

# The Influence of Postpartum Exercise on Uterine Involution Speed in Postpartum Mothers

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## ABSTRACT

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**Background:** The postpartum period begins a few hours after the birth of the placenta and continues until approximately 6 weeks after childbirth. According to the World Health Organization (WHO), an estimated 830 women die every day due to complications from pregnancy and childbirth. In 2015, approximately 303,000 women died during pregnancy, childbirth, or in the postpartum period. This study aims to investigate the influence of postpartum exercise on the speed of uterine involution among postpartum mothers at BPM Mona Durryah Siregar SKM, North Padangsidimpuan District. **Methods:** This study utilized a quasi-experimental design with a pretest-posttest only design. The population consisted of 10 postpartum mothers with a sample size of 10. Data analysis included univariate and bivariate analyses using the Wilcoxon test. **Results:** The results of the study showed a significant decrease in uterine fundus height among the 10 respondents with a percentage of 2.70%. None of the respondents experienced subinvolution after the postpartum exercise intervention. However, all respondents faced challenges in decreasing uterine fundus height both before and after the intervention. The Wilcoxon test indicated a p-value of 0.004, signifying that postpartum exercise influences the speed of uterine involution among postpartum mothers. **Conclusion:** The implementation of postpartum exercise therapy can accelerate uterine involution among postpartum mothers. It is recommended that these findings be used to develop counseling programs related to postpartum exercise at BPM Mona Durryah Siregar SKM.

**Keywords:** Uterine involution, postpartum exercise, postpartum mothers

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## 1. INTRODUCTION

The postpartum period lasts for six weeks from the day of birth. In this case, the postpartum period means starting a few hours after the birth of the placenta and covers the next six weeks. During this time, physiological changes that occur during pregnancy return to their original state when the woman was not pregnant. However, all genital organs only recover to the same state as before pregnancy within 3 (three) months [1].

The World Health Organization (WHO) estimates that 830 women die every day due to complications from pregnancy and the birth process, so in 2015 around 303,000 women died during pregnancy, childbirth and after childbirth.

Maternal deaths in Indonesia in 2013 were still dominated by three main causes of death, namely bleeding at 30.13%, hypertension in pregnancy at 27.1% and infection at 7.3%. Prolonged labor is also one of the causes of maternal death in Indonesia, namely the incidence continues to increase, namely 1% in 2010, and 1.8% in 2012, [16]

The number of maternal deaths reported in North Sumatra Province in 2019 was 202 people with a distribution of 53 maternal deaths, 87 maternal deaths, 62 people and postpartum maternal deaths. Most maternal deaths are known to be caused by bleeding (67 people), hypertension (51 people), infection (8 people), circulatory system disorders (8 people), and metabolic disorders (5 people) [18].

The results of the initial survey conducted by researchers on 14 January 2022 showed that there were still postpartum mothers who experienced bleeding due to poor uterine contractions resulting in poor uterine involution, and based on the background and phenomena above, the author was interested in conducting research on " The Effect of Postpartum Exercises on the Speed of Uterine Involution in Postpartum Women ".

Based on the background description above, the formulation of the problem in this research is "What is the influence of postpartum exercise on the speed of uterine involution in postpartum mothers at BPM Mona Durryah Siregar, SKM North Padangsidempuan District in 2022?"

The aim to be achieved in this activity is to determine the effect of postpartum exercise on the speed of uterine involution in postpartum mothers before and after postpartum exercise. Data analysis was carried out bivariately by looking at the relationship between two variables. Data analysis was then continued with the Wilcoxon test .

## 2. METHOD

The type of research used is quasi-experimental research, namely experimental research that is not as strong as pure experimentation. It is called a quasi-experiment because in this type of experimental research there are many variables that cannot be controlled. This research design uses a *pretest posttest only research design* with the aim of finding out the effect of postpartum exercise on the speed of uterine involution in postpartum women . A research method was carried out with the aim of finding out the effect of postpartum exercise on the speed of uterine involution in postpartum women.

The population in this study were postpartum mothers who were at the Mona Durryah Siregar Independent Practice, SKM. A total of 15 people. The sample in this study was taken using *purposive sampling technique*, which is a technique for determining samples for certain considerations. That is, adjusting the sampling method based on the research's own considerations, based on previously known characteristics or characteristics of the population with the same criteria .

## 3. RESULTS AND DISCUSSIONS

### RESULTS

**Table 1. Frequency Distribution Based on Respondent's Ethnicity**

No	Ethnic group	F	%
1	Batak	10	100%
2	Java	0	0
	Amount	10	10%

Based on table 1, it shows that all respondents are Batak, namely 10 respondents (100%).

**Table 2. Frequency Distribution Based on Age of Respondents**

No	Age	F	%
1	< 20 years	1	10%
2	20-40 years	9	90%
	Amount	10	100%

Based on table 2, it shows that almost all of the respondents were aged 20-40 years, namely 9 respondents (90%).

**Table 3. Frequency Distribution Based on Respondent Parity**

No	Parity	F	%
1	Primipara	2	20%
2	Skundipara	4	40%
3	Multiparous	4	40%
	Amount	10	100%

Based on table 3, it shows that the respondents were predominantly scundipara, namely 4 respondents (40%), and multipara, 4 respondents (40%).

**Table 4. Frequency Distribution Based on Respondent's Occupation**

No	Work	F	%
1	IRT	6	60%
2	Self-employed	2	20%
3	civil servants	2	20%
	amount	10	100%

**Table 5. Frequency Distribution Based on Having Attended Postpartum Exercise Classes**

No	Have attended postpartum exercise classes	F	%
1	Once	0	0
2	Never	10	100%
	Amount	10	100%

Based on table 5, it shows that all respondents had never attended postpartum exercise classes, namely 10 respondents (100%).

**Table 6. Frequency Distribution Based on Having Received Information About Postpartum Exercise**

No	Have you ever received information about Postpartum Exercise?	F	%
1	Once	2	20%
2	Never	8	80%
	Amount	10	100%

Based on table 6, it shows that the majority of respondents never received information about postpartum exercise, namely 8 respondents (80%).

**Table 7. Effect of Postpartum Exercise on the Speed of Uterine Involution in Postpartum Women**

Variables	N	Mean	elementary school	Min	Max
Height of the uterine fundus before intervention	10	9.30	949	8	11
Uterine fundal height after intervention	10	2.70	823	2	4

The average (mean) height of the uterine fundus in postpartum mothers at Midwife Mona Durryah Siregar, SKM Padangsidimpuan Utara subdistrict before postpartum exercise was carried out was 9.30 with a minimum value of 8 and a maximum value of 11 and the average (mean) height of the fundus of the uterus in postpartum mothers in Midwife Mona Durryah Siregar, SKM North Padangsidimpuan subdistrict after postpartum exercise was 2.70 with a minimum score of 2 and a maximum score of 4.

**Table 8. Effect of Postpartum Exercise on Uterine Fundal Height in Postpartum Women**

Variables	N	Mean	elementary school	Significant
Height of the uterine fundus before intervention	10	9.30	949	0.004
Uterine fundal height after intervention	10	2.70	823	

Based on table 8, it shows that postpartum exercise therapy affects the speed of uterine involution in postpartum mothers at BPM Mona Durryah Siregar, SKM Padangsidimpuan subdistrict with a value of  $p$  0.004.

## DISCUSSION

Based on the results of research on the effect of postpartum exercise on the speed of uterine involution in postpartum mothers at BPM Mona Durryah Siregar, Skm North Padangsidimpuan District, it shows that most of the uterine fundal height decreased with a percentage of 10 respondents (2.70%), no respondents experienced sub involution after being given postpartum exercise intervention and those who experienced obstacles to reducing the height of their uterine fundus before and after being given postpartum exercise intervention were 10 respondents. The Wilcoxon  $p$ -value test was 0.004 indicating the influence of postpartum exercise on the speed of uterine involution in postpartum mothers at BPM Mona Durryah Siregar, SKM North Padangsidimpuan District.

There is a significant difference in uterine involution, namely the height of the uterine fundus of postpartum mothers after postpartum exercise, the uterine involution is faster than the height of the fundus of the uterus before postpartum exercise or the uterine involution is slower, this is proven by the postpartum exercise given to postpartum mothers at BPM Mona Durryah Siregar, SKM North Padangsidempuan District has significant benefits for the speed of uterine involution in postpartum mothers. This can be seen from the mean value before exercise, which is 9.30 and after exercise the mean value is 2.70. Involution is a process where the uterus returns to its pre-pregnancy condition and weighs around 60 grams. This process begins immediately after the placenta is born due to contractions of the smooth muscles of the uterus. Involution is caused by continuous contraction and retraction of uterine muscle fibers. If the involution of the uterus fails to return to a non-pregnant state, it will cause sub-involution. Symptoms of sub involution include persistent/fresh red lochea, slow descent of the uterine fundus, soft uterine tone, no feeling of heartburn in the postpartum mother as a result of bleeding. Factors that influence uterine involution are age, parity, maternal nutrition, early ambulation/mobilization and breastfeeding. Postpartum exercise is one of the efforts of early mobilization [3].

This theory is supported by research conducted by [9] regarding the effectiveness of postpartum exercise version A and postpartum exercise version N on the smoothness of uterine involution at the Binuang Community Health Center with the Mann-Whitney test results obtained by the postpartum exercise group with normal uterine involution = 8 people (77.8%) and the early mobilization group with normal uterine involution = 6 people (33.3%),  $p$  value = 0.019, RO (CI 95%) = 2.3 (1.2-4.7). The results of the logistic regression test together with the intervention group variables and exclusive breastfeeding had an effect on uterine involution with a  $p$  value of  $<0.001$ , an effect size of 42.0% and an accuracy of 72.2%.

This theory is supported by research conducted. The results of the research showed that of the 15 postpartum mothers who did postpartum exercise, 13 people (86.7%) experienced an appropriate decrease in the height of the uterine fundus. Meanwhile, of the 15 postpartum mothers who did not do postpartum exercise, 4 people (26.7%) experienced a decrease in uterine fundus height which corresponds to a  $p$  value of  $0.03 \leq (0.05)$ . The conclusion is that there is an effect of postpartum exercise on reducing the height of the uterine fundus in post partum mothers.

The results of data analysis using the *T Test statistical test* showed a decrease in the height of the client's uterine fundus in the group that did not receive postpartum exercise. The average decrease in uterine fundal height in the group that did not receive postpartum exercise before was 9.85 and after 5.50, although statistically it decreased, but if you look at the difference between the two groups, the experimental group experienced a greater decrease, in the experimental group the difference was 8.85 and the control group was 4.35. It is recommended that the results of this research become a reference pattern for conducting outreach related to the implementation of postpartum exercise at the Ulu Belu Community Health Center.

#### 4. CONCLUSIONS

The study investigated the effect of postpartum exercise on the speed of uterine involution among postpartum mothers at BPM Mona Durryah Siregar, SKM in North Padangsidempuan District. The demographic characteristics of the respondents indicated a homogenous sample predominantly comprising Batak ethnicity (100%), aged between 20-40 years (90%), and primarily scundipara or multiparous (80%). Additionally, the majority were housewives (60%), with a notable absence of attendance in postpartum exercise classes (100%) and information about postpartum exercise (80%). Analysis of the uterine fundal height before and after intervention showed a significant reduction, with an average decrease from 9.30 to 2.70. This reduction indicated successful uterine involution among the respondents who underwent postpartum exercise, as evidenced by the Wilcoxon  $p$ -value of 0.004. The findings underscore the beneficial impact of postpartum exercise in accelerating uterine involution, crucial for the maternal health recovery process. Discussion highlighted that postpartum exercise contributes to uterine involution by promoting muscle contraction and retraction, essential for restoring the uterus to its pre-pregnancy state and minimizing complications like subinvolution. This aligns with previous research emphasizing the effectiveness of early mobilization strategies in maternal care settings. Notably, similar studies have shown that postpartum exercise correlates with improved uterine involution rates, reinforcing the importance of incorporating these practices into postnatal care protocols. In conclusion, the study provides valuable insights into the positive effects of postpartum exercise on uterine involution, suggesting its integration into routine maternal healthcare practices to enhance postpartum recovery outcomes. Future research could explore broader sample demographics and longitudinal impacts to further validate these findings and optimize maternal health interventions.

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