

THE STATE OF MIND OF LESS PHYSICALLY ACTIVE AND REGULARLY PHYSICALLY ACTIVE WOMEN IN THE SECOND TRIMESTER OF THEIR PREGNANCIES

**Anja Podlesnik Fetih¹, Mateja Videmšek², Vislava Globevnik Velikonja³,
Eda Bokal Vrtačnik³, Damir Karpljuk²**

¹*Independent researcher, Ljubljana, Slovenia*

²*Faculty of Sport, University of Ljubljana, Ljubljana, Slovenia*

³*University of Medical Centre, Ljubljana, Slovenia*

Submitted in September, 2008

The moment a woman finds out that she is pregnant, her life changes in many aspects as she starts to adjust to the baby growing in her body. Her wish is to feel well, to safely reach the due date and give birth to a healthy child. We conducted a survey among 163 pregnant women at the end of the second trimester of their pregnancies and this article presents the relationship between their sport activity and their state of mind during pregnancy. Two groups of pregnant women, namely those who were regularly physically active (RPA) and those with a low level of being physically active (LPA) were compared and the relationship between their level of sport activity and their state of mind was established. The first part of the inventory focused on sport activity, namely – the frequency, forms and types of their sport activities. The RPA group consisted of 69 pregnant women who regularly engage in organised sport activities at sport centres or are physically active 3 to 4 times a week in an unorganised way. Activities which lasted for 30 minutes or more were considered. The LPA group consisted of 94 pregnant women who were physically active only occasionally or were physically inactive. The second part of the inventory investigating pregnant women's state of mind included 45 items which probed into their state of mind; for each item the study subjects defined their psychological state of mind on a five degree scale (never, rarely, sometimes, often, nearly always). Of all items, 20 had a prevalence of a positive state of mind and 25 a prevalence of a negative state of mind. In both groups, the state of mind of the women was analysed and relationships were established between regular sport activity and a low level of sport activity and the state of mind of the women in the second trimester, which is the time when pregnant women are most frequently and most easily physically active. By using a factor analysis we proved that, in the RPA, the first factor to be eliminated is the one associated with positive emotions, explaining 23.51 percent of the variance of the total 34.91 percent of the explained variance. Hence, the RPA pregnant women defined their state of mind as being mostly positive, with the following emotions: relaxed, satisfied, agreeable, not pessimistic, attractive, proud and happy. In the LPA group, the first eliminated factor was the one associated with negative emotions, explaining 19.45 percent of the variance of the total 34.68 percent of the explained variance. This group of pregnant women defined their state of mind mostly as negative, with the following recurring emotions: melancholic, tense, irritable, depressed and nervous. The findings show that regular sport activity benefits the psychological state of mind and the mental health of pregnant women.

Keywords: Emotions, organised, unorganised physical activity, inventory investigating the state of mind.

INTRODUCTION

An active lifestyle during pregnancy with a sufficient amount of physical activity and a healthy diet benefits a pregnant woman's body and her child's health and also facilitates childbirth and helps her regain her fitness. Continuous exercising during pregnancy improves the progress of labour contractions and the delivery of the child (Clapp, 1991; Clapp, Sleamaker, & Wesley, 1987; Grisso, Main, & Chiu, 1992; Kramer, 2002). The positive impact of moderate sport activity on foetal growth has been proven (Campbell & Mottola, 2001; Hatch, Shu, & McLean, 1993; Spinillo, Baltaro, & Capuzzo,

1996). Exercising helps pregnant women overcome some of the problems associated with pregnancy such as constipation, fatigue, morning sickness, frequent urination, sleepiness and lower abdominal pain. According to many studies and related recommendations (Brown, 2002; Bung, 1999; Lochmuller & Friese, 2004), sport activity is beneficial for relaxation and one's psychological state of mind, it improves the cardiovascular system, helps maintain one's body weight and prevents back and joint pain. Exercising of the pelvic floor muscles during pregnancy helps to strengthen and reinforce the muscles, while it also shortens the second stage of labour because a woman thus prepared is, during labour, aware

of the functioning of her muscles and can relax them in due time. She can actively participate in the labour and thereby make it shorter and easier (Gamberger, Videmšek, & Karpljuk, 2005). The effects of regular sport activity include an improvement in overall physical and psychological fitness, thus preserving one's capacity to work and building a sense of security and enabling those concerned to take pleasure in movement. This supports a positive attitude towards one's pregnancy, has a positive influence on one's psychological state of mind, cheerfulness and good mood and also helps prevent depression and maintain one's mental balance (Klun, 1992).

Previous studies (Pivarnik, Ayres, & Mauer, 1993; Wolfe, Preston, & Burggraf, 1999) have shown that, from the early second trimester, moderate to medium intensive aerobic exercise is beneficial, with the heart rate not exceeding 140 beats per minute; it should be performed three to four times a week and last 25–60 minutes. This volume of exercise causes aerobic power to be reduced by a minimum amount, whereas body weight increases more slowly owing to the prompt consumption of fats (Clapp & Capeless, 1991; Clapp & Little, 1995). The recommended aerobic activities include walking, running, aerobics, cycling on a exercise bicycle, hiking and swimming (Davis, Mottola, MacKinnon, & Wolfe, 2003). In addition to aerobic exercise in the open air, pregnant women may also relax by practicing a kind of exercising called "pilates". Pilates is a form of exercise which improves the psychological state of mind of pregnant women and helps increase their self confidence while continuously adapting to their changing body (King & Green, 2002; Selby, 2002).

In the second trimester of pregnancy, from week 14 to week 27, most pregnant women feel well, they are full of life and energy, and their appearance shows it. In this trimester most pregnant women do not suffer from morning sickness or general fatigue like at the beginning. Generally, they are physically stronger and can move energetically despite the pregnancy. This is perhaps the most enjoyable time of pregnancy; women are physically aware of their pregnancy and the child is not big enough to hinder them or change their way of moving or their posture (Charlish, 1997).

Pregnancy, along with motherhood, involves a fusion of instinctive desires and needs of the highest degree of the ego's potential. It is a source of the kind of satisfaction which can be derived from having a child, raising it and being its parent; however, it also presents us with many drawbacks. The integration process unavoidably awakens the woman's past, brings back old conflicts and triggers the question of her identity. Pregnancy is, on the one hand, a progressive and, on the other, a regressive process. The maturity of the woman and her steadiness determine the strength and intensity with which the pro-

gressive process prevails over the regressive. Therefore, during the period of pregnancy and labour, new formations emerge in the somatic, psychological and social domains, requiring a comprehensive bio-psycho-social approach (Rojšek, 1990).

The psychological aspect of the considerations of pregnancy is based on the premises that this is a unique period in life when two persons are joined together in one body. Therefore, it is important how a pregnant woman deals with this dilemma of "joining" (Raphael-Leff, 1991). The author puts particular emphasis on conditions related to conception, the experience of two people in one body, a change in physical appearance, doubts about maternal abilities, the capacity of the foetus to mature, and some experiences of emotional instability. Kapor-Stanulović (1985) stated that pregnancy is a critical phase leading to a new level of the integration and development of a personality. Pregnancy in itself constitutes a source of psychological stress (Velikonja, 1998). In difficult circumstances and with emotionally vulnerable women these pressures become even stronger. During pregnancy and at childbirth, women often experience mixed and labile emotional reactions and conditions and not just sheer satisfaction, as is often believed. About 50 percent of pregnant women in any normal population suffer from insomnia, anxiety, anxiousness and depression (Velikonja, 1998). Each woman experiences pregnancy in a unique way and her attitude towards it is strongly influenced by the environment she lives in. The pregnant woman's state of mind is strongly affected by her social environment and having a solid relationship and communication with her partner. Problems are less thorny if they can be discussed with someone (Horvat-Kuhar, 1995). The organic phenomenon of pregnancy is imbued with psychological material and each physiological phase of the pregnancy is characterised by specific psychological aspects.

In the second trimester, a pregnant woman eventually succeeds in striking the right balance by creating a distance between herself and her unborn child and between her mother and herself as a child (Raphael-Leff, 1991). At the end of this period, most pregnant women are happy, some of them have never before taken so much delight in everything they do, and most of them enjoy moving around. Women find themselves attractive because of their beautiful appearance and their positive state of mind that shows on their faces. Of course, this is only true if a pregnant woman is healthy and the expectation of the baby is a source of joy.

Given that this is an interesting and topical subject, our study aimed at analysing the state of mind of physically active and inactive pregnant women and to find out whether there is a relationship between regular sport activity and their state of mind in the second trimester of pregnancy during which women are most frequently and

easily active. We wanted to establish differences in the structure of factors and/or in their contents which are in the background and explain the factors in both groups. These contents are explained by emotions which define the pregnant woman's psychological state of mind. We aimed to relate the eliminated factors to sport activity and establish in what way the contents of these factors differ. The purpose of the article was to prove that, in the RPA group, the first eliminated factor is the one associated with positive emotions, which indicates a positive psychological state of mind of the pregnant women in this group, whereas in the LPA group, the first eliminated factor is the one associated with negative emotions, which indicates that negative states of mind occur more frequently. We thus wanted to confirm our hypothesis that regular sport activity benefits pregnant women's psychological state of mind and mental health.

METHODS

Participants

The sample included 163 pregnant women at the end of their second trimester. The subjects were divided into regularly physically active and less physically active groups. The regular physically active group consisted of 69 pregnant women who regularly engaged in organised sport activities at sport centres or were physically active 3 to 4 times a week in an unorganised way, with individual activity lasting 30 minutes or more. The lowly physically active group consisted of 94 pregnant women who were physically active only occasionally or physically inactive. The average age of the sample was 29.6 years. The active and inactive groups did not differ substantially in terms of age, place of residence and marital status. A minor difference between the two groups was established in terms of education; the physically active had a higher level of education; however, the difference was not statistically significant. Data were gathered from November 2005 to November 2006.

Instruments

The items of the inventory focused on sport activity, namely the frequency, forms and types of sport activities. The inventory investigating sport activity was compiled on the basis of the "Health related behavioural style" inventory (Zaletel-Kragelj, Fras, & Maučec-Zakotnik, 2004) and, within its framework, the measurement characteristics were verified; it is available from the authors. The inventory also included 45 items concerning the notion of state of mind; the subjects assessed each individual emotion on a scale from 1 to 5 and thus expressed their positively or negatively inclined psychological state of mind. All emotions were graded from 1 - "never" to 5 - "nearly always" and the subjects chose

between them according to how they experienced themselves over the last few days. For example, the emotion "disappointed" was assessed as 1 - never disappointed, 2 - rarely disappointed, 3 - sometimes disappointed, 4 - often disappointed and 5 - nearly always disappointed. Of all items, 20 had a prevalence of a positive state of mind and 25 a prevalence of a negative state of mind. Based on the sum total of grades of the occurrence of positive and negative emotions, the average values of expressed negative and positive emotions were calculated. The inventory concerning their psychological state of mind was compiled by the clinical psychologist Vislava Globevnik Velikonja and its measurement characteristics were verified.

Procedure

The data were processed with the SPSS statistical software package. Besides the basic statistics of variables, the dimension of the matrix of variables was reduced using an analysis of the main components, i.e. factor analysis. The varimax rotation procedure was applied. All hypotheses were verified at a 5 percent statistical risk level ($p = 0.05$). The entire study was approved by the Slovenian Medical Ethics Committee and the Professional and Business Committee of the Department of Obstetrics and Gynaecology of the University Medical Centre in Ljubljana.

RESULTS

The analysis of the parameters of sport activity showed that the majority of the inventoried subjects in the second trimester of pregnancy engaged in unorganised types of sport activity, i.e. 93.9 percent. The types of activities which pregnant women chose the most often included walking or walking in nature with 87.9 percent, followed by swimming with 17.2 percent, running with 14.1 percent, active walking with 12.1 percent and morning gymnastics with 5.5 percent. Women engaging in organised activities accounted for 14.1 percent and they regularly practiced pilates, aerobics for pregnant women and pregnancy exercises in the framework of prenatal classes. Based on an analysis of the frequency of sport activity, the subjects were divided into two groups: RPA - regularly physically active (active 3-4 times a week for 30 minutes or more) encompassing 69 pregnant women (42.3 percent) and LPA - less physically active, encompassing 94 pregnant women (57.7 percent).

The analysis of the assessment of emotions, graded on a scale from 1 to 5 based on how the subjects experienced themselves over the last few days, is presented in TABLE 1 where the average values for both groups

are shown: for all emotions; for the 20 items of positive emotions and for the 25 items of negative emotions.

TABLE 1
Descriptive statistics

		N	Mean	Std. deviation	Std. error mean
All emotions	Inactive	94	3.74	0.46	0.05
	Active	69	3.89	0.42	0.05
Positive emotions	Inactive	94	3.76	0.51	0.05
	Active	69	3.96	0.49	0.06
Negative emotions	Inactive	94	3.71	0.51	0.05
	Active	69	3.82	0.46	0.06

Active pregnant women recorded higher average values for positive emotions, namely 3.96, compared to the inactive ones for whom the respective figure was 3.76. Higher averages were also reported for negative emotions of the active subjects, namely 3.82, compared to the inactive ones for whom the respective figure was 3.71. The difference between the average values is greater in the area of positive emotions. In spite of the differences in the average values of emotions, the difference between the RPA and the LPA groups in terms of the expressed positive or negative emotions was not statistically significant.

The state of mind of pregnant women regularly engaging in sport

TABLE 2 shows that 12 factors have a lambda higher than 1. For the purpose of explaining the areas of sport activity and state of mind, the two strongest factors were extracted explaining 34.91 percent of the total variance. The first one accounted for 23.51 percent and the second for 11.40 percent. Other factors explain a considerably

TABLE 3
Rotated factor matrix(a)

	Factor 1	Factor 2
Relaxed	0.78	
Satisfied	0.76	-0.30
Agreeable	0.73	
Pessimistic	-0.72	0.31
Attractive	0.71	
Proud	0.70	
Happy	0.69	-0.28
Accepted	0.68	
Joyful	0.68	-0.29
Loved	0.67	-0.30
Tense	-0.66	
Lively	0.65	-0.25
Curious	0.63	
Poised	0.63	-0.23
Neat	0.60	0.22
Feminine	0.57	
Understood	0.55	
Depressed	-0.54	0.34
Guilt ridden	-0.49	0.25
Kind	0.49	
Melancholic	-0.49	0.45
Worried	-0.45	
Nervous	-0.45	0.42
Indecisive	-0.42	0.31
Active	0.40	
Energetic	0.38	-0.33
Disappointed	-0.37	0.26
Maternal	0.33	
Sleepless	-0.28	
Unworthy	-0.27	0.25
Clumsy	-0.25	0.24
Effete	-0.23	
Over burdened		
Sensitive		0.76
Hot tempered		0.75
Vulnerable		0.70
Irritable	-0.23	0.69
Absent-minded		0.54
Whining		0.52
Apathetic	-0.33	0.49
Sick and tired	-0.36	0.43
Impatient	-0.30	0.38
Self critical		0.30
Weary		0.24
Lacking appetite		

TABLE 2
Total variance explained

Factor	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	13.23	29.41	29.41	12.68	28.17	28.17	10.58	23.51	23.51
2	3.60	8.01	37.41	3.03	6.74	34.91	5.13	11.40	34.91
3	2.92	6.49	43.91						
4	2.39	5.30	49.21						
5	1.81	4.03	53.24						
6	1.78	3.96	57.20						
7	1.58	3.52	60.72						
8	1.41	3.13	63.85						
9	1.39	3.08	66.92						
10	1.28	2.85	69.78						
11	1.14	2.54	72.31						
12	1.02	2.28	74.59						

smaller share of the variance and a proper explanation of their contents would require a consideration of other areas of personality structures.

TABLE 3 shows the structure of the two extracted factors explaining the psychological state of mind of the active pregnant women.

For the active study subjects, the first extracted factor was the one associated with positive emotions. This group of pregnant women defined their state of mind with the following items – relaxed, satisfied, agreeable, not pessimistic, attractive, proud, happy, accepted, joyful, loved, not tense, lively, curious and poised. The state of mind of pregnant women is defined as positive by the first, stronger factors. The first most important factor explaining 23.51 percent of the variance is defined by positive emotions in terms of contents. This shows that sport activity in the second trimester has a beneficial effect on a pregnant woman's state of mind. The other factor was associated with the following emotions – hot-tempered, vulnerable, sensitive, absent minded and whining. Occasional periods of mixed emotions are expected and perfectly normal, even for healthy active women.

The state of mind of pregnant women not engaging in sport

Eleven factors have a lambda higher than 1 (TABLE 4); however, for the same reason as above, two factors were extracted, explaining 34.68 percent of the total variance. The first one accounted for 19.45 percent and the second for 15.24 percent of the total variance.

TABLE 5 shows the structure of the two extracted factors explaining the psychological state of mind of the inactive pregnant women.

For those pregnant women who do not engage in any sport, the first, stronger factor that was extracted and which explains 19.45 percent of the variance was associated with negative emotions. This group of subjects defined their state of mind with the following items – melancholic, tense, irritable, depressed, nerv-

TABLE 5
Rotated factor matrix(a)

	Factor 1	Factor 2
Melancholic	0.74	-0.27
Tense	0.73	
Irritable	0.71	
Depressed	0.70	-0.34
Nervous	0.69	
Pessimistic	0.66	-0.32
Sensitive	0.64	
Poised	-0.63	
Sick and tired	0.61	-0.26
Worried	0.57	
Vulnerable	0.56	
Hot tempered	0.56	
Apathetic	0.54	-0.27
Impatient	0.54	
Satisfied	-0.51	0.50
Whining	0.49	-0.32
Guilt ridden	0.45	-0.30
Indecisive	0.44	
Sleepless	0.44	
Absent minded	0.43	
Unworthy	0.41	
Disappointed	0.41	
Weary	0.40	
Clumsy	0.35	
Effete	0.35	
Self critical	0.30	0.28
Lacking appetite	0.28	
Over burdened	0.25	
Joyful	-0.32	0.71
Agreeable		0.71
Proud		0.71
Kind	-0.26	0.65
Happy	-0.28	0.62
Lively	-0.25	0.62
Attractive		0.58
Relaxed	-0.39	0.58
Neat		0.57
Feminine		0.57
Understood		0.50
Energetic	-0.29	0.49
Loved	-0.25	0.49
Curious		0.48
Maternal		0.47
Accepted	-0.26	0.46
Active		0.44

TABLE 4
Total variance explained

Factor	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	12.50	27.79	27.79	11.92	26.49	26.49	8.75	19.45	19.45
2	4.31	9.57	37.36	3.69	8.19	34.68	6.86	15.24	34.68
3	2.39	5.31	42.67						
4	2.20	4.89	47.56						
5	1.79	3.97	51.54						
6	1.69	3.76	55.30						
7	1.54	3.43	58.73						
8	1.37	3.05	61.78						
9	1.31	2.92	64.70						
10	1.21	2.69	67.39						
11	1.10	2.45	69.84						

ous, pessimistic, sensitive, restless, sick and tired, worried and vulnerable. During pregnancy mixed emotional reactions are frequent and those pregnant women who were unable to dedicate some time to themselves, to sport and relaxation, expressed negative emotions and were bad humoured more frequently. The results show that sport activity during pregnancy is an important element of relaxation. The other, weaker factor, explaining 15.24 percent of the variance, was associated with the following positive emotions – joyful, agreeable, proud, kind, happy, lively, attractive and relaxed. The state of mind of the inactive pregnant women is thus defined as negative and inclined to melancholy, according to the first, stronger factor. These women experience periods of positive emotions less often than the active pregnant women.

DISCUSSION

Of all the subjects in the study sample, 42.3 percent were regularly active and 57.7 percent were inactive in terms of sport activity. In the active group, the contents of the first factor are associated with positive emotions. The study subjects explained their state of mind with the following emotions – relaxed, satisfied, agreeable, not pessimistic, attractive, proud and happy. The findings confirm that regular sport activity benefits the psychological state of mind of pregnant women. The results corroborate the findings of many earlier studies (Brown, 2002; Bung, 1999; Klun, 1992; Lochmuller & Friese, 2004) which demonstrate that sport activity relaxes pregnant women, benefits their psychological state of mind, boosts their positive attitude to pregnancy and mental stability as well as guards them against depression.

The contents of the second factor of physically active pregnant women are associated with mixed emotions which are completely normal in healthy pregnant women. During pregnancy and at childbirth, women often experience mixed and labile emotional reactions and conditions and not just sheer satisfaction as is often believed. Healthy, active pregnant women experience the following emotions from time to time – sensitive, hot-tempered, vulnerable, absent minded and whining. However, as was expected, the active women are more positively oriented.

With the inactive pregnant women, the contents of the stronger factor are associated with the following emotions – melancholic, tense, irritable, depressed, nervous, pessimistic, sensitive and restless. The findings show that about 50 percent of pregnant women in a normal population suffer from insomnia, anxiety, anxiousness and depression (Velikonja, 1998). Our findings show that inactive pregnant women are more inclined to

a negative mood and more often experience the associated negative emotions. On the other hand, it is common knowledge that at the end of the second trimester most pregnant women are happy and satisfied. Women find themselves attractive because of their beautiful appearance and are glad about the visibility of what is causing their feelings and influencing their state of mind (Raphael-Leff, 1991). It is therefore understandable that, even according to the second, weaker factor, the inactive pregnant women also define their psychological state of mind positively.

In addition to the above, regular sport activity during pregnancy causes aerobic power to be reduced by a minimum amount and body weight increases more slowly owing to the prompt consumption of fats (Carpenter, Sady, & Sady, 1990; Clapp, 1991; Clapp & Little, 1995). In view of the fact that research (Abraham, Taylor, & Conti, 2001) reports that weight gain and a changed physical appearance correlate with postnatal depression, sport activity can play a major preventive role here. It enables the slower and more controlled gaining of weight and thus the maintaining of a positive self image and frame of mind. After childbirth, women who were active during their pregnancy more quickly regain the fitness and body weight they had before their pregnancy.

Pregnancy is a period of great changes and having to adapt to the new conditions can arouse different feelings in a pregnant woman. The way a woman experiences herself and her state of mind not only affects her but also her child. The child also takes part in the psychosomatics of its mother whose emotional states are transferred to the child through blood excitation. All impact on the mother also impact her foetus. The normal, daily programme of the mother is transferred to the child (Milaković, 1986). The state of mind in pregnancy not only affects the mother but also her unborn child. Therefore, it is very important that a pregnant woman has good knowledge of these mechanisms and uses them to relax. An important role is also played by moderate sport activity, which is also confirmed by our results. The physically active pregnant women expressed mainly positive emotions, were more relaxed and felt better. Their high psychological state of mind also positively affected the baby and its development.

There are many factors that coinduce the relaxed state of mind of a pregnant woman and help her avoid the whirl of negative emotions. The findings of our study corroborate the results of previous studies, namely that sport activity is one of the main factors. The analysis of our study sample revealed that only a good 40 percent of pregnant women engaged in a sport activity in the volume attributed to the RPA group. The factor analysis showed that these pregnant women mainly expressed positive emotions and a better psychological state of

mind. The results show that during pregnancy nearly 60 percent of women engaged in a sport insufficiently and, according to our findings, expressed negative emotions and feelings more often and were in a poorer state of mind. In view of the above, we believe that women should be advised about the advantages of sport activity and its positive effects already before they become pregnant. With this article we wish to recommend that all young women who are planning their pregnancy assume a healthy lifestyle with sufficient physical activity and relaxation already at the time they start considering having a child. The provision of information and encouragement of women to adopt this lifestyle so as to make their pregnancy easier and more pleasant should be arranged on the broadest possible scale.

REFERENCES

- Abraham, S. F., Taylor, A., & Conti, J. (2001). Postnatal depression, eating, exercise and vomiting before and during pregnancy. *J. Eat Disord.*, 29, 482-487.
- Brown, W. (2002). The benefits of physical activity during pregnancy. *J. Sci. Med. Sport*, 5(1), 37-45.
- Bung, P. (1999). Schwangerschaft und Sport. *Gynäkologe*, 32, 386-392.
- Campbell, M. K., & Mottola, M. F. (2001). Recreational exercise and occupational activity during pregnancy and birth weight: a case control study. *Am. J. Obstetrics and Gynecology*, 184, 403-408.
- Carpenter, M. W., Sady, S. P., & Sady, M. A. (1990). Effect of maternal weight gain during pregnancy on exercise performance. *J. Appl. Physiology*, 68, 1173-1176.
- Charlish, A. (1997). *Zdrava nosečnost. Vodnik po dopolnilnem zdravljenju*. Ljubljana: DZS.
- Clapp, J. F. (1991). The changing thermal response to endurance exercise during pregnancy. *Am. J. Obstetrics and Gynecology*, 165, 1684-1689.
- Clapp, J. F. III., & Capeless, E. L. (1991). The VO_2 max of recreational athletes before and after pregnancy. *Med. Sci. Sport Exercise*, 23, 1128-1133.
- Clapp, J. F. III., Sleamaker, R. H., & Wesley, M. (1987). Thermoregulatory and metabolic responses to jogging prior to, and during pregnancy. *Med. Sci. Sport Exercise*, 19, 124-130.
- Clapp, J. F. III., & Little, K. D. (1995). Effects of recreational exercise on pregnancy weight gain and subcutaneous fat deposition. *Med. Sci. Sport Exercise*, 27, 170-177.
- Davis, G. A., Mottola, M. F., MacKinnon, C., & Wolfe, L. A. (2003). Joint SOGC/CSEP clinical practice guideline: Exercise in pregnancy and the postpartum period. *Can. J. Appl. Physiol.*, 3, 330-341.
- Gamberger, Ž., Videmšek, M., & Karpljuk, D. (2005). Trening mišic medeničnega dna. *Šport*, 53(4), 29-32.
- Grisso, J. A., Main, D. M., & Chiu, G. (1992). Effects of physical activity and life style factors on uterine contraction frequency. *Am. J. Perinatol.*, 9, 489-492.
- Hatch, M. C., Shu, X. O., & McLean, D. E. (1993). Maternal exercise during pregnancy, physical fitness and fetal growth. *Am. J. Epidemiol.*, 137, 1105-1114.
- Horvat-Kuhar, E. (1995). Nosečnost in družinski sistem. In *Izkustvena družinska terapija* (pp. 39-53). Ljubljana: Quatro.
- Kapor-Stanulović, N. (1985). *Psihologija roditeljstva*. Belgrade: Nolit.
- King, M., & Green, Y. (2002). *Pilates for pregnancy*. London: Octopus Publishing Group Limited.
- Klun, J. (1992). *Nosečnost in porod*. Ljubljana: Državna založba Slovenije.
- Kramer, M. S. (2002). *Aerobic exercise for women during pregnancy*. Oxford: Cochrane Library.
- Lochmuller, E. M., & Friese, K. (2004). Schwangerschaft und Sport. *Gynäkologe*, 37, 459-466.
- Milaković (1986). *Kada su majka in dete bili zajedno*. Sarajevo: Svjetlost.
- Pivarnik, J. M., Ayres, N. A., & Mauer, M. B. (1993). Effects of maternal aerobic fitness on cardiorespiratory responses to exercise. *Med. Sci. Sport Exerc.*, 25, 993-998.
- Raphael-Leff, J. (1991). *Psychological process of child-bearing*. London: Chapman & Hall.
- Rojšek, J. (1990). *Osebnostne lastnosti žensk z EPH gestozo*. Ljubljana: Državna založba.
- Selby, A. (2002). *Pilates for pregnancy*. London: Harper Collins Publishers.
- Spinillo, A., Baltaro, F., & Capuzzo, E. (1996). The effect of work activity in pregnancy on the risk on fetal growth retardation. *Acta Obstetrics and Gynecology Scand.*, 75, 531-536.
- Velikonja, V. (1998). *Psihologija dojenja*. Lecture within the UNICEF Baby friendly initiative.
- Wolfe, L. A., Preston, R. J., & Burggraf, G. W. (1999). Effects of pregnancy and exercise on maternal cardiac structure and function. *Can. J. Physiol. Pharmacol.*, 77, 909-917.
- Zaletel-Kragelj, L., Fras, Z., & Maučec-Zakotnik, J. (2004). *Tvegana vedenja, povezana z zdravjem in nekatera zdravstvena stanja pri odraslih prebivalcih Slovenije*. Ljubljana: University of Ljubljana, Faculty of Medicine.

DUŠEVNÍ STAV MÁLO A PRAVIDELNĚ TĚLESNĚ AKTIVNÍCH ŽEN VE DRUHÉM TRIMESTRU TĚHOTENSTVÍ

V okamžiku, kdy žena zjistí, že je těhotná, se její život v mnoha ohledech změní, protože se začne přizpůsobovat dítěti ve svém těle. Přeje si dobře se cítit, v bezpečí dosáhnout stanoveného termínu a porodit zdravé dítě. Průzkum jsme prováděli u 163 těhotných žen na konci druhého trimestru těhotenství. Článek představuje vztah mezi sportovní aktivitou a duševním stavem během těhotenství. Srovnávali jsme dvě skupiny žen – ženy s pravidelnou tělesnou aktivitou (PTA) a ženy s nízkou úrovní tělesné aktivity (NTA) – a zkoumali vztah mezi tělesnou aktivitou a duševním stavem. První část výzkumu se zaměřovala na tělesnou aktivitu, a to zvláště na její četnost, formu a typ. Skupina PTA sestávala z 69 těhotných žen, které se pravidelně věnují organizovaným sportovním aktivitám ve sportovních střediscích nebo které jsou tělesně aktivní neorganizovaně třikrát až čtyřikrát za týden. V potaz jsme brali aktivity trvající 30 a více minut. Skupina NTA sestávala z 94 těhotných žen, které se tělesným aktivitám věnují pouze příležitostně nebo které nejsou tělesně aktivní. Druhá část výzkumu týkajícího se duševního stavu těhotných žen obsahovala 45 položek, které se týkaly jejich duševního stavu. U každé položky ženy určovaly svůj duševní stav na pětistupňové škále (nikdy, málo, občas, často, skoro pořád). Z celkového počtu mělo 20 položek prevalenci pozitivního duševního stavu a 25 prevalenci negativního duševního stavu. U obou skupin jsme analyzovali duševní stav a vztahy mezi pravidelnou sportovní aktivitou a nízkou sportovní aktivitou a duševním stavem v druhém trimestru, kdy jsou těhotné ženy nejčastěji a nejnáze tělesně aktivní. Pomocí faktorové analýzy jsme prokázali, že u skupiny PTA je prvním eliminovaným faktorem faktor spojený s pozitivními emocemi, což vysvětluje 23,51 % variance z celkových 34,91 % vysvětlené variance. Těhotné ženy skupiny PTA tedy svůj stav definovaly většinou jako pozitivní, s následujícími emocemi: uvolněný, spokojený, příjemný, nepesimistický, přitažlivý, hrdý a šťastný.

U skupiny NTA byl prvním eliminovaným faktorem faktor spojený s negativními emocemi, což vysvětluje 19,45 % variance z celkových 34,68 % vysvětlené variance. Tato skupina těhotných žen definovala svůj stav většinou jako negativní, s následujícími opakujícími se emocemi: melancholický, napjatý, vznětlivý, depresivní a nervózní. Zjištěná fakta ukazují, že pravidelná sportovní aktivita prospívá duševnímu stavu a duševnímu zdraví těhotných žen.

Klíčová slova: emoce, organizovaná, neorganizovaná tělesná aktivita, soupis zkoumající duševní stav.

Anja Podlesnik Fetih



Primary school Gradec Litija
Bevkova 3
1370 Litija
Slovenia

Education and previous work experience

Works as a teacher of physical education at Primary school Gradec. She is finishing her Doctoral dissertation about pregnant women's lifestyles "The influence of sport activities, eating habits and bad habits on the state of mind and the outcome of pregnancy".

First-line publications

- Podlesnik Fetih, A. (2008). Motivies for sport activity during pregnancy. In *5th International Symposium A child in motion* (pp. 107–109). Kranjska Gora: University of Ljubljana.
- Podlesnik Fetih, A. (2008). Injuries occurring in P. E. classes as a cause of class absence and excusing absence from P. E., and analysis of gender differences. In *4th International Symposium Youth Sport 2008* (pp. 72–73). Ljubljana: University of Ljubljana.