

## Conference Paper

# The Effect of Oxytocin and Endorphin Massage to Uterine Involution in Post-Partum Mothers: A Literature Review

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**Abstract**

Post-partum is the period during which the internal and external reproduction organs will gradually return to their pre-pregnancy state. Uterine involution or uterine contraction is a process in which the uterus returns to its pre-pregnancy state weighing about 60 grams. The process of uterine involution is influenced by uterine contractions which are stimulated by the oxytocin hormone, a process which can be facilitated by a combination of oxytocin and endorphin massage. With the release of endorphins, the mother will feel more comfortable and the oxytocin hormone can be stimulated, so that uterine contractions can work normally and increase the process of uterine involution. This study involves a literature review which aimed to summarize the results of studies which explain that the effect of oxytocin and endorphin massage to uterine involution in postpartum. The data was collected from Pubmed and Google Scholar databases with these keywords: combination of oxytocin and endorphine massage; uterine involution; and maternal postpartum. Only 3 journals had the required inclusion criteria. The results showed that the combination of oxytocin massage and endorphin massage was effective in reducing the height of uterine fun in post-partum mothers. The combination of oxytocin massage and endorphin massage can be developed for increasing uteri involution.

**Keywords:** Combination, oxytocin and endorphin massage, uterine involution, postpartum

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## 1. Introduction

The postpartum period is a period of recovery, starting from childbirth until the uterus tools return to what they were before pregnancy. The puerperium begins after birth the placenta and ends when the uterus organs return to their pre-pregnancy state. The postpartum period lasts for about 6 weeks [1]. After the birth the baby and removal the placenta, the mother experiences a period of physical and psychological recovery.

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What is expected in the period of 6 weeks after giving birth is that all the mother's body systems will recover from the various effects of pregnancy and return to their pre-pregnancy state, one which is changes in the uterus that gradually recover to its pre-pregnancy state called uterine involution. Uterine involution or uterine contraction is a program in which the uterus returns to its pre-pregnancy state weighing only 60 grams. Uterine involution can also be said to be the process of returning the uterus to its original state or pre-pregnancy state [2]. The process of restoring the reproductive organs during the puerperium (involution) is very important for mothers after childbirth because this process serves as a basis for health workers to monitor the physiological process of the return of the uterus to what it was before pregnancy. When inadequate uterine contractions during the puerperium can inhibit the process of uterine involution causing uterine subinvolution, which can lead to complications, namely post partum hemorrhage which can cause death to the mother. In the 2017 Census Survey (SUPAS) the Maternal Mortality Rate ranges from 305 per 100,000, which amounts to 14,640. On that occasion, he explained about the causes of maternal death. As a result of hypertensive disorders as much as 33.07%, 27.03% obstetric bleeding, 15.7% non-obstetric complications, other obstetric complications 12.04% infection in pregnancy 6.06% and 4.81% other causes. Bleeding is the second cause of maternal death, which is that it can be due to uterine subinvolution.

In subinvolution there is failure of the uterus to follow the normal pattern of involution / the process of uterine involution does not work properly, so the process of uterine shrinkage is inhibited. The causes of sub-involution include: remaining placenta in the uterus, endometritis, the presence of uterine myoma [3]. Subinvolution occurs when the uterus is larger and more flaccid than it should be, the fundus is still high, the lochea is profuse and smells bad. The uterus does not contract and it is not uncommon for bleeding either in the form of primary or secondary bleeding. Uterine subinvolution causes uterine contractions to decrease so that the wide blood vessels do not close completely, so that bleeding occurs continuously, causing other problems, both infection and inflammation in the uterus, especially the endometrium. So that the involution process that should occur after the puerperium is disrupted [4].

However, uterine contractions can be increased with oxytocin administration. Because uterine contractions are very influential on uterine involution and a hormone that plays an important role in strengthening and regulating uterine contractions is the hormone oxytocin. Oxytocin can be obtained in various ways, either through oral, intra-nasal, intramuscular, or by massage that stimulates the release of the hormone oxytocin. Oxytocin can be stimulated by doing massage, massage techniques that

can stimulate the release of the hormone oxytocin including oxytocin massage and endorphin massage [4].

Oxytocin massage is the action massaging the spine (vertebrae) from the 5-6th rib nerve to the scapula which will accelerate the work of the parasympathetic nerves to deliver commands to the back of the brain to produce oxytocin. Endorphins massage is a gentle touch and massage technique to provide a feeling of calm and comfort that can increase the release of oxytocin and endorphin hormones. So, when endorphin massage is given to post partum mothers, it can provide a sense of calm and comfort which can increase the hypothalamic response in producing the hormone oxytocin which can increase the process of uterine involution [5].

Combined oxytocin and *endorphin massage* is very effective, the combination causes a more significant impact on the involution of the uterus because the massage is carried out throughout the connective tissue which will increase the levels of beta-endorphins and oxytocin, the mother will relax so that it reduces stress and the hormone oxytocin will be produced without inhibitors. Furthermore, massage will trigger the anterior pituitary to secrete endorphins which result in reduced pain sensation and the body will feel relaxed, which will increase the release of the hormone oxytocin which acts to increase uterine contractions [6].

## 2. Methods

This is a literature review of the existing literature to evaluate subjective responses after the application of oxytocin and endorphin massage to uterine involution in postpartum mother.

### 2.1. Search Strategy

The Search Strategy aims to find articles that have been published. Data from this literature review was obtained through an online search process. A literature review with literature was done in Mei 2020. The searching of data resource used Pubmed and Google Scholar database. The keywords used are a combination of oxytocin and endorphine massage, uterine involution, maternal postpartum. The researcher gave the searching limitation with journals were published in 2014-2020. The searching of journals were done by Pubmed database and then selected or extracted by researcher independently. The literature review was consist of all research about combination of oxytocin and endorphine massage to uterine involution, available of free full text and

In English and Indonesia Language, published from 2014 to 2020 and research study was quasy experimental study.

## 2.2. Screening Articles

Article screening is carried out through the initial title and then abstract screening to identify which articles have the potential to meet the inclusion criteria. After that, one by one from all articles were reviewed by researcher. Additonal articles not found in the initial literature search were obtained by reviewing references in the study. Researcher conducted an examination of all titles and abstracts in order to avoid repeating the article and assessed all articles according to inclusion criteria. Inclusion criteria were used to select study. The inclusion criteria are as follows postpartum mother with normal pervaginam delivery, get intervention combination of oxytocin and endhorphine massage, no complication and postpartum bleeding.

## 2.3. Data Extration

Each article is processed daa by making a summary of each article which includes, author, year, country of original of tehe study, sample (including the number of samples and inclusion criteria), intervention procedure, results, and limitations of the study.

## 2.4. Assessment Quality of Study

Assessment of the quality of each article in this literature review used teh standard format of Joanna Briggs Institute (JBI) Critical Appraisal Checklis for Quasi-Experimental Studies. The criteria used to evaluate whether each article have good quality and a minimum risk of bias consist of 9 questions or checklist item. And the article assessed with choose among four answers menu/checklist are as follows yes, no, unclear or not applicable.

## 3. Results

A total of 3 journals discussing the combination of oxytocin massage and endorphin massage that can reduce uterine fundal height, obtained a sample of 114 respondents with age criteria in the range of 20-35 years. Intervention was given after 24 hours

postpartum, for 3 days. The combination massage is carried out for 35 minutes, 15 minutes for oxytocin massage and 35 minutes for endorphin massage.

From three journals, the method used is the same, namely quasy experiment with pre-post test with the control group, but there are differences in the sampling method for the second and third journals using the purposive sampling method. Purposive sampling is a research sampling technique with certain considerations (Sugiyono, 2010). The 1st journal uses accidental sampling method. Accidental sampling is a sampling technique based on chance, that is, consumers who accidentally / incidentally meet the researcher can be used as a sample, if it is considered that the person who happens to be met is suitable as a data source [2]. The results based on the analysis obtained the average number of uterine involution in mothers who were given intervention was 0.80 with a standard deviation of 0.52 while the average uterine involution in mothers who were not given intervention was 1.25 with a standard deviation of 0.63. In the results of statistical tests, the p-value is  $0.020 < 0.05$ , it can be concluded that there is a significant difference in the mean uterine involution between mothers who do a combination of oxytocin massage and endorphin massage and those who are not given intervention [5].

The study used a pretest and posttest design in 4 groups, the first group was the control group, then the second group was only given oxytocin massage, the third group was only given endorphin massage and the fourth group was given a combination Oxytocin massage and endorphin massage, it was found that the combination of oxytocin massage and endorphin massage have a significant effect on uterine involution, when compared to the group that was only given the oxytocin massage intervention or the group that was given only the endorphin massage intervention. *The literature review* that is obtained seems to strengthen several other studies conducted on post partum mothers with a combination of oxytocin massage and endorphin massage to reduce uterine fundal height. When the two massages are combined, it will be able to increase the level of the hormone oxytocin which is more significant because when the endorphin massage is given the mother will feel relaxed and comfortable, after which the oxytocin massage intervention is given in a comfortable state, so that the mother can release the hormone oxytocin to the maximum [6]. In the last journal is an experimental study using a quasy experiment research design with a nonequivalent control group design research design, the sampling technique in this study uses nonprobability sampling and the determination of the research sample by purposive sampling. The sample size in this study was 30 post partum mothers who were divided into 2 groups, namely combination massage and postpartum exercise [7]. The results showed that in this study

the combination group experienced a decrease in uterine fundal height between 3.6 - 5.1 cm for 3 days where each day ranges from 1.2 - 1.7 cm. Meanwhile, the postpartum exercise group decreased uterine fundal height between 2.6 - 4 cm for 3 days where each day ranged from 0.9 to 1.3 cm [8]. So it can be concluded that the decrease in uterine fundal height in the combination massage group was much faster than the decrease in uterine fundal height in the puerperal group.

TABLE 1: The Result of Literature Review about oxytocin and endorphine massage to Uterin Involution

No.	Author	Place / Country	Method	Population and Sample	Result
1.	Ani Melinawati.	Bandar Lampung, South Sumatra, Indonesia.	Quasy of experiments	40 post partum mothers at BPS Desy Andriani Bandar Lampung. Divided into 2 groups, namely the intervention group and the control group.	There was a significant difference in the mean uterine involution between mothers who had a combination of oxytocin massage and endorphin massage and those who were not given the intervention (p value = 0.020 <0.05). The result of the combination of oxytocin massage and endorphine massage is between 0.95 cm to 1.55 cm.
2.	Nurmala Sari, Ariawan Soejoenoes, Sri Wahyuni, Onny Setiani, Choiroel Anwar.	Semarang, Central Java, Indonesia.	Quasy of experiments	44 post partum mother at Puskesmas Bayan, Purworejo. Divided into 4 groups, namely the oxytocin massage group, the endorphin massage group, the control group and the combination group oxytocin massage and endorphin massage.	Group combination of oxytocin and endorphins massage proved most effective in speeding up the process of involution of the uterus in normal primiparous puerperal women with TFU decline of $3.43 \pm SD 0.41$ cm.
3.	Risqi Yulianti	Semarang, Central Java, Indonesia.	Quasy of experiments	30 post partum women were divided into 2 groups, namely combination massage and postpartum exercise.	The combination of oxytocin massage and endorphin massage was proven to be more effective than postpartum exercise in accelerating the process of uterine involution in normal postpartum mothers. In this study, the massage combination group experienced a decrease in uterine fundal height between 3.6 - 5.1 cm for 3 days

## 4. Discussion

Results of review on the effect of combined oxytocin massage and endorphin massage on uterine involution in post partum mothers. Namely that the combination of this massage greatly affects the involution of the mother's uterus, it can be seen from a significant reduction in uterine fundal height and is only done for 3 days.

The combined intervention of oxytocin and endorphin massage has a more significant impact on the process of uterine involution, because the oxytocin massage intervention which is carried out around the connective tissue will increase the level of beta endorphins and the hormone oxytocin where the mother will relax so that it can reduce stress and the hormone oxytocin will be produced without any inhibitor [7]. Then the endorphin massage intervention will exercise the anterior pituitary to secrete endorphins that cause a sensation of pain and the body will feel relaxed which will increase the release of the hormone oxytocin which plays an active role in increasing uterine contractions in the process of uterine involution [8]. When the second massage is combined, it will be able to increase the level of the hormone oxytocin which is more significant so that it can accelerate the process of uterine involution. The neck area along the spine and back is closely related to the presence of the pituitary and hypothalamus. Located close to the head and chest with the action of the semispinal muscles causing simultaneous contraction will accelerate the obstructed blood supply of oxytocin. The hormone oxytocin, released from treatment of the hypothalamus, will delay and promote uterine contractions, compress blood vessels and aid in the homeostatic process. The contraction and retraction of the uterine muscles will reduce the blood supply to the uterus. This process will help reduce the scars where the placenta is implanted and reduce bleeding [9].

## 5. Conclusion

Research on the combined effect of oxytocin massage and endorphin massage provides a conclusion that the combined intervention of oxytocin massage and endorphin massage provides better results and is significant in decreasing uterine fundal height. Where this massage is very easy to do and can be done after 24 hours postpartum, with a period of 35 minutes, for 3 days. However, there are still very few journals on the combination oxytocin massage and endorphin massage, so further research is needed on the combination oxytocin massage and endorphin massage against uterine

involution of post-partum mothers, so that nursing science, especially maternity nursing can develop well so that post partum complications can be minimized.

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## Conflict of Interest

The authors have no conflict of interest to declare.

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