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Subjective Psychophysiological Satisfaction of Women from Fitness Training on an Individual Program

Olena SHYSHKINA[1],
Ihor BEYHUL[2],
Natalia MOSKALENKO[3],
Olexandr HLADOSHCHUK[4],
Hanna TOLCHIEVA[5],
Volodymyr SAIENKO[6]

[1] PhD in Physical Education and Sports, Associate Professor of the Department of Physical Education, Dniprovsky State Technical University, Ukraine, olefirshishkina@gmail.com, https://orcid.org/0000-0002-6755-138X
[2] PhD in Physical Education and Sports, Associate Professor of the Department of Physical Education, Dniprovsky State Technical University, Ukraine, bejippon@gmail.com, https://orcid.org/0000-0002-3892-6023
[3] Doctor of Science in Physical Education and Sports, Professor of the Department of Theory and Methods of Physical Education, Prydniprovsk State Academy of Physical Culture and Sport, Ukraine, moskalenkonatali2016@gmail.com, https://orcid.org/0000-0001-9162-5206
[4] PhD in Pedagogy, Associate Professor of the Department of Physical Education, Dniprovsky State Technical University, Ukraine, alex.gladoshchuk@gmail.com, https://orcid.org/0000-0001-5081-270X
[5] PhD in Pedagogy, Associate Professor of the Department of General Pedagogy and Educational Research, Academy of Management and Administration, Poland, asergeeva29@gmail.com, https://orcid.org/0000-0001-7023-8194
[6] Doctor of Science in Organization and Management, Professor of the Department of Innovation Management, Academy of Management and Administration, Poland, saienko22@gmail.com, https://orcid.org/0000-0003-2736-0017

Abstract: *The article is devoted to a complex research of interdependence of subjective indices of women's satisfaction during fitness training on differentiated planning of such training taking into account phases of the ovarian-menstrual cycle (OMC) and individual peculiarities of personal psychophysiological profile of participants.*
The study involved 93 women aged 22–27 engaged in fitness at the sports club "Spartak" in Kamianske. Women were divided into two groups: EG – experimental group (n=51) and CG – control group (n=42). The first group was studied taking into account the phases of OMC, the second group – without it. To achieve the objectives we used the following scientific methods: theoretical, empirical, psycho-diagnostic, pedagogical testing, pedagogical experiment, methods of mathematical statistics.It was determined that the manifestation of physical skills is closely related to women's general physical well-being and mental parameters in different phases of OMC. Comparative analysis of the data shows that the indicators of functional and psycho-emotional states of EG women significantly exceed the results of CG. The results of the article proved the importance of subjective markers of satisfaction and their determinant effects on the overall effectiveness of fitness and also proved the possibility to take into account the phases of OMC and the individual characteristics of the psychophysiological profile of women in the planning of fitness programs and changes in marketing policy of fitness centers.

Keywords: *Differentiation of fitness programs; self-monitoring diaries; integrative dependence of neurophysiological and psychological satisfaction factors; "quality of life" index; neuroscientific perspectives of the fitness industry.*

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Introduction

Human health is a priority national value that determines the socio-economic policies of civilized countries (Lavizzo-Mourey, 2017). The health of the nation is an indicator of the maturity, culture, and success of the state.

Preservation and restoration of the health of young women is one of the urgent problems of our time, which is not only of scientific and practical interest but also contributes to solving economic, social, and demographic problems of society (Śliwa et al., 2021).

One of the main factors that can preserve health, slow down aging, improve physical fitness and improve the psycho-emotional state of women is regular physical exercise. The current system of fitness industry is one of the promising and at the same time safe types of health-improving and recreational motor activity aimed at increasing women's adaptive capabilities, physical development and health improvement. Fitness is a very popular type of recreational activity in many countries around the world. In recent decades, fitness classes have become particularly popular among young people (Beqa et al., 2019).

Relevance of the article

Currently, the neuropsychology of sport, neurophysiology of the connection between physical activity and cyclic fluctuations of neurohumoral regulation of the female body potentially open up new opportunities both for the fitness industry (its planning, marketing and segmentation of services) and for taking into account the neurophysiological profile of female clients. This could contribute to the efficiency and satisfaction of all sides of the wellness process. Also, the needs of modern society require improvements in fitness technology due to the increased demand for individual exercise to meet the needs of each woman in different types of motor activity. The analysis of the experience of scientists allows us to assert the effectiveness of differentiation of physical fitness classes according to different criteria (Bezliudnyi et al., 2019; Kosholap et al., 2021; Ovcharuk et al., 2021; Saienko & Gurmazhenko, 2010), but there are almost no studies that simultaneously take into account the individuality of the physical exercise program, parameters of individual satisfaction of women from such classes and projection of these parameters on the phases of the OMC. Coaches, physiotherapists and rehabilitation therapists are mainly guided by general laws, according to which in all periods of ontogenesis the female organism has its own features, which must be taken into account

when carrying out physical education and recreational activities involving significant physical loads. The peculiarities of women's adaptation to intensive muscular activity are caused, first of all, by the most important biological function of their organism - the function of motherhood. This also implies all the signs of sexual dimorphism, both structural and functional, but we should not forget about the ontogenetic profile of each individual.

The authors of this article have studied in detail the domestic (Ukrainian) experience on this issue and noticed: during the last decade Ukrainian scientists in their works proposed numerous methods of the integrated use of primary and strength aerobics, (Shkola et al., 2020) Among such methodological studies there are recommendations for the integrated use of fitball aerobics, step aerobics, stretching and aerobics based on martial arts (Bukova et al., 2016). In the Ukrainian theory of physical culture, the development of a fitness program including step aerobics, dance aerobics, strength training and stretching (Sologubova, 2016). Although such works reveal the content and features of comprehensive training programs, the mechanisms and determinant correlations of factors that would help build the training process with women 22-27 years old (depending on their level of physical fitness, morpho-functional and individual-psychological capabilities during OMC) remain unclear.

International relevance of the article

We have observed that the research literature does not equally present this problem in different countries and geopolitical regions of the world: the neurophysiological determinism of satisfaction and utility from systematic exercise is almost unexplored in developing countries. For example, studies have shown that in African countries most women are not aware of the physical and hygienic risks to their own reproductive systems (Ukochovwera, 2021). On the other hand, women's neglect of expedient exercise may reduce fertility and its support in late childbearing age (Ter Keurst et al., 2016). As the tradition of late childbearing is gaining popularity in Europe, the issues of our article are also becoming relevant in the West, where gender consciousness and politics are becoming extremely liberal.

Considering the above, we argue: the development of a program that is based on the individualization of classes using different means of fitness in accordance with the cyclical biological fluctuations of the functions of the female body, is currently relevant.

Purpose of the article

Thus, the purpose of the article is to test the effect of fitness exercises of different functional orientation on the body and psychophysical state of women, both taking into account their biorhythmic cycle, and without taking into account (control groups).

Literature review

Most of the basic work on the investigation of the illogical and physiological determinants of women's health was done by scientists in the 1980s and 1990s of the twentieth century. At that time, they conducted basic research on the physiology of the menstrual cycle (Owen, 1975), the neurophysiology of the menstrual cycle and the effects on it (Knobil, 1980), the dependence of a woman's sexuality on her lunar cycle (Slob et al., 1996).

But before the 2000s, it was not yet relevant to conduct thorough interdisciplinary (natural sciences and humanities) research, and neuroscience had not yet known the development and effective research techniques that it does now. New advances in neurophysiology have experimentally proved: any mental process is not localized in a certain brain area, but covers a much larger number of neurons and is much more correlated with physiological and somatic processes. In addition, current equipment allows visualization of processes that were invisible in the twentieth century.

In the early 2000s it became clear: there are significant epistemological gaps in the study of neurophysiological and psychological interdependencies in the female body and psyche in norm and pathology (McKenna, 2002). There are numerous studies on the effects of female sex hormones. However, T. Oosthuyse (2010), who reviewed related research on the topic, notes: the dependence of women's endurance and effectiveness of their exercise on the phases of the menstrual cycle in various studies does not show a stable result (Oosthuyse & Bosch, 2010).

Fortunately, in recent years leading science journals have published a number of methodological articles that suggest ways to incorporate the menstrual cycle into sport and exercise. Such articles are either of a review nature (summarizing the research already done in this area (Thompson & Han, 2019) or take into account predominantly one parameter (physiological). We can see that there is a clear need for multi-parameter analysis, especially consideration of subjective (psychological) and objective (wellness, neurophysiological, and other) factors

Now it is already possible to make a review-discussion of actual scientific publications, more or less comprehensively approaching the study of such key questions of our research as *menstrual cycle - psychological satisfaction - physical health indicators - physical exercise*, etc.

The current development of unexpected neuroscientific research has made it possible to find correlations between physiological, psychological, and actually philosophical-value parascientific phenomena that previously did not seem possible. For example, F. Sahoo, K. Sahoo, K. (2019) boldly titled their article "Neuropsychology of Happiness", in which the authors not only empirically presented the neural correlates of human happiness, but also provided recommendations for lifestyle changes to prolong happy moments. Such work marked the beginning of an integrative study of human philosophical and psychological problems with a neuroprocessual nature that had not previously seemed possible.

In recent years neurophysiological advances have reached such a level that the results have become relevant not only for sports of physical culture and valeology, but even for the entertainment industry, marketing, and the psychology of product consumption. Thus, we live in an interesting time when neurophysiology indirectly affects the economy. This can now be proven and observed empirically (Saad & Stenstrom, 2012).

That the anatomy of satisfaction has a biophysiological basis has been known for quite some time, but neurophysiologists suggest using the reverse mechanism: with the help of therapy and pleasure one can influence neurohumoral, physiological and psychological indicators of health improvement. J. Oldz (2020) proved that pleasure and its realization can be the main therapy in the treatment of vegetovascular dystonia, heart neurosis, etc. So far, such positive results have been proven in the laboratory with electrode stimulation of the brain. With the help of pleasure stimulation it is possible to influence mental and physiological processes, which are not consciously controlled by a person.

Of course, the measure of satisfaction - dissatisfaction with exercise should not exceed the limit of tolerance for physical activity. Hartman et al. (2019) conducted studies of cyclists who exercised 10% more than the allowable blood glycogen depletion. This was accomplished through the application of volitional effort. The result of the experiment showed that the transition from pleasure to dissatisfaction during physical exertion is well recorded by the mind and may be a personal neurobiological marker for determining the limit of utility.

Such studies add to the picture of the relevance of affective and automatic responses of the loaded organism for modeling individual loading

programs. For example, Ekkekakis & Brand (2019) reviewed relevant research over the past 20 years and summarized: there is a concept of dose-response that can be diagnosed objectively (neurophysiologically) and subjectively (psychologically). This complementarity makes it possible to take into account inter individual differences and to develop optimal load programs for stimulation, satisfaction. But the main conclusion is that both positive and unpleasant impressions play an equally important role in physical stimulation of the satisfaction mechanism, which not only influence further behavior of the subject, but also carry out useful neurohumoral regulation for the organism.

Methods and materials

The study of women in the control groups was accompanied by their keeping self-control diaries in which they recorded the subjective level of satisfaction with regular frequent time intervals (changes in mood, satisfaction, well-being and their subjective correlation with the type of physical exertion, the OMC phase and other dependent parameters were recorded). This type of control created a subjective background of the study, which was compared with objective indicators that could be measured under laboratory conditions. Women were divided into two groups: EG – experimental group (n=51) and CG – control group (n=42). The EG classes were conducted by the phases of OMC: basic aerobics was used in the post-menstrual and post-ovulatory phases, Pilates – in the ovulatory phase, stretching – in the menstrual phase, Pilates or stretching by choice – in the premenstrual phase, in CG classes were conducted without regard to OMC phases, women attended classes that included basic aerobics, Pilates and stretching by choice. At the beginning of the pedagogical experiment (September) and after its completion (June), women were tested for psychophysical status.

The classes in the subgroups were planned as follows: the classes were held three times a week at different times. This arrangement allowed the women to switch from one subgroup to another when the phase of the individual cycle changed. Since a full OMC lasts from 25 to 35 days, women attended 13 to 14 training sessions per month with three training sessions per week. The most likely combination of different types of fitness was: 6 basic aerobics workouts, 4 Pilates workouts, and 3-4 stretching workouts.

A theoretical analysis of the scientific and methodological literature as well as a number of experimental methods were conducted to determine the research problem. In particular, a survey of women 22-27 years old was

conducted to determine general well-being in different phases of OMC according to Poholenchuk Y. & Svechnikova N. (1987).

The following methods were used to determine the physical condition: heart rate (HR), tonometry (BP), spirometry, functional respiratory tests (Stange, Gencha tests), functional tests to assess physical performance: PWC_{170}, Harvard Step Test (HST); Martine test, that is, a test to restore the heart rate to normal after squatting (20 squats followed by a 30-second rest).

The physical qualities of women in different phases of the OMC were also evaluated using four informative tests that are not contraindicated for women in unfavorable phases of the cycle ("body lifts lying on the stomach", "forward bending from sitting position", "range of motion coordination exercises", "Romberg test").

The training program for each participant of the control group was adjusted on the basis of a general expedient individual modification. When creating the individual program we used previously obtained data on individual psychophysical profile, specifics of menstrual cycle (obtained by anonymous questionnaire survey) and objective physical characteristics (HR, spirometry, blood pressure, etc.). We also took into account the general type of nervous system in connection with the type of physique (stenia - normostenia - hyperstenia). We do not give the differentiated typology of individual programs in the article yet: it will be distributed after fixing the copyrights and more detailed and detailed testing of its effectiveness.

Methods of psychodiagnostics were used to assess the mental state of women: the satisfaction level with the quality of life according to the method of N. Vodopyanova (2009).

The results of the summative and formative assessments were subjected to conventional methods of mathematical statistics. The calculations involved arithmetic mean values (x), mean root square deviation (S), the significance of differences between the control stages in the formative assessment using the Student's t-test. The experimentally obtained data were processed on a PC using a standard software package (MS Excel; Statistica – 6.0).

Results

The results of measuring the physical properties of women in different phases of OMC are shown in Figure 1.

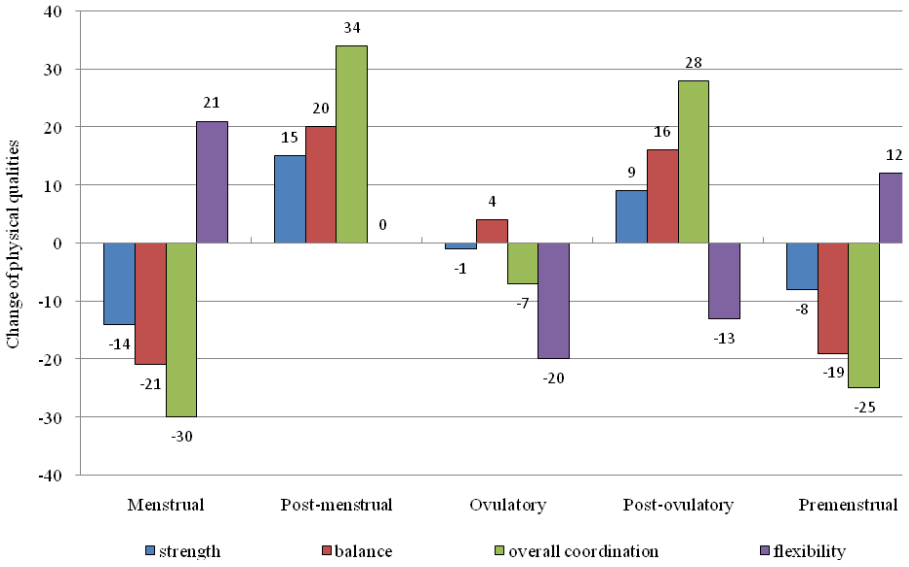

Fig. 1. Indicators of women's physical qualities in different phases of OMC
Source: Author's own conception

The analysis of self-monitoring diaries indicated the presence of significant changes in the mental and physical states of women in different phases of OMC. In the premenstrual phase, most women (up to 73%) noted the following symptoms: most fatigue, irritability, depressed mood, lack of desire to exercise, 70% of women experienced abdominal pain. Swelling of the mammary glands was experienced by 38% of women, oedema in various parts of the body – 10%, there was an increase in body weight in 69% of women.

At the beginning of the menstrual phase, the above negative symptoms continued to appear; 23% of women complained of headaches. Some women improved their general well-being from the second to the third day of the menstrual phase, oedema disappeared, and body weight returned to normal. It should be noted that irritability and depressed mood in some women persisted throughout the menstrual phase, and only from the fifth to the sixth day, the mood returned to normal. During the menstrual phase, 68% of women surveyed attended training and did not change the intensity of physical activity. The women noted that if they did not stop training these days, the feeling of weakness, inertness and fatigue increased.

In most women's post-menstrual phase of the cycle (up to 85%), there was good health, high efficiency, desire to exercise, and weight loss. These symptoms worsened on the 15th, 16th, and 17th days of the cycle, characteristic of the ovulatory phase. In the post-ovulatory phase of the cycle, most women (up to 87%) experienced good health, high efficiency, and a desire to train.

The results of the study of women's mental state in the OMC were based primarily on self-monitoring diaries. The results are shown in Figure 2.

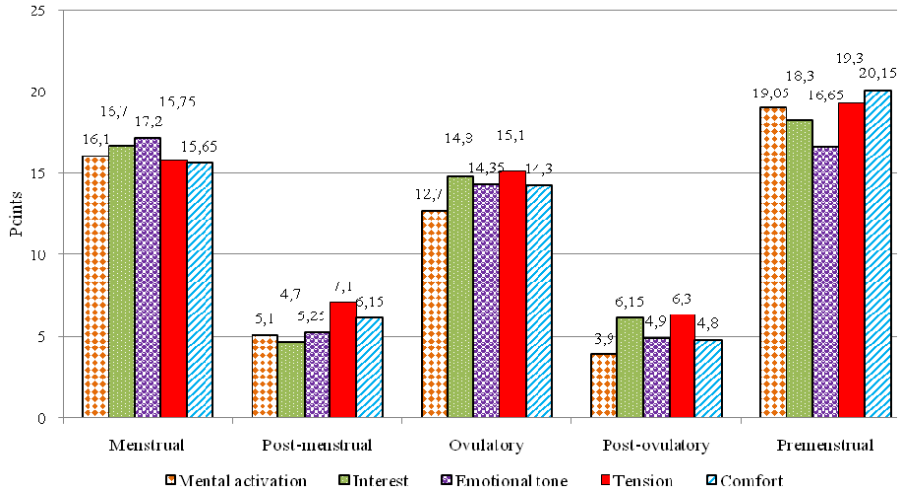

Fig. 2. Mental status indicators of women in different phases of the OMC
Source: Author's own conception

In the post-menstrual and post-ovulatory phases of the cycle, women noted a high degree of manifestation of all positive mental states: "mental activation", "interest", "emotional tone", and "comfort", while a low degree of "tension". In the premenstrual and menstrual phases, women experienced a high and medium-high degree of "tension", a medium-low degree of "comfort", and a low degree of all other positive mental states. Women's ovulatory phase was defined as intermediate, with a medium degree of manifestation of all positive mental states and a medium-low degree of manifestation of stress.

In the course of our experimental studies, we determined that the manifestation of physical qualities depends on the overall psychophysical state of a woman. Figure 2 shows the dynamics of growth and decline of the studied indicators compared to their average results during the OMC. Thus,

in the menstrual phase, there was the greatest decrease in the following indicators: strength – by 14% with $p<0.01$, balance – by 21% with $p<0.01$, general coordination – by 30% with $p<0.001$, but the highest level of flexibility was observed, which improved by 21% compared to the average result in the OMC with $p<0.01$. In the premenstrual phase, a similar manifestation of physical qualities was observed, but with less pronounced dynamics: strength decreased by 8% with $p<0.05$, balance – by 19% with $p<0.01$, general coordination – by 25% with $p<0.01$, the flexibility index improved by 12% with $p<0.05$. In the post-menstrual phase of the cycle, there was a maximum improvement: strength by 15% with $p<0.01$, balance by 20% with $p<0.01$, overall coordination by 34% with $p<0.001$, the level of flexibility coincided with the average value in the OMC. A similar manifestation of physical qualities was observed in the post-ovulatory phase of the cycle, but with less pronounced positive dynamics, namely, in terms of strength by 9% with $p<0.05$, balance – by 16% with $p<0.01$, overall coordination – by 28% with $p<0.001$, and with the deterioration of flexibility – by 13% with $p<0.05$. In the ovulatory phase of the cycle, the level of flexibility decreased by 20% with $p<0.01$, there was a slight decrease in strength – 1% with $p>0.05$. and overall coordination – 7% with $p<0.05$, maintained a fairly high level of equilibrium function – 4% with $p>0.05$.

The results show that women aged 22–27 years had differences in psychophysical indicators during the OMC, which allowed us to recommend different means of fitness depending on the phases of OMC.

We checked the effectiveness of the individual programs by diagnosing the functional state of the women in both groups before and after the experiment (the results are shown in Table 1). (Functional indicators of participants in the control and experimental groups at the beginning and after completion of the study).

Tab.1. Functional indicators of participants in the control and experimental groups at the beginning and after completion of the study
(x ± m, CG n = 42, EG n = 51)

Research indicators	Group CG = 42 EG = 51	Before experiment x ± m	After experiment x ± m	P
Heart rate at rest, beats min^{-1}	CG	82,34 ± 6,12	77,14 ± 4,85	>0,05
	EG	78,14 ± 4,24	68,53 ± 3,24	<0,05
	P	>0,05	<0,05	–

BP sist, mm Hg st	CG	116,11 ± 8,07	115,19 ± 7,56	>0,05
	EG	118,05 ± 7,10	114,24 ± 6,31	>0,05
	P	>0,05	>0,05	–
BP diast, mm Hg st	CG	73,91 ± 6,53	72,05 ± 5,57	>0,05
	EG	74,42 ± 6,51	71,07 ± 5,77	>0,05
	P	>0,05	>0,05	–
Living capacity of the lungs (LCL), ml	CG	2790,44 ± 365,50	2951,77 ± 269,84	<0,05
	EG	2945,12 ± 376,08	3180,04 ± 272,32	<0,01
	P	>0,05	<0,01	–
Shtange Test, s	CG	44,34 ± 7,06	48,00 ± 6,92	<0,05
	EG	42,59 ± 8,06	50,73 ± 5,85	<0,01
	P	>0,05	<0,01	–
Gench Test, s	CG	24,22 ± 4,32	27,18 ± 3,90	>0,05
	EG	23,23 ± 3,77	28,48 ± 3,25	<0,01
	P	>0,05	<0,01	–
PWC_{170}, kgm·min $^{-1}$	CG	541,04 ± 49,79	638,35 ± 43,91	>0,05
	EG	526,16 ± 36,65	662,75 ± 34,09	<0,01
	P	>0,05	<0,01	–
Maximum oxygen consumption (MOC), ml/min/kg	CG	34,38 ± 2,17	37,93 ± 2,89	>0,05
	EG	34,64 ± 2,85	40,39 ± 1,28	<0,01
	P	>0,05	<0,01	–
Harvard step test index (HSTI), conv. un.	CG	67,20 ± 4,50	78,10 ± 4,22	>0,05
	EG	69,45 ± 4,69	88,21 ± 3,03	<0,01
	P	>0,05	<0,01	–
Heart rate recovery time after 20 squats in 30s, s	CG	131,14 ± 10,92	114,32 ± 8,49	<0,05
	EG	129,85 ± 9,81	88,54 ± 7,67	<0,05
	P	>0,05	<0,05	–

Source: Author's own conception

We observed the positive dynamics of functional women's indicators in EG and CG. In EG, there were statistically significant changes in the following indicators: heart rate at rest, beats•min^{-1}; LCL; Shtange tests;

Gench test; PWC_{170}, kgm•min^{-1}; MOC, ml/min/kg; HSTI, conv. un; heart rate recovery time after 20 squats for 30s, s ($p<0,05$). In the CG, statistically significant changes occurred only in the following indicators: LCL; Shtange tests; heart rate recovery time after 20 squats for 30s, s ($p<0,05$).

This means that the psycho-emotional state has a direct impact on the effectiveness of motor activity. The results of the study of the dynamics of the level of psychological satisfaction are presented in Figure 3.

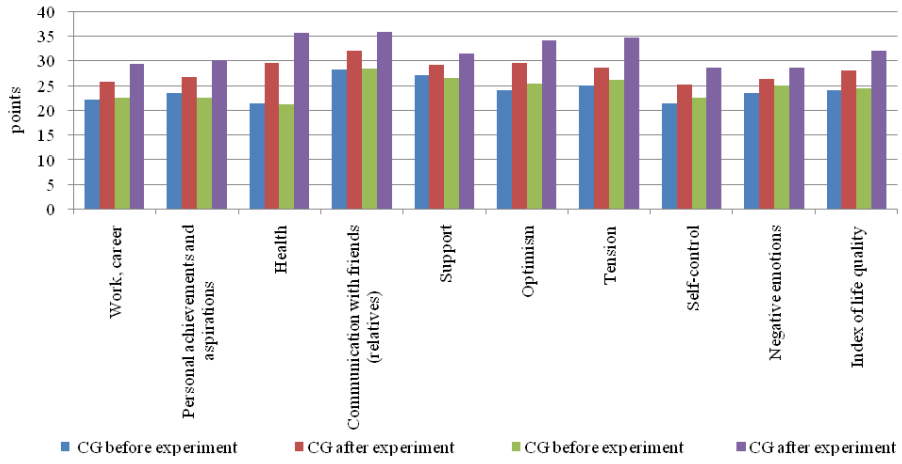

Fig. 3. Indicators of life satisfaction for female control and experimental groups at the experimental and post-experimental stages
Source: Author's own conception

According to Figure 3, there were positive changes in both groups. However, it should be noted that there were statistically insignificant changes in the control group ($p>0.05$), except for the scales "Health" and "Optimism" ($p<0.05$). In the experimental group, all indicators changed significantly ($p<0.05–0.01$), except for the "Negative emotions" ($p>0.05$). According to the summary scale "Index of life quality," the result improved by 7.5 points ($p<0.05$) in EG, in CG by 4.06 points ($p>0.05$) in CG.

Discussion

Regardless of whether women participated in the CG or EG, during the premenstrual period, 73% of women reported unpleasant psychological symptoms, abdominal pain, and increased body weight in their diaries (69%).

This decreased the desire to exercise and prompted women to eat more food. We attribute this to the activation of unconscious compensatory mechanisms and conscious avoidance of bodily exertion. The demonstration of corporeality as such in the premenstrual and post-ovulatory period can be explained by unconscious mechanisms - the lack of need for physical attraction of potential partners. These findings correlate with the proven mechanisms of psychological demonstrative subconscious activation during the fertile phase and the operation of reactive mechanisms to different types of stimulation. We drew an appropriate parallel with the type that scientists have proven: stimulation of the female brain in the most active (follicular) stage of the OMC is well stimulated by all types of stimuli. The most obvious, and therefore the most studied, are visual and sexual stimuli (Makarchouk et al., 2011).

It is not the negative/positive nature of such stimuli that matters, but its intensity, which is not observed with tactile, kinetic, and other bodily stimulation. We believe that such stimulation is, firstly, asemantic and is not directly associated with figurative interpretation, and secondly, we assume that bodily sensitivity produces triggers that create a polysensory image. We can agree with this if we recall that undifferentiated bodily sensitivity is primary in humans, whereas visual conscious imagery is the result of sensory-analytic work of the brain. We also assume that bodily stimulation, which includes fitness activities, would be more acceptable to women than visual or sexual stimulation. The latter is a more intimate and spontaneous process, while unconscious stimulation by dance, physical training, fitness, is socially more acceptable and systematic.

It is clear to everyone that the psychological phenomenon of satisfaction is based on the satisfaction of basic and peripheral human needs, which are generally the same in men and women, but have gender (psychological) and sex (physiological) differences. The taxonomy of satisfaction is also dual: some needs are natural (basic needs theory, (BNT) (Ryan & Deci, 2000), and some are cultured, social (self-determination, fulfillment, communication, etc.). Satisfaction of the second type of needs is made difficult or impossible by the absence of the first and requiring special solutions and accompaniment (Thomas et al., 1989). The study showed that the neuropsychology of applying an individually acceptable fitness program synergistically combined natural physiological needs and their cultured, axiologically interiorized corelates which engaged in an individualized program that was monitored by them in a self-monitoring diary and accounted for their individual neurophysiological profile.

The results of our article can also be useful from the position of marketing economic feasibility, which can be implemented by trainers and administrators of fitness centers, in particular in planning classes for their female clients. A certain extrapolation of our results absolutely correlates with the statements of G. Saad and E. Stenstrom (2012) who proved the neurophysiological determinism of behavioral changes in women: *Food-related desires and expenditures for intense eating behavior were greater during the luteal (nonfertile) phase, whereas attention to appearance and expenditure on beauty-dependent behaviors increased during the fertile phase* (Saad & Stenstrom, 2012, p. 112). This can be explained by compensatory neurophysiological mechanisms of satisfaction in the first case and complementary ones in the second. We are convinced that it is possible to take into account the onset of the fertile phase to activate bodily and aesthetic practices, which will further induce pleasure in such activities and the corresponding re-conditioning of the positive stimulus, which is in fact natural and unconditional.

Also in the context of our study, we confirmed the practical importance of differentiating and taking into account the specific phase of OMC and subjective reactions of satisfaction - dissatisfaction when planning types of exercise. Further development and investigation of the subject matter of our article may prove useful for the final solution of the questions: a) planning of sports achievements; b) stimulating use of neurophysiological and psychological mechanisms of satisfaction for sports motivation; c) marketing and recreational use of stimuli of pleasure, benefit and external improvement. However, we can already answer unequivocally: cyclically dependent individual subjective satisfaction can be a mechanism of both conscious and unconscious stimulation of mass participation of women to engage in sports; increasing internal sport motives, as well as the general pleasure of movement, communication and recreation. To some extent, we have confirmed the scientists' view that neurophysiological factors are more congruent for the subjective well-being of female athletes, whereas setting external athletic goals for medals, success, and status has less impact on subjective satisfaction (Jetzke & Mutz, 2020).

There are arguments for the use of individualized programs for autonomous exercise. Based on basic needs theory, scientists have proven that personal motivation in women of fertile age is directly correlated with greater satisfaction (enjoyment) and need satisfaction (subjective vitality during exercise) (Adie et al., 2008).

Conclusion

The main conclusion of the study is that a comparative analysis of the data of the experimental and control groups showed: the construction of fitness programs based on individual approaches more effectively influenced the indicators of functional fitness and psycho-emotional state of the women of the experimental group. This was confirmed by objective neurophysiological and subjective psychological arguments.

The main results of the conducted debt are presented by the following positions:

1. Even a general differentiation of the fitness program for specific phases of OMC contributes to the growth of positive subjectively marked neuropsychological indicators of satisfaction and its probable conditionally-reflexive fixation. This can be the basis for changing the principles of fitness for women (modification of general and development of individual programs).

2. The general (composite) index of quality of life, which increased in the participants of the experimental group by 3.5 points, testified to the validity and prospects of differentiation of the fitness program, depending on the phases of OMC and taking into account the individual characteristics for each participant. In combination with the indices marking dissatisfaction with the process or its components, this indicates an integrated neurophysiological determinacy of both objective physical indicators and subjective indicators of satisfaction with the sports process.

The conducted study allows us to make a general conclusion-recommendation:

- significant physical activity develops a woman comprehensively, but she can do it only after menstruation and ovulation, when the hormonal and physical forces of the body are mobilized. At other times (especially during menstruation) we suggest to reduce the load and to focus on stretching and flexibility trainings. If during ovulation there is a moderate decrease in a woman's physical and adaptive potency, she should give preference to Pilates exercises, which are gentler on the musculoskeletal system and a considerable expenditure of physical energy.

Research limitation

The authors of this article acknowledge that the results of the experimental study and its theoretical generalizations are outline and propaedeutic for the development of a more detailed and diversified theory

that can describe the full picture of women's subjective satisfaction with sports.

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