

## ORIGINAL SCIENTIFIC PAPER

# Achievement Motivation of Undergraduates Divided by Sport Activity

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## Abstract

This paper strives to contribute to performance motivation research and to point out differences in achievement motivation among college students in terms of sports activities. The research sample was comprised of 248 college students (men:  $n=141$ ,  $22.40\pm 1.62$  years of age; women:  $n=107$ ,  $21.78\pm 1.49$  years of age) from Bratislava. The respondents were divided into 3 groups according to frequency of sports activities: college students who didn't engage in any sports activities (non-active respondents), college students who engaged in sports activities 1 to 2 times a week (moderately active respondents), and those who engaged in sports activities 3 or more times a week (highly active respondents). A standardized DMV questionnaire consisting of 52 items was used as the research tool. The Kolmogorov-Smirnov test was used to assess the normality of data and the Kruskal-Wallis test and Mann-Whitney tests were used to test the significance of the differences between independent choices. The coefficient  $\eta^2$ , expressed the effect of the independent variable (sport activity) on the dependent variable (achievement motivation). The degree of dependence between the two of the groups of features was expressed by means of the coefficient  $r$ . The results revealed significant ( $p\leq 0.001$ ) differences in all three performance motivation dimensions. The performance motivation of the highly active respondents was significantly ( $p=0.000$ ) higher compared to that of the moderately active respondents. Also, when compared with the non-active respondents, the level of performance motivation was significantly ( $p=0.000$ ) higher among the highly active respondents. Performance motivation and performance-supporting anxiety increases with the frequency of sports activities; on the contrary, performance-hindering anxiety decreases with the frequency of sports activities. Hence, our results testify to the fact that sport activity is one of the determinants for increased performance motivation.

**Key words:** performance motivation, college students, sport activity

## Introduction

The word motivation comes from the Latin word *motivus*, which is the infinitive form of the verb *movere* - to move. The concept of motivation usually refers to the reasons behind a behavior. Motivation is the process of encouraging, maintaining and energizing performance. It determines the origin, direction and intensity of human conduct. The sum of reasons navigates a person toward a certain type of conduct of a certain intensity. The considerable versatility and variability of the quality and intensity in time is referred to as motivation. The aim of motivated individuals is to fulfil their needs (Gurský, 2005). Murphy, Nevill, Neville, Biddle and Hardman (2002),

to treat motivation as an inner strength that arises between people and their acts to propel them mutually.

Performance motivation is understood as a concept which aids in explaining differences in the conduct and acts of individuals in different areas of life. It applies to study activities as well as professional results. Good and stable performance is connected not only with success, but also with prestige and admiration. Such positive assessment and acceptance by the community is reflected in the level of self-esteem and self-confidence of the individual (Pavlas, 2015). Along with cognitive abilities, another general feature, or group of features, relevant for professional success is the general concept of performance



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motivation. Performance motivation represents an individual's tendency to achieve the best possible performance. It is therefore probable that individuals who are more success-oriented will be more active in presenting themselves than those who tend to avoid failure; such individuals will be more passive (Bedrnová, & Nový, 2007). Success has a strengthening character and contributes to personality development. It also improves the quality of life which is a fundamental and determining factor for any individual in any situation (Křivohlavý, 2009). The more regular and intensive the current mental conditions that have resulted from success, the higher the stabilized aspiration level of the sportsman, which may have a positive influence on his/her performance, but also a deeper and more intensive conflict after a possible failure. The research confirmed that success-motivated individuals tend to attribute their success to internal reasons, especially their own abilities while attributing their failures to time-variable reasons, lack of effort and bad luck (Pavlas, 2015). The authors Schuler, Thornton, Frintrup and Prochaska (2011), describe an onion-like model of performance motivation in their handbook based on their analysis of the current knowledge about performance motivation. This model consists of central features (e.g., expectation of success, self-discipline, endurance), peripheral features (e.g., independence and status-orientation), theoretically-related features (e.g., mode of attribution, beliefs of control, self-confidence), and background features (conscientiousness and neuroticism). Based on this model, performance motivation can be considered as a complicated variable whose level is determined by a range of factors. One of these factors which is dealt with in this paper includes sport activity. The conclusions of the pilot study by Šmela, Pačesová, Kraček and Hájovský (2017) reveal that performance motivation is conditioned by the level of sport activity. The authors outline significant differences among top, professional sportsmen and inactive persons in all of the three dimensions of performance motivation. The results proved that the relationship between performance motivation and sport activity as follows: the higher the level of sport activity, the higher the performance motivation. Slepíčka, Hošek and Hátlová (2009) claim that the need to achieve success is proved by sportsmen to a higher degree than by the general population. High motivational significance is mentioned in respect of the causal attribution in the area of sports.

According to Kraus (2006), young people represent a social group made up of individuals between 15 and 25 years of age. While no longer children, they are yet to be fully recognized as adults by the general community. This is manifested by the characteristic mode of conduct and thinking, and the specific system of models, standards and values. This period of development, which might also be referred to as the college period for many individuals, calls for typical requirements for living an adult life according to Pavlas (2015). Such requirements include preparation for the pursuit of a profession, professional adaptation and acquisition of a profession, the status in society in which s/he adopts the social roles of spouse, parent, voter, etc. The basic personality features that characterize this age category include a desire for independence, freedom of thought and action, unbalanced self-esteem, critical attitudes and often contradictory self-evaluations. It is more difficult for them to admit compromises and they tend to negate the acts of others. They are unwilling to accept criticism and tend to radically deal with such situations. A young person creates

and modifies his or her value judgments in ongoing confrontations with various life situations (Kraus, 2006). According to a range of studies (Darayi, 2006; Leondari, Syngollitou, & Kiosseoglou, 1998), various stimulators are available through which it is possible to activate students, for example, by leading them toward specific, partial goals, increasing rewards, encouraging positive emotions and feelings of satisfaction. Factors such as gender, family status, family size, profession of parents and economic situation influence the activity of students. Since achievement motivation is shaped already in the early childhood, the key component in the development of achievement motivation is the mother's demand for their independence and precision of performance. Persons that were led by their mothers toward independence at a very early age achieve high performance motivation values. People attaining low performance motivation values might also have been led toward independence, however, at a later age. It has also been proved that persons with high performance motivation values were rewarded for their minor success in growing independent, especially, by physical manifestations of emotions. The suggestive influence of education upon performance was also confirmed by a comparative anthropological survey which concluded that the frequent training of a child to become independent of adults leads to high performance motivation (Nakonečný, 1992).

Another significant factor that is associated with the activation of college students in attaining goals, or with performance motivation, is sport activity. The social problem of the decreasing level of sports activities among adolescents has been identified (Telama, & Yang, 2000). Šimonek (2007) points out that sports activities conducted by current college students do not suffice to ensure the optimum level of health. College students face an intensive mental load during their studies. Unsuitable planning and organization of study is considerably influenced by the spare time interests of students during the semester. Adequate physical activity is one of the major factors which ensures the stability of mental performance throughout the period of study, but it is often placed last in the hierarchy of interests, despite the fact that it plays an irreplaceable role in the college life according to Nykodým, Zvonař and Sebera (2011). However, due to the great importance which is attributed to achievement motivation, there is a surprising dearth of systematic monographs that prove its impact upon performance itself (Schuler et al., 2011).

The aim of the study is to extend the knowledge about achievement motivation of undergraduates divided by sport activity.

## Methods

The research sample was comprised of 248 college students (men:  $n=141$ ,  $22.40 \pm 1.62$  years of age, women:  $n=107$ ,  $21.78 \pm 1.49$  years of age) from six faculties in Bratislava: the Faculty of Law of Comenius University in Bratislava, the University of Economics in Bratislava, the Slovak University of Technology in Bratislava, the Faculty of Natural Sciences of Comenius University in Bratislava, the Faculty of Arts of Comenius University in Bratislava and the Faculty of Physical Education and Sports of Comenius University in Bratislava. The respondents were divided into 3 groups according to frequency of sports activities: the non-active group ( $n=94$ ), the moderately active group ( $n=96$ ) and the highly active group ( $n=58$ ). A standardized performance motivation questionnaire

DMV created by Pardel, Maršalová and Hrabovská (1992) was used as a research tool. The performance motivation questionnaire contained 52 items, in which the respondents evaluated their level of consent to each statement on the Likert scale. The questionnaire consisted of three scales: a performance motive scale, an anxiety-inhibiting (weakening) performance scale and an anxiety supporting (facilitating) performance scale.

1. The performance motive scale corresponds with the complex and multifaceted nature of the performance motives and consists of four aspects: performance behavior, aspiration, endurance at work, and time orientation in the future.

2. The anxiety inhibiting performance scale can be described as a recognition of weakening performance, loss of speed and activation in states that cause tension in stressful, new and critical situations. In other words, anxiety inhibiting performance can be characterized as a certain tendency to avoid situations that require high performance in order not to experience the feeling of failure.

3. The anxiety supporting performance scale is characterized by a link between an average, in other words, the optimal sense of tension and the mobilization of activity as a favorable condition for quality performance. In other words, we can define it as an effort to avoid failure.

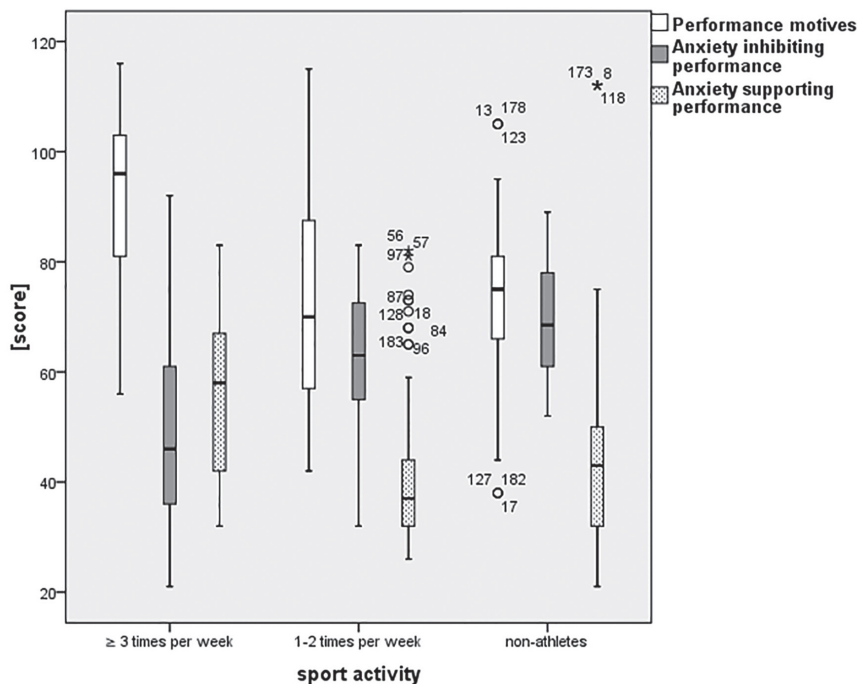
The data were processed statistically. The Kolmogorov-Smirnov test was used to assess the normality of the data. The Kruskal-Wallis test and Mann-Whitney tests were used to test the significance of the differences between particular independent choices. The significance level was set at  $\alpha \leq 0.05$ ,  $\alpha \leq 0.01$  and  $\alpha \leq 0.001$  Effect size, and the coefficient  $\eta^2$  expressed the effect of the independent variable (sport activity) on the dependent variable (performance motivation). The magnitude of the coefficient  $\eta^2$  is evaluated in the following ranges:  $\eta^2 \geq 0.14$  (large effect),  $\eta^2 = 0.06-0.14$  (medium effect),  $\eta^2 = 0.01-0.06$  (small effect). The rate of dependence (effect size) between

the two groups of features was conveyed by means of the coefficient  $r$  ( $r > 0.90$  - very large effect size,  $r = 0.70-0.90$  - large effect size,  $r = 0.50-0.70$  - medium large effect size,  $r = 0.30-0.50$  - small effect size,  $r < 0.29$  - very small effect size). For better interpretation, the results are presented in box-plots.

This study was approved in advance by Ethics committee of Faculty of Physical Education and Sport, Comenius University. Each participant voluntarily provided written informed consent before participating.

**Results**

The results of performance motivation in the different dimensions of the research sample broken down according to sports activities is presented in Figure 1. Box plots were chosen for the sake of the transparent graphic representation of descriptive statistics and in order to show differences of the mean values between the groups. Already at first sight there are striking differences between the research sample groups across the performance motivation dimensions. In the performance motive dimension, the highest mean (91.05±16.03 points) was attained by the highly active respondents. The moderately active respondents and non-active respondents attained almost identical mean values (Table 1). In the anxiety inhibiting performance dimension, the lowest mean value (49.34±18.81 points) was attained by the highly active respondents, while the moderately active respondents achieved a mean value of 63.60±12.85 points and the non-active respondents reached a mean value of 69.27±10.38 points. As to the last dimension, anxiety supporting performance, we detected the highest mean value among the highly active respondents (55.74±14.90 points), while the mean value of the moderately active respondents (40.68±13.76 points) and the mean value of the non-active respondents (43.96±18.24 points) demonstrate the differences within the research sample.



**Figure 1.** Descriptive statistics of dimensions of performance motivation among the research sample divided according to sports activities

According to the results of the Kruskal-Wallis test, the following differences were treated as statistically significant  $H(2)=39.264, p=0.000, \eta^2=0.156$  in the performance motive dimension,  $H(2)=49.908, p=0.000, \eta^2=0.202$  in the anxiety in-

hibiting performance dimension and  $H(2)=37.768, p=0.000, \eta^2=0.153$  in the anxiety supporting performance dimension. The effect size of all of the three dimensions achieved a large value (Table 1).

**Table 1.** The mathematical-statistical characteristics of the research sample segmented according to sports activities and differences in particular dimensions of achievement motivation

Dimension of Achievement Motivation	Sport Activity			Kruskal-Wallis test		
	≥3 times p.w. Mean±SD	1-2 times p.w. Mean±SD	non-athletes Mean±SD	H	p	η²
Performance Motives	91.05±16.03	72.63±20.63	72.76±15.04	39.264	0.000	0.156
Anxiety Inhibiting Performance	49.34±18.81	63.60±12.85	69.27±10.38	49.908	0.000	0.202
Anxiety Supporting Performance	55.74±14.90	40.68±13.76	43.96±18.24	37.768	0.000	0.153

Legend: p.w. - per week

The differences identified in the mean values of the performance motivation dimension among college students segmented according to sports activities listed in Table 1 were further evaluated in order to identify such differences as precisely as possible. By means of the non-parametrical Mann-Whitney U test, the statistical significance of the differences across the groups of respondents was calculated individually in each performance motivation dimension. The statistical significance was also supplemented by the size of the effect expressed by the coefficient r (Table 2).

Comparing the highly active respondents and the moderately active respondents, a statistical significance ( $\alpha < 0.001$ )

was identified in all three performance motivation dimensions. In the performance motivatedimension, the difference between those two groups of respondents ( $U=1365.5, p=0.000, r=0.47$ ) as measured by the Mann Whitney U test achieved the value of small effect size, or small effect. In the anxiety inhibiting performance dimension, the difference between the mean values was also statistically significant ( $U=1419.5, p=0.000, r=0.41$ ) with the same effect size as with the previous dimension. The statistically significant ( $U=1169.5, p=0.000, r=0.49$ ) result between highly active and moderately active respondents was also detected in the anxiety supporting performance dimension.

**Table 2.** Differences between the mean values across achievement motivation dimensions in the research sample segmented according to sport activity

Dimension of Achievement Motivation	Mann - Whitney U test								
	≥3 times p.w. - 1-2 times p.w.			1-2 times p.w. - non-athletes			≥3 times p.w. - non-athletes		
	U	p	r	U	p	r	U	p	r
Performance Motives	1365.5	0.000	0.47	4297.5	0.571	0.04	1154.5	0.000	0.48
Anxiety Inhibiting Performance	1419.5	0.000	0.41	3424.5	0.004	0.21	960.0	0.000	0.54
Anxiety Supporting Performance	1169.5	0.000	0.49	4025.0	0.198	0.09	1472.5	0.000	0.39

Legend: p.w. - per week

In expressing the statistical significance of the difference between the mean values of the moderately active respondents and the non-active respondents, a statistical significance ( $\alpha < 0.01$ ) was only detected in the anxiety inhibiting performance dimension ( $U=3424.5, p=0.004, r=0.21$ ). The coefficient r, or effect size indicated a very small effect. The moderately active respondents achieved a lower mean value in this dimension, i.e., feelings of anxiety influence performance with less statistical relevance than among the non-active respondents. No statistically significant difference was identified when comparing the mean values of the two groups in the performance motive dimension ( $U=4297.5, p=0.571, r=0.04$ ) and the effect size was very small. Furthermore, there were no statistically significant differences between the moderately active respondents and the non-active respondents in the anxiety supporting performance dimension ( $U=4025.0, p=0.198, r=0.09$ ).

In a pair test, the mean values between the highly active respondents and the non-active respondents showed statistical significance ( $\alpha < 0.001$ ) in all of the achievement performance dimensions. In the performance motive dimension the difference in the mean value obtained by the Mann-Whitney test

revealed statistical significance ( $U=1154.5, p=0.000, r=0.48$ ) with coefficient r indicating a small effect size. In the anxiety inhibiting performance dimension such relationship or effect size corresponded to the medium value. The difference between the mean values in this dimension between the highly active respondents and the non-active respondents achieved statistically significant values ( $U=960.0, p=0.000, r=0.54$ ). The difference in the mean values between the two groups in the anxiety supporting performance dimension amounted to more than 11 points. Statistically speaking, the highly active respondents attained a statistically more significant ( $U=1472.5, p=0.000, r=0.39$ ) result in this dimension than the non-active respondents. The coefficient r amounted to a small value.

**Discussion**

Given the great importance of performance motivation, surprisingly few systematic studies deal with this issue. The research performed in the area of performance motivation is mostly focused on the vocational psychology, but the results may be used in the field of sports psychology as well. The factor of the distribution of the research sample of college students -

sport activity, is not quite employed in this field of research, which makes the results presented in this paper even more surprising. The pilot study conducted by Šmela et al., (2017) in this field confirmed the expected differences in the research sample segmented by activity, or level of sport activity. The research proved the presence of significant differences between the groups (highly active students, moderately active students and non-active students) in all three achievement motivation dimensions. The authors concluded that performance motivation was dependent on the level of sport activity. The same conclusion, i.e., a higher level of achievement motivation with top sportsmen compared to non-elite athletes, was also made by Kavussanu and McAuley (1995) in their paper. The theory suggesting a direct dependence between the level of sport activity and the level of achievement motivation was also supported by the studies conducted by Khan, Khan and Ahmed (2010), Rathee and Singh (2011), Ibrahim and Gwari (2011), Ali (2010), Unierzyski (2003). Their results proved that the relationship between performance motivation and sport activity as follows: the higher the level of sport activity, the higher the performance motivation.

These results also correlate with the results presented in our paper. The highly active respondents attained a significantly higher level of achievement motivation compared to the moderately active respondents and non-active respondents. Thus, sport activity may be considered as a significant, conditioning determinant influencing the total force of performance motivation. Our study also revealed an interesting finding - a significant difference in the dimensions (with the exception of anxiety inhibiting performance) was attained by the highly active respondents compared to the non-active respondents. Engaging in sport activity 1 to 2 times a week was not sufficient to change the performance motives and anxiety supporting performance dimensions. Based on the results of our study we could formulate a thesis proposing different levels of achievement motivation among the respondents, where significant differences (i.e., statistically higher achievement motivation) were achieved by the highly active respondents. It is assumed that college students with a higher frequency or level of sports activities and hence also a higher level of achievement motivation will be more successful in their professional life. Achievement motivation is conditioned by performance behaviour, aspiration, endurance at work and also time orientation toward the future. These factors play an important role at work and with employers, and the justification of the criterion for the selection for a particular job position - the best employees are sportsmen and sports women who have the strength to accomplish their tasks, learn new skills, attain their goals and cooperate in a team.

In contrast with the studies cited above, it is necessary to mention the research by Singh (2015) who did not detect any significant differences in the research sample of female college hockey players segmented according to level of sport activity. The study by Dureha, Singh, Yaduvanshi and Mishra (2010) did not confirm any significant differences between the hockey players at national and international levels in respect of achievement motivation either. In addition to achievement motivation, the authors of the research did not record any significant differences in the incentive motivation, state anxiety or trait anxiety between national and international hockey players. The results of this study are similar to those of Thakur and Mohan (2008) who dealt with achievement motivation among

volleyball players and non-active persons. Differences in the means at the level of achievement motivation between the research sample of volleyball players and non-active persons did not achieve statistical significance. According to the authors, there is no statistically significant difference in achievement motivation among respondents segmented according to the level of sport activity.

In the study by Ye (2001), the research sample of 2214 Chinese sportsmen was also segmented by gender. The results of his research indicated significant differences between gender and type of sport activity (individual versus collective) in the performance motivation scales. On the contrary, the study by Jiteshwar, Sunderlal and Singh (2013) concerned with achievement motivation among male and female basketball players proved that there are no statistically significant differences. In their conclusions the authors stated that gender does not condition the level of achievement motivation. They also concluded that the psychological states of men and women are mostly similar, but more extensive research samples would be necessary to render more relevant conclusions. We do not consider a research sample of 80 respondents as sufficient to make such a conclusion. However, in this field of research we only have partial findings available and this issue deserves more detailed attention. Vesković and Milanović (2011) also dealt with the relationship between performance motivation associated with sports success and the type of sport activity. They found that sportsmen engaged in individual sports placed higher goals upon the achievement of their own satisfaction. Another criterion to which the performance motivation is linked in the research is age. The results of the study conducted by Castiello, Duda, Balaguer and Tomás (2009) showed increasing performance motivation under the influence of adolescence as well as the ability to better define success as well as views of its accomplishment. The research goal of segmenting respondents according to school type was outlined in Scholz (2011) who compared the performance motivation of 18-19 year old students of special sport schools and classical grammar schools. His results indicated significantly higher performance motivation among students of special sport schools. Another study proving the level of performance motivation according to sport activity is the work of Sedláčková (2014). She compared the performance motivation of adolescents segmented from a point of view of sport activity. The results of her work indicate a significantly higher performance motivation among sporting adolescents compared to non-sporting adolescents. The results of these studies also correlate with the results of our paper. Individuals who are more active in sport activity attain a statistically higher level of performance motivation.

Achievement motivation is a current and much-needed area of research. The results and conclusions of studies concerned with this issue will find their place not only in vocational, social and sports psychology, but also in the process of learning and success achievement. Achievement motivation is an important and necessary characteristic for each individual and influences their level of success. It is socially appreciated and establishes the grounds for experiencing success-associated, pleasant and joyful feelings in terms of the achievement of a goal. As stated in the introduction, its level is shaped especially in childhood with the dominant role being played by the mother who determines the degree of independence of the child. The level of achievement motivation among college students, as indicated by the results of our study, is also influ-

enced by the level, or frequency of sport activity. Highly active college students have a higher level of achievement motivation compared to moderately active college students and non-active college students. Since we surveyed the level of achievement motivation only with a research sample of college students, our next research goal will be to extend this research sample to older individuals. In the next stage of our research we will examine changes in the effect of the level of achievement motivation during the life of an individual and in the age at which it reaches its culmination.

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#### Conflict of Interest

The authors declare that there are no conflict of interest.

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#### References

- Ali, J. (2010). A study of achievement motivation in relation to performance of badminton players. *Vyayam-Vidnyan*, 43(3), 41-44.
- Bedrnová, E., & Nový, I. (2007). *Psychologie a sociologie řízení*. Praha: Management Press.
- Castillo, I., Duda, J., Balaguer, I., & Tomás, I. (2009). Cross-domain generality of achievement motivation across sport and the classroom: the case of Spanish adolescents. *Adolescence*, 44(175), 569-580.
- Darayi, J. (2006). Correlation burley family, social base and place control with achievement motivate student year 3 medium at year academic. *Q Educ*, 3(17), 44-9.
- Dureha, D.K., Singh M., Yaduvanshi, S., & Mishra P. (2010). A comparative study of incentive motivation, achievement motivation and anxiety level between national and international hockey players. *British Journal of Sports Medicine*, 44(1), 158-158.
- Gurský, T. (2005). *Psychológia športu*. [CD-ROM]. Bratislava: Telovýchovná škola SZTK.
- Ibrahim, M., & Gwari, P. (2011). A study of achievement motivation of low and high level volleyball players. *Journal of education and practice*, 2(11, 12), 14-16.
- Jiteshwor, P., Sunderlal, N., & Singh, S.R. (2013). Comparative study of the Sports Achievement Motivation between Male and Female School Basketball Players. *Journal of Humanities and Social Science*, 7(2), 23-26.
- Kavussanu, M., & McAuley, E. (1995). Exercise and optimism: are highly active individuals more optimistic? *Journal of Sport Exercise Psychology*, 17, 246-258.
- Khan, Z., Khan, S., & Ahmed, N. (2010). Sports achievement motivation among Asian players: A study. *AMASS Multilateral Research Journal*, 2(2), 7-9.
- Kraus, B. (2006). *Středoškolská mládež a její svět na přelomstoletí*. Brno: Paido
- Křivohlavý, J. (2009). *Psychologie zdraví*. Praha: Portál.
- Leondari, A., Syngollitou, E., & Kiosseoglou, G. (1998). Academic achievement, motivation and future selves. *Educational Studies*, 24(2), 153-163. doi: <http://dx.doi.org/10.1080/0305569980240202>
- Murphy, M., Nevill, A., Neville, Ch., Biddle S., & Hardman, A. (2002). Accumulating brisk walking for fitness, cardiovascular risk, and psychological health. *Medicine and Science in Sports and Exercise*, 34(9), 1468-1474. doi: 10.1249/01.MSS.0000027686.50344.77.
- Nakonečný, M. (1992). *Motivace pracovního jednání a její řízení*. Praha: Management Press.
- Nykodým, J., Zvonař, M., & Sebera, M. (2011). Pohybová aktivita studentů Masarykovy univerzity. *Studia Sportiva*, 1(5), 57-64.
- Pavlas, I. (2015). Achievement motivation of High School Students. *Paidagogos-Journal of Education in Contexts*, 1, 80-97.
- Rathee, K.N., & Singh, J. (2011). Achievement motivation and adjustment patterns among international and national players of different team sports. *Journal of Social Sciences*, 7(3), 369-374.
- Sedláčková, A. (2014). *The achievement motivation and stress coping strategies of active sportsmen as compared with physically inactive population*. Universitas Masarykiana Brunensis.
- Schuler, H., Thornton, G., Frintrup, A., & Prochaska, M. (2011). *Dotazník motivace k výkonu – LMI*. Praha: Hogrefe – Testcentrum.
- Scholz, P. (2011). *The comparison of achievement motivation of the students of Sports Grammar School of Dana and Emil Zatopek in Ostrava and the students of Slovan Grammar School in Olomouc*. Palacky University Olomouc.
- Schuler, H., Thornton, G.C., Frintrup, A., & Prochaska, M. (2011). *Manuál testu Dotazník motivace k výkonu – LMI*. Praha: Testcentrum.
- Singh, P. (2015). Study of Achievement Motivation among Female Field Hockey Players In Relation To Performance Level. *International Journal of Physical Education, Sports and Health*, 2(2), 21-24.
- Slepička, P., Hošek, V., & Hátlová, B. (2009). *Psychologie sportu*. Praha: Karolinum.
- Šimonek, J. (2011). *Výskumy objemu pohybové aktivity na školách*. Nitra: PF UKF.
- Šmela, P., Pačesová, P., Kraček, S., & Hájoský, D., (2017). Performance Motivation of Elite Athletes, Recreational Athletes and Non-Athletes. *Acta Facultatis Educationis Physicae Universitatis Comeniana*, 57(2), 125-133. doi: <https://doi.org/10.1515/afepuc-2017-0012>.
- Telama, R., & Yang X. (2000). Decline of physical activity from youth to young adulthood in Finland. *Medicine and Science in Sports and Exercise*, 32(9), 1617-1622. doi: 10.1097/00005768-200009000-00015.
- Thakur, B.S., & Mohan L. (2008). Personality traits, anxiety and achievement motivation level of volleyball players and non-sportsmen. *Journal of Sports and Sports Sciences*, 31(4), 23-29.
- Unierzyski P. (2003). Level of achievement motivation of young tennis players and their future progress. *Journal of Sports Science and Medicine*, 2, 184-186.
- Vesković, A., & Milanović, M. (2011). Relationship between goal orientation, motivation and positive affective out comes of young athlete in Serbia. *Facta Universitatis: Series Physical Education*, 9(4), 455-464.
- Ye, P. (2001). Athletes' differences in achievement motivation in sports. *Journal of Wuhan Institute of Physical Education*, 35(5), 64-66.