

ICPESK 2018
International Congress of Physical Education, Sports and
Kinethotherapy. Education and Sports Science in the 21st
Century, Edition dedicated to the 95th anniversary of UNEFS

PHYSICAL ACTIVITY IN PUERPERIUM PERIOD

Jana Juříková (a)*, Robin Havelka (b)

*Corresponding author

(a) Masaryk University, 5 Kamenice, Brno, Czech Republic,

(b) Masaryk University, 5 Kamenice, Brno, Czech Republic

Abstract

Background: Puerperium is the period of 6 weeks after parturition. It typically brings anatomical and psychological changes. Physical exercises especially developed for puerperas are supposed to help women deal with such changes. Purpose: The aim of this study is to find out whether puerperas have been educated on the importance of physical exercises during pregnancy and whether they actively perform the exercise and in what way. Methods: Data from puerperas were collected by a questionnaire method. The questionnaires were anonymous and were distributed via gynaecological clinics in Brno city (Czech Republic) and via websites intended for women. Results: The work presents a survey of 217 puerperas. 39.2% of women have stated that they perform the exercises intended for puerperal period, and the main source of information was reported as the Internet (43.5% of respondents). Most women do exercise 2-3 times per week (an answer given by 63.5% of respondents), and the time duration of their exercising unit is typically up to 30 minutes (51.8% of respondents). The majority of women (71.8%) do exercise at home, and 60.8% of respondents do not do exercise in puerperal period at all. Conclusions: Physical activity in puerperium brings many benefits for a woman, concerning the recovery process and faster return of the body to the condition prior to pregnancy, as well as enhances physical and mental well-being. As emerged from this work, not all women are properly informed on the aforementioned benefits, therefore a proper education would be highly advisable.

© 2019 Published by Future Academy www.FutureAcademy.org.UK

Keywords: Women, puerperium, physical activity, newborn, health..



1. Introduction

Postpartum (lat. *puerperium*) is a period that starts immediately after parturition and typically takes 6 weeks. During this time, all changes induced by pregnancy and childbirth are getting back to the state preceding pregnancy (Kudela, 1996). All physiological changes connected with adaptation of the female body to pregnancy are receding in this period.

We distinguish an early and late phase of postpartum. An early postpartum is the time by the 10th day after childbirth. During this period, all wounds occurred during labour are healing and milk gland initiates and stabilises its activity and milk production. A mother lives in a close contact with her baby. After 10 days, a late postpartum takes place. This phase brings significant hormonal changes in mother's body (Stadelmann, 2004). Termination of postpartum period is individual and is usually defined as termination of postpartum involutive changes in mother's body and initiation of menstrual cycle, which is however dependent on lactation process and frequency of breastfeeding. Therefore, postpartum is classified as terminated in the interval between 6-12 weeks after childbirth (Roztočil, 2004).

Čech, Hájek, Maršál and Srp (2007) speak about early postpartum, which lasts 7 days after childbirth, and late phase, which terminates the 42nd day after childbirth. Nevertheless, they emphasise that, even though postpartum terminates by this day, the extreme intensity of some mental and physical changes might make the return to pre-pregnant state almost impossible.

2. Problem Statement

During the first few days of puerperium, sleep is the most beneficial therapy for recovery. Besides this, there exist other natural methods to enhance regeneration of the body. These include relaxing and breathing exercises, as well as rehabilitation exercises especially developed for puerperas – simple gymnastic exercises. The aim of physical activity during puerperial period is to enable female body to return to the condition preceding her pregnancy (Roztočil, 2008). Exercises help a woman to return to her full health and ability to work.

The main aim of postpartum physical activity is to:

- support blood circulation and thus prevent blood clot formation – such as emboli and thromboembolic diseases – and to improve blood circulation in peripheral parts of the body.
- strengthen abdominal and lower-back muscles which have been strained during pregnancy, as well as muscles which have been damaged during childbirth, i.e. muscles of the pelvic floor (Land, 2003; Bursová, 2005; Pařízek, 2006; Wessels & Oellerich, 2009; Havelka, 2016).
- enhance and fasten the process of uterine healing (involution) and to ensure proper position of uterus within the pelvis.
- stimulate lactation – activity of milk gland, through breast muscle exercises. There exist numerous studies proving the effect of such exercises on infant acceptance of breast milk, volume and composition of the milk, and bone density in lactating women. However, studies examining the relationship between exercise and vitamin D in postpartum women are still absent (Dewey, Lovelady, Nommsen-Rivers, McCrory, & Lonnerdal, 1994; Lovelady, Nommsen-Rivers, McCrory, & Dewey, 1995; Wright, Quinn, & Carey, 2002; Hall, Ebeling, Shary, Forestieri, & Wagner, 2018).

- enhance the return to physically and mentally fit condition. Concerning the sex- and age-related decline in physical activity, women are exposed to a high risk of physical inactivity during pregnancy and also lowered physical activity in postpartum period (Albright, Maddock, & Nigg, 2005). Additionally, women are less likely to participate in both intensive aerobic activity and leisure-time physical activity as well (Blum, Beaudoin, & Caton-Lemos, 2004). However, guidelines state that a woman can gradually take up her physical activity again within 4-6 weeks postpartum (Behrens, Bradley, Kirby, & Nanney, 2012).
- prevent future gynaecological diseases (incontinency, decline or improper position of uterus, vertebral disc diseases etc.).

Exercise further helps eliminate skin dilation, particularly in abdominal, breast, gluteal and thigh areas. It contributes to the return of declined bladder and intestines to original positions. It also contributes to combat incontinency, whose mild form afflicts most women after childbirth. Exercise might even treat, to some extent, the reluctance to sex. (Cantieni, 2007)

The psyche of a puerpera is exposed to extreme strain arising from vast hormonal changes after childbirth, tiredness, experienced pain and worries about baby's health. Moreover, the new role of mother, the personality traits and previous experience with taking care of a child, as well as the support of the family, play a significant role in this process. Physical fitness and relaxation techniques acquired during exercise represent one of the essential factors that enable a woman to adjust to the increased strain of postpartum period.

3. Research Questions

As mentioned above, physical activity during puerperal period is extremely important. However, are women themselves aware of this fact and, if so, do they perform a suitable activity?

4. Purpose of the Study

The aim of this work was to find out, by a questionnaire method, whether the women in hospital were informed on the significance of doing exercises during this period and whether they actively performed exercise. What makes them do exercises and, on the other hand, what is the main obstacle to prevent women from doing physical activity?

5. Research Methods

Data were collected by a questionnaire distributed in gynaecological clinics in Brno and Hrotovice cities, Czech Republic, and on-line, on women's website. All respondents were women in puerperal period. Out of 100 distributed questionnaires in total, 84 were submitted back completely filled in. Other 133 completed questionnaires were submitted on-line, and thus the research involved 217 questionnaires in total. The questionnaire was anonymous. Respondents were asked 21 questions concerning their eating habits and physical activity in puerperal period. This work analyses some questions related to the physical activity of puerperas.

6. Findings

The first question focused on finding out whether women have been educated in hospital on the importance of physical exercise during puerperal period. Answers are given in Table 01.

Table 01. Education on the importance of physical exercise during puerperal period

Educated on the importance of exercise	No. of respondents
Yes	186
No	31
In total	217

As obvious from the table, 31 women (14.3%) were not educated on this topic at all. A study carried out by Lozada-Tequeanes, Campero-Cuenca, Hernández, Rubalcava-Peñafiel and Neufeld (2015), in Mexico, revealed that 62% of women had not been educated at all. After parturition, women should be visited by a physiotherapist who is supposed to instruct mothers about exercising in postpartum period. They should emphasise the importance and positive effects of physical activity.

Next question was whether the women practiced exercise during puerperal period. Their answers are shown in Table 02.

Table 02. Answers to the question whether the women practice exercise during puerperal period

Exercise in puerperium	No. of respondents
Yes	85
No	132
In total	217

As the table shows, 85 women, i.e. 39.2%, practice exercises during puerperal period, but, on the contrary, more than a half of respondents (132 women, i.e. 60.8 %) do not perform any physical activity. In general, pregnancy is considered as a period associated with numerous psychological, behavioural and biological changes that may contribute to the adoption of a more sedentary lifestyle and, as a result, we can observe a decrease in overall physical activity among women (Engberg, Kukkonen-Harjula, Peltonen, Tikkanen, & Pekkarinen, 2012; Fell, Joseph, Armson, & Dodds, 2009; Gaston & Cramp, 2011; Coll et al., 2016). Some studies also suggest that few women resume or start a regular physical activity program in postpartum period (Albright et al., 2005; Symons Downs & Hausenblas, 2004; Coll et al., 2016).

Following question was intended only for women who practiced exercises after childbirth; thus, 85 women gave their answers. These answers are shown in Table 03.

Table 03. Reason to do exercise in the respondents' group

Exercise in puerperium	No. of women
To lose weight	28
To strengthen my muscles	6
To have a nice body	9
To prevent backache	12
For faster recovery after childbirth	27
Other reason	3
In total	85

The majority of women who do exercise primarily care about a beautiful look: they want to lose body weight (28 women, i.e. 32.9%), strengthen their muscles (6 women, i.e. 7.1%) and have a nice body (9 women, i.e. 10.6%). Other most common reason was to accelerate their recovery after childbirth (27 women, i.e. 31.8%). The option “Other reason” was chosen by 3 women: all agreed on their sporting character, all had performed sports activity during pregnancy and could not imagine their postpartum period without exercise. With respect to the fact that these women (85 women practicing exercise) were aware of the importance of physical exercises during puerperal period, next question was also intended only for this group. Women were asked about the sources they used to obtain information on exercises during puerperal period. Their answers are shown in Table 04.

Table 04. Information source on exercises during puerperal period

Source of information	No. of women
Internet	37
Informative booklets in doctors' waiting rooms	28
Professional books	14
CD, DVD	2
Personal trainer	4
Other	0
In total	85

The Internet is nowadays a popular source of information, and therefore it was rather predictable that most women would seek their information there. The expectation has been confirmed – this option was chosen by 37 women, i.e. 43.5%. Since not all information available on the Internet is necessarily reliable, the finding that 28 women (32.9%) were seeking information in booklets distributed in doctors' waiting rooms is more than satisfactory. The majority of maternity hospitals also provide women with informative materials dealing with this issue. These sources are always trustworthy.

Following question was also intended only for women who performed exercise during puerperium. They were asked how often they did exercise, and their answers are shown in Table 05.

Table 05. Frequency of exercise in puerperal period

Frequency of exercise	No. of women
Once per week	17
2-3 times per week	54
4-5 times per week	14
In total	85

Most women do exercise 2-3 times per week – 54 women gave this answer, which is 63.5% out of all puerperas who do exercise.

Frequency is tightly connected with the length of exercising unit, which was the matter of following question. The answers are processed in Table 06.

Table 06. The length of exercising unit according to respondents

Length of exercising unit	No. of women
10-30 minutes	44
35-50 minutes	31
1-1.5 hours	8
1.5-2 hours	2
In total	85

The majority of women (44, i.e. 51.8%) prefer short exercise ranging between 10-30 minutes, and 31 women (36.5%) take a longer exercising unit – 35-50 minutes. Pregnant women are advised to engage in moderate-intensity activity, defined as an activity with an energy requirement of 3-6 METs, which equals to rapid walking at the speed of 4.5-6.5 km per hour for healthy adults (Chasan-Taber et al., 2014). This physical activity is recommended for at least 30 minutes daily, on most days of the week, throughout pregnancy (American College of Obstetricians and Gynaecologists, 2002). It also recommends gradual return to physical activity in the immediate postpartum period, as the physiological and morphological changes of pregnancy persist 4-6 weeks after delivery (Kim, Niederdeppe, Graham, Olson, & Gay, 2015). Besides, the American College of Obstetricians and Gynaecologists (2002) recommends that all adults (including pregnant and postpartum women without complications) should participate in at least 30 minutes of moderate-intensity physical activity on most days of the week. Additionally, it has been suggested that exercise is as successful as antidepressants in the treatment of major clinical depression (Blumenthal et al., 2007; Poyatos-León et al., 2017).

Last question, intended only for exercising women, focused on the place of exercise. These answers are shown in Table 07.

Table 07. Place of exercise

Place of exercise	No. of women
At home	61
In the centre for mothers after childbirth	7
In a fitness centre	12
Other	5
In total	85

We can see that most women do exercise at home (61 women, i.e. 71.8%, out of the total number of exercising puerperas). The decision of 7 women (8.2%) to attend a course in the centre for mothers after childbirth is highly praiseworthy. 5 women selected the option “Other”, 4 of them wrote “a gym”, and one attended dancing lessons. Final question was intended for women who did not do any exercise. In total, 132 women answered this question. The aim was to find out the reason why women did not do exercise. The answers are given in Table 08.

Table 08. Reason for not doing exercise in puerperal period

Reason for not doing exercise	No. of women
I am too tired	15
I have no spare time	61
I do not know what exercises to do	17
I do not feel like that, I do not like physical exercise	14
I still experience pain that prevents me from exercise, it is too early for me	21
Other	4
In total	132

The most commonly reported reason was lack of time – 61 women, i.e. 46.2% of non-exercising puerperas. Taking care of a newborn baby takes up most time and, in the time when a baby is sleeping, women try to manage duties they have neglected during the day or try to relax. Evenson, Moos, Carrier and Siega-Riz (2009) examined perceived barriers to physical activity among 1,535 pregnant women and discovered that fatigue, physical discomfort, fear of harming the baby and a lack of time were the most common reasons for not participating in physical activity (Connolly, Feltz, & Pivarnik 2014). Findings of the first question on insufficient education tightly correspond with the fact that 21 women (15.9%) are not even aware of the exercise type to do. The option “Other” was selected by 4 women, they all stating that they were after Caesarean section (Havelka, 2016). On the contrary, Maputle, Lebeso and Khoza (2014) have found out that the majority of women, after Caesarean section, are willing to participate in recommended exercises.

7. Conclusion

This work presents a survey carried out on 217 puerperas from the Czech Republic. Women anonymously filled in the questionnaire concerning their physical activity during puerperium. Appraisal of the answers revealed that most women (85.7%) were educated in this field. The remaining 14.3% of women stated that they had not been informed about the significance of physical activity during postpartum period.

39.2 % of respondents answered that they did take regular exercise. The primary reason was the hunger for weight loss and return to an original condition. The women who do exercises mostly seek the recommendation on the Internet (43.5 % of respondents); however, the information is not always reliable. A much more relevant source of information is represented by booklets in doctors’ waiting rooms, but these are used merely by 32.9% of women.

The survey has further revealed that woman mostly do exercise with a frequency of 2-3 times per week (63.5% of respondents), which is in consistent with medical recommendations. A typical exercising unit lasts up to 30 minutes (51.8% of women) or 35-50 minutes (36.5% of women). Most women take exercise at home (71.8%). Here, it is relevant to particularly praise women who attend courses in centres for mothers after childbirth (8.2%), since these provide high-standard care and information as well. Despite numerous benefits, 60.8% of puerperas stated that they did not do any exercise. The most common reason was lack of time (46.2% respondents who did not do exercise).

Exercise during puerperium brings a number of positive effects, in the sense of an easy return of the body to the state prior to pregnancy and an improvement in physical condition and mental wellbeing. The survey revealed that not all women had been informed about these benefits, and therefore a suitable

education, not only in the maternity hospital, but also in gynaecological, prenatal and postnatal clinics, would be highly advisable.

References

- Albright, C., Maddock, J., & Nigg, C. (2005). Physical activity before pregnancy and following childbirth in a multiethnic sample of healthy women in Hawaii. *Women's Health*, 42(3), 95-111.
- American College of Obstetricians and Gynecologists. (2002). Exercise during pregnancy and the postpartum period. [ACOG Committee Opinion No. 267]. *Obstetrics and Gynecology*, 99(1), 171-173.
- Behrens, T. K., Bradley, J. E., Kirby, J. B., & Nanney, M. S. (2012). Physical activity among postpartum adolescents: A preliminary report. *Perceptual and Motor Skills*, 114(1), 310-318.
- Blum, J. W., Beaudoin, C. M., & Caton-Lemos, L. (2004). Physical activity patterns and maternal well-being in postpartum women. *Maternal and Child Health Journal*, 8(3), 163-169.
- Blumenthal, J. A., Babyak, M. A., Doraiswamy, P. M., Watkins, L., Hoffman, B. M., Barbour, K. A., ... Sherwood, A. (2007). Exercise and pharmacotherapy in the treatment of major depressive disorder. *Psychosomatic Medicine*, 69(7), 587-596.
- Bursová, M. (2005). *Kompenzační cvičení: Uvoňovací, protahovací, posilovací*. Praha: Grada.
- Cantieni, B. (2007). *Cvičení po porodu: Metoda CANTIENICA pro pevnou postavu a posílení pánevního dna*. Brno: Computer Press.
- Čech, E., Hájek, Z., Maršál, K., & Šrp, B. (2007). *Porodnictví*. Praha: Grada.
- Chasan-Taber, L., Silveira, M., Lynch, K. E., Pekow, P., Braun, B., Manson, J. E., ... Markenson, G. (2014). Physical activity before and during pregnancy and risk of abnormal glucose tolerance among Hispanic women. *Diabetes & Metabolism*, 40(1), 67-75.
- Coll, C., Domingues, M., Santos, I., Matijasevich, A., Lessa Horta, B., & Hallal, P. C. (2016). Changes in leisure-time physical activity from the pre-pregnancy to the postpartum period: 2004 Pelotas (Brazil) birth cohort study. *Journal of Physical Activity and Health*, 13(4), 361-365.
- Connolly, C. P., Feltz, D. L., & Pivarnik, J. M. (2014). Overcoming barriers to physical activity during pregnancy and the postpartum period: The potential impact of social support. *Kinesiology Review*, 3(2), 135-148.
- Dewey, K. G., Lovelady, C. A., Nommsen-Rivers, L. A., McCrory, M. A., & Lonnerdal, B. (1994). A randomized study of the effects of aerobic exercise by lactating women on breast-milk volume and composition. *The New England Journal of Medicine*, 330(7), 449-453.
- Engberg, E. A. M., Kukkonen-Harjula, K., Peltonen, J. E., Tikkanen, H. O., & Pekkarinen, H. (2012). Life events and change in leisure time physical activity: A systematic review. *Sports Medicine*, 42(5), 433-447.
- Evenson, K. R., Moos, M. K., Carrier, K., & Siega-Riz, A. M. (2009). Perceived barriers to physical activity among pregnant women. *Maternal and Child Health Journal*, 13(3), 364-375.
- Fell, D. B., Joseph, K. S., Armson, B. A., & Dodds, L. (2009). The impact of pregnancy on physical activity level. *Maternal and Child Health Journal*, 13(5), 597-603.
- Gaston, A., & Cramp, A. (2011). Exercise during pregnancy: A review of patterns and determinants. *Journal of Science and Medicine in Sport*, 14(4), 299-305.
- Hall, J. T., Ebeling, M., Shary, J. R., Forestieri, N., & Wagner, C. L. (2018). The relationship between physical activity and vitamin D status in postpartum lactation and formula-feeding women. *Journal of Steroid Biochemistry and Molecular Biology*, 177, 261-265.
- Havelka, R. (2016). *Výživové zvyklosti a pohybová aktivita žen v šestinedělí* (Diploma thesis). Brno: Masaryk University, Faculty of Sports Studies.
- Kim, H. K., Niederdeppe, J., Graham, M., Olson, C., & Gay, G. (2015). Effects of online self-regulation activities on physical activity among pregnant and early postpartum women. *Journal of Health Communication*, 20(10), 1115-1124.
- Kudela, M. (1996). *Základy gynekologie a porodnictví*. Olomouc: Univerzita Palackého.
- Land, A. (2003). *Yoga for pregnancy*. London: New Holland.

- Lovelady, C. A., Nommsen-Rivers, L. A., McCrory, M. A., & Dewey, K. G. (1995). Effects of exercise on plasma lipids and metabolism of lactating women. *Medicine and Science in Sports and Exercise*, 27(1), 22-28.
- Lozada-Tequeanes, A. L., Campero-Cuenca, M. de L. E., Hernández, B., Rubalcava-Peñafiel, L., & Neufeld, L. M. (2015). Barriers and facilitators for physical activity during pregnancy and postpartum in women living in poverty of Mexico. *Salud Publica de Mexico*, 57(3), 242-251.
- Maputle, M. S., Lebeso, R. T., & Khoza, L. B. (2014). Perceptions of women regarding physical activity during pregnancy and post-natal period at rural village in Vhembe district of Limpopo Province, South Africa. *African Journal for Physical, Health Education, Recreation and Dance (AJPHERD)*, Supplement 1, 51-63.
- Pařízek, A. (2006). *Kniha o těhotenství @ porodu*. Praha: Galén.
- Poyatos-León, R., García-Hermoso, A., Sanabria-Martínez, G., Álvarez-Bueno, C., Cavero-Redondo, I., & Martínez-Vizcaíno, V. (2017). Effects of exercise-based interventions on postpartum depression: A meta-analysis of randomized controlled trials. *Birth*, 44(3), 200-208.
- Roztočil, A. (2004). *Šestinedělí*. Retrieved from <https://www.levret.cz/publikace/casopisy/mb/2004-3/?pdf=145>
- Roztočil, A. (2008). *Moderní porodnictví*. Praha: Grada.
- Stadelmann, I. (2004). *Zdravé těhotenství, přirozený porod*. Praha: One Woman Press.
- Symons Downs, D., & Hausenblas, H. A. (2004). Women's exercise beliefs and behaviours during their pregnancy and postpartum. *Journal of Midwifery & Women's Health*, 49(2), 138-144.
- Wessels, M., & Oellerich, H. (2009). *Wellness jóga pro těhotné: Blahodárná cvičení pro vás a vaše dítě*. Praha: Grada.
- Wright, K. S., Quinn, T. J., & Carey, G. B. (2002). Infant acceptance of breast milk after maternal exercise. *Pediatrics*, 109(4), 585-589.