck drivers, the first two places were occupied by team sports such as football (28%) and basketball (20%), followed by cycling (17%) and running (16%). Walking ranked seventh (7%), whereas swimming was mentioned as a recreational activity by only 1% of the respondents.

Physically active truck drivers practice a sport for 5 h

and 15 min a week on average which, according to many researchers' criteria, is sufficient to maintain one's health and body vitality. The aforementioned research revealed that nearly 44% of people engage in a sport activity appropriately frequently and for an appropriately long time. The total share of physically active male and female Slovenians equals 62%, thus exceeding the respective EU figure for 2004 by 26% (EC, The Citizens of the European Union and Sport: Special Eurobarometer, 2011). Data on professional truck drivers are not that comforting given that sufficiently active drivers account for only 11.8%, which is extremely low compared to the aforementioned 44%.

The aim of this study was to establish the correlation between the truck drivers' estimation of the state of their health and their assessment of their exposure to stress with regard to their participation in sport activities. We proposed two hypotheses and confirmed them with a statistical analysis of data.

Based on the analysis of the survey responses we were able to confirm the first hypothesis that statistically significant differences exist between the drivers' estimated state of health and their engaging in a sport activity.

The results which corroborate the first hypothesis show a better state of health of those truck drivers who practice sport at least once a week compared to those who never engage in a physical activity. These differences are mainly reflected in the truck drivers' occupational diseases such as low back pain, neck pain, fatigue and headache; the latter two are also strongly associated with a forced sedentary position and constant vibrations as well as the required sharp mental acuity while driving in road traffic. A comparison of the state of health of truck drivers with that of other people (Mlinar, 2007) reveals that almost one-third of the respondents provided a lower assessment.

The second hypothesis was also confirmed because there are statistically significant differences between the estimated work-related stress of the truck drivers and their practice of sport.

Of those who engage in a sport at least two to three times a month there are none who claim that they experience stress every day, yet of those drivers who are exposed to everyday stress as much as 85.7% never practice a sport. Our results agree with the findings that a regular physical activity helps reduce feelings of anxiety while also increasing one's ability to cope more effectively with the causes of anxiety and depression because a physical activity significantly elevates mood (Tomori, 2000; Burnik et al., 2003; Plante et al., 2001).

CONCLUSIONS AND PROPOSALS

We are convinced that a regular sport activity can enrich the lives of truck drivers and help them cope with everyday stress and maintain good health. A well-rested

truck driver in a good physical and mental shape will deliver goods to their destination more easily and safely, perhaps even faster.

From the point of view of a transport company, a properly and regularly overhauled truck will do more kilometres at lower costs and consume less fuel in the long run. The same applies to professional truck drivers – if they come to work healthy, mentally strong and well rested, they will do their job better and take less sick leave.

We hope that this contribution is used as informative material by organisations promoting professional drivers' rights as well as sports organisations so that they develop exercise programmes with flexible timetables tailored to professional drivers' needs. Large transport companies can hire sports premises on non-working days and thus help improve their employees' health as a result of which their work absences due to illness will decrease and they will be encouraged to spend their leisure time actively.

We also wish to inspire various organisations associating professional drivers (the Chamber of Crafts, the Chamber of Commerce and Industry and the Association of Drivers and Mechanics) to organise meetings at which the drivers can socialise in the spirit of sport by playing football, basketball or volleyball, by cycling, hiking etc.

Professional truck drivers find it difficult to organise their time and dedicate themselves to a regular sport activity because of their flexible and mostly undefined working time. Therefore, large transport companies could arrange a mini fitness area on their premises where drivers could unwind with the help of an exercise bike, treadmill or basic fitness equipment. We also call on design engineers to incorporate in large motorway rest areas, where drivers take a daily or weekly rest and also spend work-free days or days with limited traffic, some facilities that allow drivers to safely and freely move and engage in an activity beneficial to their health. A simple well-kept jogging track along with some basic exercises for flexibility, strength and endurance can greatly contribute to drivers' sense of well-being at motorway rest areas. As a result, they would be well-rested and more tolerant which would, in turn, contribute to greater road safety.

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