

Original Article

Empirical research of vitality of representatives of parachuting and yoga practice: a comparative analysis

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Abstract

The purpose of the article is empirical research and theoretical substantiation of subjective and dispositional vitality of representatives of parachuting and yoga practice; carrying out a comparative analysis of the results of two experimental groups with the control group. The analysis of probable causes of exhaustion and increasing of respondents' vitality has been carried out. The mechanisms of influence of the researched types of the activity of respondents at the level of subjective and dispositional vitality have been described. Participants of the research are: athletes of parachute sports JSC LLC "Avia-Soyuz" (Mayske, Dnipro, Ukraine)(n=43); representatives of yoga practice of the Yoga Studio "Symmetry" (Sumy, Ukraine) (n=36) and representatives of the control sample, which consisted of students of Kolomyia Educational Scientific Institute of the Precarpathian National University named after Vasyl Stefanyk (Kolomyia, Ukraine) and Kremenchuk Mykhailo Ostrohradskyi National University (Kremenchuk, Ukraine) (n=36). Methods. The following standardized and adapted psychodiagnostic techniques with experimental scales were used: "Subjective Vitality Scale"; "Hardiness Survey". Results. Empirical results of the research of vitality and hardiness of respondents are presented. Significant correlations of the studied parameters have been established ($p < .05$; $p < .01$). Differences were set down in the parameter "Control" ($p < .05$) in the group of parachutists compared to the control. The high results of "Control" ($M=22.12$; $SD=5.64$) of representatives of parachuting have been substantiated with excessive danger and extremeness of this kind of sport. It is stated that total control can deplete parachutists, i. e. be a factor of reducing vitality. Emphasis was placed on the indicators of respondents who practice yoga, who had higher average values of Dispositional Vitality ($M=35.64$; $SD=9.91$) and Hardiness ($M=57.81$; $SD=12.42$) with lower average values of Control ($M=19.12$; $SD=4.14$). Conclusions. High level of subjective vitality as a state and dispositional vitality as a personal quality of parachutists and yoga was stated. Comparative analysis of the results with the indicators of the control group showed a direct dependence of the positive impact of parachuting and yoga practice on the respondents' vitality and hardiness. It has been proposed to operationalize the results of the research in the practice of maintaining and improving the mental state of vitality of the representatives of the studied activities and to extend to athletes of individual and game sports.

Keywords: subjective vitality, dispositional vitality, hardiness, meditation, extreme.

Introduction

The development of modern society has reached an extremely high level in the field of information technology and logistics. At the same time, the problem of increasing of vitality, especially in professional sports, is becoming more acute over time. The hectic pace of life, constant stressful situations deplete the reserves of internal energy of the athlete's personality. The problem of effective search for ways to obtain resources, increase the level of vitality is acute. This encourages people to engage in a variety of activities, from recreation to sports with the presence of extreme superhuman loads. Different types of activities provide internal resources, relieve stress and help maintaining adequate "energy supply" necessary for the implementation of their activities.

In order to replenish the internal reserve, parachuting and yoga practice deserve scientific substantiation and empirical research. It is obvious that these, at first sight, very different types of activities have a common effect that is maintaining the level of vitality of participants at a high level.

Vitality is a subjective experience of having physical and mental energy. With a high level of vitality, a person is full of enthusiasm and vital forces. Vitality is associated with a sense of strength, strong positive

experiences and calm energy. R. Ryan and C. Frederick understand the concept of vitality as the fullness of vital forces and energy of a person, as a conscious experience of a person's fullness of energy and life. Vitality is a reflection of physical and psychological well-being. At the same time, it is a phenomenologically valid criterion that differs from external indicators of well-being, such as success, health, social support, and personal achievement (Ryan & Frederick, 1997).

The economic model of vitality proposed by S. Freud is interesting in scientific terms. Mental energy is a limited resource. The scientist argued that the expenditure of energy on psychological defenses significantly depletes the individual, which negatively affects the level of subjective vitality (Freud, 1989). A large list of vitality patterns, in particular those considered in sports, reveal vital energy, emphasizing what blocks and depletes the athlete; it almost did not touch on the question of what contributes to the preservation and enhancement of vitality (Bleikher et al., 1996; Uysal et al., 2016).

On the other hand, for centuries, members of the Eastern tradition have been more concerned on increasing mental energy through a spiritual, meditative, or physical practices. In these approaches, the vitality of the athlete is understood as an active inner force that maintains mental and physical health and requires careful and effective treatment, in order to achieve the optimal limit that will ensure the highest sports results (Belik, 2017; Iyengar, 2014; Sivananda, 2015; Sivaramakrishnan, 2019). Yoga as a versatile discipline originating in India is becoming increasingly popular among the physical activities offered in a modern society. It is usually practiced in the form of physical postures, breathing regulation and relaxation. Yoga is seen as a mental-physical-spiritual practice (Cagas et al., 2020). An example of the implementation of the psychotherapeutic effect of yoga is research that introduced an effective approach to sports in higher education, using elements of yoga practice (Galanetal., 2017).

The research of risk propensity in parachuting attracts scientific interest in the context of our study. There are studies that have found a significant relationship ($p \leq .05$) between the level of risk propensity and indicators such as mental stability, self-confidence, the search for thrills (Kuzikova et al., 2020a). Another study found high rates of parachutists' vitality in the active phase of the jumping season. According to researchers, this is due to the developed tendency to resistance to stress conditions in parachutists (Kuzikova et al., 2020b).

Let's look at patterns of vitality associated with physical activity. Researchers state that there is a connection between physical activity and positive health-related constructs, one of which is subjective well-being (SWB). Their study focused on determining the impact of physical activity on SWB, despite the previous level of physical training of participants and different characteristics of intervention in physical activity. Thus, the results indicate the importance of physical activity in the context of well-being (Buecker et al., 2020). A study of the impact of stress on students' well-being was conducted by P. Miksza and his colleagues, in particular the aspect of subjective vitality, which is defined as the feeling of energy and vital activity. The authors claim that stress has a significant negative effect on vitality. However, the quality of relationships with peers and self-directed perfectionism are important positive predictors of vitality (Miksza et al., 2019). E. Mack et al. studying the well-being of people with osteoporosis came to the conclusion that it is strongly influenced by physical activity. Researchers have focused on the mechanisms by which physical activity is associated with well-being (Mack et al., 2017). A health-promoting behavior of adolescents, such as, has been widely studied to better understand the underlying causes or determinants with an eye towards implementing more effective interventions. The research focused on sustaining physical activity for subjective experience of mental energy (Blynova et al., 2020; Kimiecik et al., 2020; Popovych et al., 2020a). Another research conducted an integrative review and meta-analysis, which established the impact of forms of collective motivation on subjective personal well-being and the relationship well-being. The authors believed that people who have a high level of communal motivation for partners enjoy caring for others, in particular because they express their sense of self, which in turn increases their personal well-being (Leet al., 2017).

The essence of a significant list of models indicates that the increased subjective vitality should be accompanied by a high level of independence and integrity or self-actualization of the athlete. The model of vitality, which emerged in the theory of self-determination, is based on several key assumptions. Firstly, more autonomous self-regulation of the athlete is less energy consuming, as it requires less suppression and control. Secondly, those activities that are aimed at meeting basic psychological needs should be accompanied by maintaining or increasing energy levels, and vice versa. Thirdly, a lifestyle based on internal goals associated with increased vitality. At the same time, an athlete's life based on an imposed goal is not developmental. With autonomous motivation, the athlete's activity increases vitality and effectiveness. However, it is based on external coercion, reduces the feeling of vital energy and efficiency of tasks (Maddi, 2005; Ryan & Deci, 2009).

Attention was paid to the study of self-actualization factor and self-actualization mental states in sports for complex and comprehensive study of the problem of vitality of athletes, (Cheban et al., 2020a; 2020c; Popovych et al., 2019b; 2020b; 2020c; Shalar et al., 2019) and for comparison in educational and professional activities et al., 2020a; Popovych & Blynova, 2019; Prontenko et al., 2020) and in other types of human activity (Blynova et al., 2019; Nosov et al., 2020a; 2020b; Popovych et al., 2019c; Prokhorov et al., 2015). It has been proved that the subjective vitality of an individual plays an important role in overcoming difficult life circumstances, and is not only a measure of psychological well-being, but also a full-fledged personal resource that reflects various aspects

of personal potential (Leontiev, 2016). It has been substantiated that the level of subjective vitality is influenced by love and intimacy between people with whom the need for involvement is formed. The need for involvement, connections, relationships is one of the main psychological needs of the theory of self-determination. The combination of participants of different ages in the training process contributes to a higher degree of resistance to stress. Such participants have fewer psychological difficulties. The presence of “significant others” with whom a close relationship is established in the form of love and affection helps to reduce stress resistance (Uysal et al., 2016). We can conclude that the self-determination or autonomy of the athlete, competence and skill, are defined as conditions that promote healthy development and strengthening vitality. Due to the developed ability to choose and have a choice, the athlete is self-determined and able to act not based on obligations or coercion, but based on awareness of their needs.

Hypothesis. The authors assume that 1) the mental state of vitality, which is recognized as an indicator of the psychological well-being of the personality, correlates with the physical condition of the respondents and with their mental well-being; 2) there are differences in the manifestations of subjective vitality as a mental state and dispositional vitality as a personal quality of representatives of parachuting, yoga practice and the control group.

Purpose. Empirically determine and theoretically substantiate the subjective and dispositional vitality of representatives of parachuting and yoga practice; perform a comparative analysis of the results of two experimental groups with the control group.

Material and methods

Participants. The study involved 115 people: parachutists of Avia-Soyuz LLC (Maiske, Dnipro region, Ukraine) (n = 43); representatives of yoga practice of the Yoga Studio “Symmetry” (Sumy, Ukraine) (n = 36) and representatives of the control sample (n = 36). The sample of parachutists (extreme group) consisted of men and women with different experience of parachuting, with the number of jumps from 10 to 4000. The sample of a group of yoga practitioners consisted of men and women with different experiences of practicing yoga, from 6 months to 15 years at the time of the study. On average, respondents in this group practiced from three to five times a week. The sample of the control group consisted of students from two academic groups (n = 36): Kolomyia Educational Scientific Institute of the Precarpathian National University named after Vasyl Stefanyk (Kolomyia, Ukraine) (n=20) and Kremenchuk Mykhailo Ostrohradskyi National University (Kremenchuk, Ukraine) (n=16). Student groups have been randomly selected. Students are not representatives of faculties related to physical culture and sports and are not engaged in the researched sports. The research is conducted according to ethical standards of committee on the rights of experiments of Helsinki declaration (2013).

Organization of research. The study consisted of several stages. 1. Analysis of scientific literature and information sources about the vitality of representatives of parachuting and yoga practice; about the study of self-actualization factor and self-actualization mental states in sports and other human activities. 2. Substantiation of methodology and implementation of empirical research of semantic parameters of vitality and hardiness with the help of valid psychodiagnostic tools. 3. Establishment of significant scientific facts, summarizing the results of empirical research, operationalization of data and summarizing.

The following method was used to establish vitality “Subjective Vitality Scale” (“SVS”) (R. Ryan and C. Frederick, 2006; adapted by L. Alexandrova, 2014). The method has two options: the scale of subjective vitality as a state (Vt-s) and the scale of dispositional vitality (Vt-d). The condition of respondents “here and now” was assessed by the Vt-s scale; the Vt-d scale determines the level of vitality as a personality quality. A seven-point Likert scale was used, from “absolutely wrong” to “absolutely true”. A questionnaire was used to determine the content parameters of the respondents’ hardiness.

To determine the main parameters of the respondents’ hardiness “Hardiness Survey” (“HS”) questionnaire was used (S. Maddi, 1994; adapted by D. Leontiev and E. Rasskazova, 2006). The questionnaire contains scales: “Hardiness”, “Commitment”, “Control”, “Challenge”. The questionnaire “Hardiness Survey” consists of assertion items that respondents answered by a four-point scale. The reliability indices obtained by means of Cronbach- α statistics were: $\alpha_{SVS} = .823$; $\alpha_{HS} = .801$. The reliability indices of Cronbach- α were within the range good (.8) and high levels (.9).

Statistical analysis. To achieve this purpose, a set of complementary research methods has been used: methods of systematic analysis, causal, comparative and direct structural analysis. Mathematical processing of the obtained data was performed using the statistical program “SPSS” v. 21.0 and MS “Excel”. Spearman correlation coefficients (rs) were used to establish the reliability of the study results. Student’s t-test has been used to establish the statistical difference between the groups.

Results and Discussion

According to the results of the “Subjective Vitality Scale” (“SVS”) method (R. Ryan and C. Frederick, 2006; adapted by L. Alexandrova, 2014), arithmetic mean values and standard deviations by scales were established in three researched groups Vt-s and Vt-d (see Table 1).

Table 1. Arithmetic mean values and standard deviations by the scales of the method “Subjective Vitality Scale”

Group of the research	Scale	M	SD
Group 1 (n=43)	Vt-s	34.04	9.24
	Vt-d	33.12	9.01
Group 2 (n=36)	Vt-s	35.84	10.01
	Vt-d	35.64	9.91
Group 3 (n=36)	Vt-s	27.34	7.11
	Vt-d	26.87	7.02

Note: Group 1 – parachuting athletes; Group 2 – yoga practice group; Group 3 – control group; Vt-s – subjective vitality as a state; Vt-d – dispositional vitality; M – arithmetic mean; SD – mean standard deviation.

A comparison of the obtained results with the test norms of the authors of the method (Ryan & Frederick, 2006) and the results obtained by other researchers in the student sample (Alexandrova, 2014) was made. Therefore, the arithmetic mean and standard deviations of Vt-s (M = 27.34; SD = 7.11) and Vt-d (M = 26.87; SD = 7.05) do not exceed the norm in Group 3 (control group). Descriptive frequency characteristics according to the “VSV” method of parachutists and participants in its practice are not found in the scientific literature.

Comparison

The obtained results are expected and confirm the indicators that exceed the average norms. The highest values among all groups were found in participants of yoga practice on the scale Vt-s (M = 35.84; SD = 10.01). Subjective vitality as a state of yoga practice is a confirmation of high vital energy and hardiness. Also, the highest values among all groups were detected in yoga practitioners on the Vt-d scale (M = 35.64; SD = 9.91). Values on the scales Vt-s and Vt-d among all respondents are adjacent to each other. Thus, the dispositional vitality of the respondents is a permanent mental state of vitality transformed into a qualitative property. We find confirmation of this opinion in the works of other researchers (Chebanetal., 2020b; Popovychetal., 2019a; Prokhorovetal., 2015; Strikalenko, 2019; 2020). The obtained results of the arithmetic mean and standard deviation indicate predominance of Group 1 and Group 2 values over Group 3.

We present the results obtained using the questionnaire “Hardiness Survey” (“HS”) (S. Maddi, 1994; adapted by D. Leontiev and E. Rasskazova, 2006). Arithmetic mean values and standard deviation on five scales were established in three study groups (see Table 2).

Table 2. Arithmetic mean values and standard deviations on the scales of the method “Hardiness Survey”

Research groups	Scale	M	SD
Group 1 (n ₁ =43)	Hardiness	56.76	11.82
	Commitment	25.76	5.27
	Control	22.12	5.64
	Challenge	11.86	3.86
Group 2 (n ₂ =36)	Hardiness	57.81	12.42
	Commitment	28.76	6.47
	Control	19.12	4.14
	Challenge	11.46	3.74
Group 3 (n ₃ =36)	Hardiness	50.81	9.62
	Commitment	21.78	4.21
	Control	17.09	3.65
	Challenge	10.98	3.53

Note: Group 1 – parachuting athletes; Group 2 – yoga practice group; Group 3 – control group; M – arithmetic mean; SD – mean standard deviation.

The obtained results have been compared with the average test norms of the adapted method (Leontiev & Rasskazova, 2006). Indicators of all parameters of Group 3 (control group) do not exceed the average test norms. At the same time, the indicators of descriptive characteristics of Group 1 and Group 2 of parachutists and yoga practitioners exceed the average test norms. Representatives of parachuting sport had the highest scores on the scales “Control” (M = 22.12; SD = 5.64) and “Challenge” (M = 13.86; SD = 4.18). This is proof that overcoming trials, struggles and events that take place in the life of parachutists contribute to their development. Representatives of yoga practice were distinguished by the highest indicators of the parameters “Hardiness” (M = 57.81; SD = 11.82) and “Commitment” (M = 25.76; SD = 5.27). Such data are confirmation of the formed stable system of beliefs about oneself, the world and the attitude to the world. High indicators of “Commitment” confirm the conviction in the search for something interesting and valuable for themselves. The obtained results of the arithmetic mean value and standard deviations state the superiority of the values of Group 1 and Group 2 over Group 3.

In order to establish relationships between the parameters “Hardiness Survey” and “Subjective Vitality Scale”, a correlation analysis of the entire sample was performed using the Spearman correlation coefficient. The results are presented in Table 3.

Table 3. Correlation between the parameters of “Hardiness Survey” and “Subjective Vitality Scale” (n = 115)

The name of the indicator	Vt-s	Vt-d
Hardiness	.407**	.327**
Commitment	.381**	.377**
Control	.196*	.216*
Challenge	.217*	.227*

Note: Vt-s – subjective vitality as a state; Vt-d – dispositional vitality; * the correlation is significant at the level $p < .05$ (two-way); ** $p < .01$

The results of correlation analysis confirmed the assumption that the subjective vitality as a state and dispositional vitality as a personality quality of the respondents correlate at a statistically significant level with the parameters of vitality “Hardiness”, “Commitment”, “Control”, “Challenge” ($r_s = .196-.407$; $p < .05$; $p < .01$). This indicates the conditionality of the mental state of vitality (Vt-s) and its qualitative manifestation (Vt-d) by psychological well-being of the personality. It correlates both with the physical condition of the respondents and with their mental well-being.

At the next stage, a sample of representatives of parachuting (Group 1) and a sample of yoga practice (Group 2) was compared with the control sample (Group 3) for all investigated parameters. The comparison was made by arithmetic mean (M). Student’s t-test was used to establish the statistical difference (see Table 4).

Table 4. Differences between groups on the studied parameters of vitality and hardiness

The name of the indicator	Group 1 (n ₁ =43)	Group 3 (n ₃ =36)	t-criterion	Level of significance
Subjective vitality (Vt-s)	34.04	27.34	2.96	$p < .01$
Dispositional vitality (Vt-d)	33.12	26.87	2.85	$p < .01$
Hardiness (H)	56.76	50.81	2.22	$p < .05$
Commitment (CM)	25.76	21.78	2.28	$p < .05$
Control (CN)	22.12	17.09	2.09	$p < .05$
Challenge (CH)	11.86	10.98	1.45	–

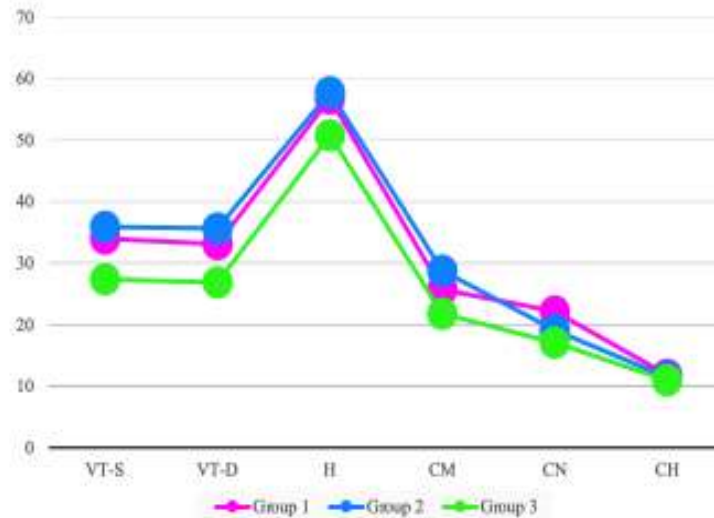
The name of the indicator	Group 2 (n ₂ =36)	Group 3 (n ₃ =36)	t-criterion	Level of significance
Subjective vitality (Vt-s)	35.84	27.34	3.08	$p < .01$
Dispositional vitality (Vt-d)	35.64	26.87	3.15	$p < .01$
Hardiness (H)	57.81	50.81	2.75	$p < .01$
Commitment (CM)	28.76	21.78	2.09	$p < .05$
Control (CN)	19.12	17.09	1.62	–
Challenge (CH)	11.46	10.98	1.43	–

Note: Group 1 – parachuting athletes; Group 2 – yoga practice group; Group 3 – control group; M – arithmetic mean; t-criterion – Student’s criterion.

The diagram visually shows the differences between the studied groups by the key parameters of vitality and hardiness (see Fig. 1).

Statistically significant differences were found between the studied groups (Group 1 and Group 2) and the control group (Group 3) by criteria “Subjective vitality” (Vt-s) ($p < .01$) and “Dispositional vitality” (Vt-d) ($p < .01$). We also found statistically significant differences comparing the parameters of hardiness using a questionnaire “Hardiness Survey”, but there were differences only by indicators “Hardiness” ($p < .01$; $p < .05$) and “Commitment” ($p < .05$). This confirms that activities such as parachute sport and the practice of yoga have a direct impact on the level of vitality and its components. At the same time, we state that the energy sources of the two sports we have studied are oppositely different. There are also significant differences in the “Control” parameter ($p < .05$), but only between Group 1 and Group 3. Obviously, this is evidence that high control rates of representatives of parachuting are associated with excessive danger and extreme parachuting. At the same time, total control can deplete parachutists, i. e. reduce vitality. Therefore, the respondents who practice yoga, have lower average values of “Control” (M = 19.12; SD = 4.14) and higher average values of “Dispositional Vitality” (M = 35.64; SD = 9.91) and “Hardiness” (M = 57.81; SD = 12.42). Significant differences between the researched groups in the “Challenge” parameter weren’t found ($p > .05$). This can be explained by the fact that respondents from the three groups are convinced that everything that happens to them is related to the success of their activities. Comparing the results of the study of subjective vitality as a state and dispositional vitality as a character trait, we can see that representatives of yoga demonstrate higher indicators for two parameters. The

values of “Hardiness” and “Commitment” according to the questionnaire “Hardiness Survey” (“HS”) also prevail. It can be explained by the fact that yoga is a universal system of self-knowledge and spiritual development of a person. Yoga practices include regular physical exercises with special exercises that normalize all body processes and lead to physical and psychological health. Exercises, which in yoga are called asanas, are the most effective and useful for all systems of the body and psyche. Moreover, yoga is not just about exercise. In addition, in practice, there are obligatory breathing techniques (pranayama) and a special diet that keeps the body healthy (Boyko, 2008). It is known that the psychology and physiology of sport also indicate the therapeutic effect of various breathing techniques (Lowen, 2000).



Note: Group 1 – parachuting athletes; Group 2 – yoga practice group; Group 3 – control group.

Figure 1. Diagram of differences between Group 1, Group 2, Group 3 by the key parameters of vitality and hardiness

We summarize that the results of the research are also conditioned by the fact that parachuting changes a person's self-esteem. Competitions in this sport involve the presence of team tournaments. The taste of victory and sense of self-importance, a sense of being part of a team affect a sense of self-worth and success. In addition, a person engaged in such activities is constantly in a significant group of people and feels involved in it. This also applies to representatives of yoga. Having a favorite business, communicating with like-minded people and a taste of victory increases the level of vitality. High vitality rates of parachutists are associated with emotional experience. Parachuting does not allow a person to feel a lack of emotions; the person meets the emotions directly, living them. As a result, it releases the energy that was previously used to suppress unpleasant emotions. In the same way, yoga stimulates the living of those emotions that have been supplanted by the psyche, but through exercise and breathing. There are researches that state a decrease of parachutists' vital energy at the end of the jumping season (Kuzikova et al., 2020). Note that most of the representatives of this sport after the parachute season are engaged in winter activities, such as skiing and snowboarding, which allows them to maintain the level of vitality and hardiness at an optimal level.

We consider it necessary to recommend operationalizing the obtained empirical results in the practice of the researched types of activity. It seems interesting to try to extend the results of the research to representatives of individual and game sports. The length and quality of our lives depends on the degree of training and endurance of our body. Regular exercise is the easiest way to increase vital energy. Communication with significant others, the reference group and gain new impressions effective ways to increase the level of vitality and hardiness.

Conclusions

1) Substantive parameters of subjective vitality and dispositional vitality of representatives of parachuting and yoga practice have been studied.

2) High indicators of subjective vitality as a state and dispositional vitality as a personal quality of the representatives of the researched types of activity have been established. Comparative analysis of the results with the indicators of the control group indicated a direct positive impact of the practice of yoga and parachuting on the general level of vitality and hardiness of its participants ($p < .01$; $p < .05$).

3) There were statistically significant differences in the parameter “Control” ($p < .05$) of the group of parachutists compared to the control. High results of “Control” ($M = 22.12$; $SD = 5.64$) in parachuting are substantiated by the excessive danger of parachuting. It has been noted that total control can deplete parachutists,

i. e. be a factor in reducing vitality. Emphasis was placed on the indicators of respondents who practice yoga and have higher average values of “Dispositional Vitality” (M = 35.64; SD = 9.91) and Hardiness (M = 57.81; SD = 12.42) with lower average values of “Control” (M = 19.12; SD = 4.14).

4) It was outlined and substantiated that the basis for maintaining the proper level of internal resources is working with the body and healthy living of emotions. Low levels of activity, suppression of emotional reactions and stress deplete the energy reserves of athletes. Enthusiasm, gaining new experiences, mastering new activities, communicating with “significant others”, joining a reference group are effective ways to increase the level of subjective vitality.

5) The obtained empirical results should be operationalized in the practice of maintaining and increasing the subjective and dispositional vitality, the parameters of hardiness among the representatives of individual and game sports.

Conflict of Interest. The authors declare that there is no conflict of interest.

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References:

- Alexandrova, L.A. (2014). Subjective Vitality as a Subject of Research. *Psychology*, 11(1), 133-163.
- Belik, E. (2017). Examining the mediating effect of subjective vitality in the proactive personality and life satisfaction relationship. *International Journal Happiness Development*, 3(4), 289-302.
- Bleikher, V. M., Kruk, I.V. & Bokov, S. N. (1996). Practical psychology. A guide for physicians and medical psychologists. Rostov on Don: Phoenix.
- Blynova, O., Kruglov, K., Semenov, O., Los, O. & Popovych, I. (2020). Psychological safety of the learning environment in sports school as a factor of achievement motivation development in young athletes. *Journal of Physical Education and Sport*, 20(1), 14-23. DOI: 10.7752/jpes.2020.01002
- Blynova, O. Ye, Popovych, I. S., Bokshan, H. I., Tsilmak, O. M., & Zavatska, N. Ye. (2019). Social and Psychological Factors of Migration Readiness of Ukrainian Students. *Revista ESPACIOS*, 40(36), 4.
- Boyko, V. S. (2008). Yoga: The Art of Communication. New Novgorod: Dekom.
- Buecker, S., Simacek, T., Ingwersen, B., Terwiel, S. & Simonsmeier B. A. (2020). Physical activity and subjective well-being in healthy individuals: a meta-analytic review. *Health Psychology Review*, DOI: 10.1080/17437199.2020.1760728
- Cagas, Y. J., Biddle, J. H. S. & Vergeer, I. (2020). When an activity is more than just exercise: a scoping review of facilitators and barriers for yoga participation. *International Review of Sport and Exercise Psychology*, DOI: 10.1080/1750984X.2020.1827448
- Cheban, Yu. V., Chebykin O. Ya., Plokhikh V. V. & Massanov A. V. (2020a). Emotional factor of competitive self-mobilization of professional rowers. *Insight: the psychological dimensions of society*, 3, 28-43. DOI: 10.32999/2663-970X/2020-3-2
- Cheban, Yu., Chebykin, O., Plokhikh, V. & Massanov, A. (2020b). Mental resources for the self-mobilization of rowing athletes. *Journal of Physical Education and Sport*, 20(3), 1580-1589. DOI: 10.7752/jpes.2020.03216
- Cheban, Yu., Chebykin, O., Plokhikh, V. & Massanov, A. (2020c). Emotional and volitional potential of self-mobilization in the organization of time perspective activity of highly qualified rowing athletes. *Journal of Physical Education and Sport*, 20(Supplement issue 6), 3128-3137. DOI: 10.7752/jpes.2020.s6424
- Freud, S. (1989). Psychology of the Unconscious. Moscow: Education.
- Galan, Ya., Soverda, I., Zoriy, Ya., Briskin, Yu. & Pityn, M. (2017). Designing an effective approach to sport for the integration in higher education institutions (the effects of yoga practice). *Journal of Physical Education and Sport*, 17(Supplement issue 1), 509-518. DOI: 10.7752/jpes.2017.s2077
- Iyengar, B. K. S. (2014). Patanjali Yoga Sutras: Clarification. Moscow: Alpina non-fiction.
- Kimiecik, J., Horn, T., Newman, J. T. & Kimieci, M. C. (2020). Moving adolescents for a lifetime of physical activity: shifting to interventions aligned with the third health revolution. *Health Psychology Review*, 14(4), 486-503. DOI: 10.1080/17437199.2019.1700820
- Kuzikova, S., Kuzikov, B., Shcherbak, T., Blynova, O., Vavryniv, O., Khmiliar, O. & Popovych, I. (2020a). Research of predisposition to risk of participants of extreme sports. *Revista Inclusiones*, Vol: 7 num Especial, 43-58.
- Kuzikova, S., Shcherbak, T., Popovych, I., Blynova, O. & Skyba, O. (2020b). Psychological features of subjective vitality and hardiness of representatives of parachute sports. *International Journal of Applied Exercise Physiology*, 9(9), 172-177. DOI: 10.26655/IJAEP.2020.9.21

- Le, M. B., Impett, A. E., Lemay, Jr. P. & Tskhay, K. (2017). Communal Motivation and Well-Being in Interpersonal Relationships: An Integrative Review and Meta-Analysis. *Psychological Bulletin*, 144(1). DOI: 10.1037/bul0000133
- Leontiev, D. A. & Rasskazova, E. I. (2006). Hardiness-test. Moscow: Smysl.
- Leontiev, D. A. (2016). Self-regulation, resources and personal potential. *Siberian Psychological Journal*, 62(1), 18-37.
- Lowen, A. (2000). Spirituality of the Body: Bioenergetics for Grace and Harmony. Moscow: IGHR.
- Mack E. D., Wilson M. P. & Gunnell E. K. (2017). Land of confusion: unpacking the relationship between physical activity and well-being in individuals living with osteoporosis. *International Review of Sport and Exercise Psychology*, 10(1), 212-229. DOI: 10.1080/1750984X.2016.12161216149
- Maddi, S. R. (2005). Meaning in decision-making. *Psychological journal*, 26(6), 87-101.
- Maddi, S.R. (1994). Hardiness and Mental Health. *Journal of Personality Assessment*, 63(2), 265-274.
- Miksza, P., Evans P. & McPherson, E. G. (2019). Wellness Among University-level Music Students: A Study of the Predictors of Subjective Vitality. *Musicae Scientiae*. DOI: 10.1177/1029864919860554
- Nosov, P., Ben, A., Zinchenko, S., Popovych, I., Mateichuk, V. & Nosova, H. (2020a). Formal Approaches to Identify Cadet Fatigue Factors by Means of Marine Navigation Simulators. *16th International Conference on ICT in Research, Education and Industrial Applications (ICTERI-2020)*, Vol. 2732/20200823.
- Nosov, P., Zinchenko, S., Popovych, I., Safonov, M., Palamarchuk, I. & Blakh, V. (2020b). Decision support during the vessel control at the time of negative manifestation of human factor. *CEUR Workshop Proceedings*, 2608, 12-26.
- Popovych, I., Blynova, O., Aleksieieva, M., Nosov, P., Zavatska, N., Smyrnova, O. (2019a). Research of Relationship between the Social Expectations and Professional Training of Lyceum Students studying in the Field of Shipbuilding. *Revista ESPACIOS*, 40(33), 21.
- Popovych, I. S., Blynova, O. Ye., Bokshan, H. I., Nosov, P. S., Kovalchuk, Z. Ya., Piletska, L. S. & Berbentsev, V. I. (2019b). The Research of the Mental States of Expecting a Victory in Men Mini-football Teams. *Journal of Physical Education and Sport*, 19(4), 2343-2351. DOI: 10.7752/jpes.2019.04355
- Popovych, I., Blynova, O., Savchuk O. & Halian, I. (2020a). Self-efficacy of future athletes with different levels of psychological safety. *Journal of Physical Education and Sport*, 20(5), 2718-2724. DOI: 10.7752/jpes.2020.05370
- Popovych, I., Blynova, O., Savchuk, O., Zasenka, V. & Prokhorenko, L. (2020b). Expectations of a winning result in women's handball team: comparison of different age groups. *Journal of Physical Education and Sport*, 20(5), 2709-2717. DOI: 10.7752/jpes.2020.05369
- Popovych, I. S. & Blynova, O. Ye. (2019). Research on the Correlation between Psychological Content Parameters of Social Expectations and the Indexes of Study Progress of Future Physical Education Teachers. *Journal of Physical Education and Sport*, 19(3), 847-853. DOI: 10.7752/jpes.2019.s312
- Popovych, I. S., Zavatskyi, V. Yu., Geyko, Ie. V., Halian, O. I., Zavatskyi, Yu. A. & Radul, I. H. (2019c). Research on the Structure, Variables and Interdependence of the Factors of Tourists' Mental States of Expectation for Leisure in Ukraine. *Revista ESPACIOS*, 40(37), page 22.
- Popovych, I., Zavatskyi, V., Tsiuniak, O., Nosov, P., Zinchenko, S., Mateichuk, V., Zavatskyi, Yu. & Blynova, O. (2020c). Research on the Types of Pre-game Expectations in the Athletes of Sports Games. *Journal of Physical Education and Sport*, 20(1), 43-52. DOI: 10.7752/jpes.2020.01006
- Prokhorov, A. O., Yusupov, M. G. & Plokhikh, V. V. (2015). Cognitive States in the Process of Students' Intellectual Activity. *The New Educational Review*, 41(3), 263-274. DOI: 10.15804/tner.2015.41.3.21
- Prontenko, K. V., Griban, G. P., Bloschynskyi, I. G., Melnychuk, I. M., Popovych, D. V., Nazaruk, V. L., Yastremska, S. O., Dzenzeliuk, D. O. & Novitska, I. V. (2020). Improvement of students' morpho-functional development and health in the process of sport-oriented physical education. *Wiadomosci Lekarskie*, 72(1), 161-168. DOI: 10.36740/WLek202001131
- Ryan, R. M., Deci, E. L. (2009). From Ego Depletion to Vitality: Theory and findings concerning the facilitation of energy available to the Self. *Social Personality Psychology Compass*, 2(2), 702-717. DOI: 10.1111/j.1751-9004.2008.00098.x
- Ryan, R. M. & Frederick, C. (2006). On Energy, Personality, and Health: Subjective Vitality as a Dynamic Reflection of Well-Being. *Journal of Personality*, 65(3). DOI: 10.1111/j.1467-6494.1997.tb00326.x
- Ryan, R. M. & Frederick, C. M. (1997). On energy, personality and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, 65(3), 529-565.
- Shalar, O., Huzar, V., Strikalenko, Y., Yuskiv, S., Homenko, V., & Novokshanova, A. (2019). Psychopedagogical aspects of interaction between personality traits and physical qualities of the young gymnasts of the variety and circus studio. *Journal of Physical Education and Sport*, 19(Supplement issue 6), 2283-2288. DOI: 10.7752/jpes.2019.s6344
- Sivananda, S. (2015). Concentration and Meditation. Moscow: Sofia.

- Sivaramakrishnan, D. (2019). The effects of yoga compared to active and inactive controls on physical function and health related quality of life in older adults-systematic review and meta-analysis of randomised controlled trials. *International Journal of Behavioral Nutrition and Physical Activity*, 33, 91-113.
- Strikalenko, Y., Shalar, O., Huzar, V., Andrieieva, R., Zhosan, I., & Bazylyev, S. (2019). Influence of the maximum force indicators on the efficiency of passing the distance in academic rowing. *Journal of Physical Education and Sport*, 19(3), 1507-1512. DOI: 10.7752/jpes.2019.03218
- Strikalenko, Y., Shalar, O., Huzar, V., Voloshinov, S., Yuskiv, S., Silvestrova, H., & Holenko, N. (2020). The correlation between intelligence and competitive activities of elite female handball players. *Journal of Physical Education and Sport*, 20 (1), 63-70. <http://doi.org/10.7752/jpes.2020.01008>
- Uysal, R., Satici, S. A., Satici, B. & Akin, A. (2016). Subjective vitality as mediator and moderator of the relationship between life satisfaction and subjective happiness. *Educational Sciences: Theory & Practice*, 14(2), 489-497.
- World Medical Association Declaration of Helsinki. (2013). *Ethical principles for medical research involving human subjects*, 310(20), 2191-4. DOI: 10.1001/jama.2013.281053