# HEAT THERAPY IN LABOUR

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## QUESTION

How strong is the evidence for the use of heat therapy versus other non-pharmacological pain relief for women in labour?

## RESULTS

### ONLINE RESOURCES (GREY LITERATURE)

### CLINICAL DECISION SUPPORT TOOLS

UpToDate. (2023). **Nonpharmacologic approaches to management of labor pain.** Web link.

- Heat is typically applied to the patient's back, lower abdomen, groin, and/or perineum.
- Possible heat sources include a warm water bottle, heated rice-filled sock, warm compress, electric heating pad, or warm blanket.
- In addition to being used for pain relief, heat is used to relieve chills or trembling, decrease joint stiffness, reduce muscle spasm, increase connective tissue extensibility, and to support relaxation between contractions.
- One technique for relief of contraction pain is to apply heat to the site of greatest pain (often lower abdomen or lower back) to coincide with the onset of a contraction.
- No studies have evaluated the optimal temperature or duration of heat therapy. Care should be taken to avoid burns. While results from small trials are encouraging, data from large trials are needed to assess efficacy and determine optimal time of application and ideal temperatures.

### GUIDELINES

Queensland Health. (2023). **Maternity and neonatal clinical guideline: Intrapartum pain management.** Web link.

- Superficial heat from hot packs, moist towels, heated silica packs, shower and bath—to avoid burns:
  - Test heat on caregiver's skin
  - If using hot pack, apply one or two layers of cloth between woman's skin and pack.
  - Avoid if neuraxial analgesia administered
- Warm showers relieve labour pain, release tension and ease backache, encourage relaxation and mobilisation.
- Perineal warm compresses in second stage are associated with reduced pain, increased birth satisfaction and fewer third- and fourth-degree tears.

Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine. (2020). **Acute Pain Management: Scientific Evidence, 5th edition**. Web link.

- Heat packs may reduce labour pain during the first and second stages.
- Warm packs vs usual care reduce pain intensity in the first stage of labour and second stage of labour. Thermal manual methods resulted in a reduction in pain intensity vs usual care and intermittent hot and cold packs reduced pain in the first phase of labour vs usual care.

World Health Organization. (2019). **WHO recommendations: Intrapartum care for a positive childbirth experience.** Web link.

- Manual techniques, such as massage or application of warm packs, are recommended for healthy pregnant women requesting pain relief during labour, depending on a woman's preferences.

Government of Western Australia. (2017). **Statewide clinical guidelines for women requesting immersion in water for pain management during labour and/or birth.** Web link.

- If a woman is considering the use of immersion in water during labour and/or for birth, this should be discussed with the woman and her support people during pregnancy to enable the woman to make a fully informed decision.

Queensland Health. (2017). **Maternity and neonatal clinical guideline: Normal birth.** Web link.

- Heat can improve tension and backache during labour
- Superficial heat can be obtained from hot packs, hot moist towels, heated silica packs, warm towels, baths and showers
- Sacrum–perineum heat therapy during active labour may be associated with reduced pain and increased satisfaction.

## PEER-REVIEWED LITERATURE – MOST RECENT FIRST

Articles are grouped by theme:

- Heat therapy
- Warm water therapy
- Comparison of heat and cold therapy
- Physical interventions

*Each article summary contains excerpts from the abstract and an online link.*

## HEAT THERAPY

Dastjerd F, et al. (2023). **Effect of infrared belt and hot water bag on labor pain intensity among primiparous: a randomized controlled trial**. *BMC pregnany and childbirth*, 23(1), 1-10. View full-text.

Based on these findings, heat therapy with an infrared belt reduced the severity of pain in the first stage of labor. The infrared belt could be used and recommended as a safe and effective pain relief in childbirth and maternity care.

Goswami S, et al. (2022). **The effect of heat therapy on pain intensity, duration of labor during first stage among primiparous women and Apgar scores: A systematic review and meta-analysis**. *European journal of midwifery*, *6*(66), 1-9. View full-text.

Current evidence shows that heat therapy effectively decreases labor pain intensity and shortens the duration of labor in the first stage, and it can be used as nonpharmacological management for labor pain

Türkmen H, et al. (2021). **The effect of perineal warm application on perineal pain, perineal integrity, and postpartum comfort in the second stage of labor: Randomized clinical trial**. *Complementary medicine research, 28*(1), 23-30. Request full-text.

In the second stage of labor, it was found that the application of warmth decreases perineal pain, maintains the perineal integrity, and improves postpartum comfort.

Alshahrani H A. (2019). **Effect of hot pack on labor pain, duration of labor, and satisfaction of primigravidae women in Saudi Arabia**. *Clinical Trial from King Saud University*. View clinical trial.

Heat therapy, such as the hot pack is a non-pharmacological method for labor pain management. Heat therapy is effective in reducing labor pain. Although it has been not effective in shortening the duration of labor, women are satisfied with the use of hot pack. This finding could be useful in formulating policies regarding implementation of the non-pharmacological methods for labor pain management. It is essential to educate healthcare professionals regarding the benefits of heat therapy even before implementing a change.

## HOT/WARM WATER THERAPY



Marin N V, et al. (2023). **Complementary techniques of relaxation of non-pharmacological analgesia during childbirth: systematic review**. *Enfermería Global, 23*(1), 458-490. View full-text.

The interventions analysed were relaxation techniques such as hypnosis, intradermal injection of sterile water, warm water immersion, massage, acupuncture, music therapy, aromatherapy, continuous support and mind-body practices like relaxing breathing, yoga and meditation, among others. The main conclusion of this study is that relaxation techniques may decrease the level of pain during labour, although the current scientific evidence is limited and the methodological quality varies from low to moderate. More randomised controlled trials are needed to support this research.

Feeley C, et al. (2021). **A systematic meta-thematic synthesis to examine the views and experiences of women following water immersion during labour and waterbirth**. *Journal of advanced nursing, 77*(7), 2942-2956. View full-text.

Women who used warm water immersion for labour and/or birth describe liberating and transformative experiences of welcoming their babies into the world. They were empowered, liberated, and satisfied. We recommend maternity professionals and services offer water immersion as a standard method of pain relief during labour/birth.

Gallo R B S, et al. (2018). **Sequential application of non-pharmacological interventions reduces the severity of labour pain, delays use of pharmacological analgesia, and improves some obstetric outcomes: a randomised trial**. *Journal of physiotherapy, 64*(1), 33-40. View full-text.

Participants in the experimental group received three interventions for up to 40minutes each in particular stages of labour: exercise on a Swiss ball at 4 to 5cm of cervical dilation; lumbosacral massage at 5 to 6cm dilation; and a warm shower at >7cm dilation. Participants in the control group

received usual maternity unit care. Participants in both groups were encouraged to try not to avoid or delay use of pharmacological analgesia. This sequence of non-pharmacological interventions significantly reduced labour pain from 4cm to beyond 7cm of cervical dilation, as reflected in decreased and delayed use of analgesic medication. Women in labour could be encouraged to use these interventions, especially if they seek to minimise or delay use of analgesic medication.

Henrique A J, et al. (2018). **Non-pharmacological interventions during childbirth for pain relief, anxiety, and neuroendocrine stress parameters: A randomized controlled trial**. *International journal of nursing practice, 24*(3), 1-8. View full-text.

Warm showers and perineal exercises could be considered as adjunct therapy for women suffering from pain, anxiety, and stress during childbirth.

## COMPARISON OF HEAT AND COLD THERAPY

Altinayak S Ö, et al. (2024). **Effect of warm and cold acupressure applied to the L14 acupressure point on childbirth comfort during labor: A randomized controlled trial**. *Alternative therapies in health and medicine, 30*(2), 13-17. View full-text.

In this study, both warm and cold acupressure were found to alleviate labor pain. The warm acupressure, in particular, had a more positive effect on childbirth comfort. Thus, warm and cold acupressure can be recommended to relieve labor pain and increase childbirth comfort.

Didevar M, et al. (2022). **The effectiveness of heat therapy and cold therapy in labor pain intensity in primiparous women: A randomized controlled trial**. *Nursing and Midwifery Studies, 11*(3), 171-176. View full-text.



The aim of this study was to compare the effects of heat therapy (HT) and cold therapy (CT) on Labor Pain (LP) intensity among primiparous women. There was no significant difference among the groups respecting LP intensity at different measurement time points, except at the cervical dilation of 8–9 cm in which LP intensity in the CT group was significantly less than both the HT and the control groups ($P < 0.05$). CT is effective in significantly reducing LP intensity among primiparous women.

Assistance Publique Hôpitax de Paris. (2021). **Impact of thermotherapy during childbirth on postpartum perineal pain (PERISAFE)**. *Clinical Trial*. View clinical trial.

Midwives frequently use thermotherapy with heat or cold. However, these practices cannot be recommended due to a lack of data. Moreover, the potentially synergic effect of consecutive application of heat and cold therapy into the perineum during active second stage of labor and immediate postpartum period has never been evaluated. We hypothesize that thermotherapy during childbirth may reduce postpartum perineal pain.

Yazdkhasti M, et al. (2018). **The effect of localized heat and cold therapy on pain intensity, duration of phases of labor, and birth outcomes among primiparous females: A randomized, controlled trial**. *Shiraz E-Medical Journal, 19(*8), 1-8. View full-text.

Localized heat and cold therapy are non-pharmacological, non-invasive, satisfactory for the primiparous females, and effective methods to control and relieve pain during labor without adverse effects on maternal and fetal outcomes.

## PHYSICAL INTERVENTIONS

Melillo A, et al. (2022). **Labor Analgesia: A systematic review and meta-analysis of non-pharmacological complementary and alternative approaches to pain during first stage of labor**. *Critical reviews in eukaryotic gene expression, 32*(2), 61-89. View full-text.

Techniques included were massage (n = 11), birth balls (n = 5) mind-body interventions (n = 8), heat application (n = 12), music therapy (n = 9), dance therapy (n = 2), acupressure (n = 16), and transcutaneous electrical nerve stimulation (TENS) (n = 8). The present review found significant evidence in support of the use of complementary and alternative medicine for labor analgesia, and different methods showed different impact. However, more high-quality trials are needed.

Traverzim M A, et al. (2021). **The effect of photobiomodulation on analgesia during childbirth: A controlled and randomized clinical trial**. *Photobiomudlation, photomedicine, and laser surgery, 39*(4) 265-271. Request full-text.

It is concluded that LED can be considered an alternative, since it caused pain reduction without changing other parameters during labor, compared with hot shower, a method included in hospital protocols, proving to be safe.

Both heat therapy and birth ball can use as inexpensive complementary and low risk treatment for labor pain.

Türkmen H, et al. (2021). **Massage and heat application on labor pain and comfort: A quasi-randomized controlled experimental study**. *Explore New York, 17*(5), 438-445. View full-text.

Heat application and massage can be used as a safe and effective midwifery intervention to reduce the perception of pain in pregnant women and provide comfort during labor.

Smith C A, et al. (2018). **Massage, reflexology and other manual methods for pain management in labour**. *The Cochrane database of systematic reviews, 3*(3), 1-75. View full-text.

Massage, warm pack and thermal manual methods may have a role in reducing pain, reducing length of labour and improving women's sense of control and emotional experience of labour, although the quality of evidence varies from low to very low and few trials reported on the key GRADE outcomes. Few trials reported on safety as an outcome. There is a need for further research to address these outcomes and to examine the effectiveness and efficacy of these manual methods for pain management.

Taavoni S, et al. (2016). **Birth ball or heat therapy? A randomized controlled trial to compare the effectiveness of birth ball usage with sacrum-perineal heat therapy in labor pain management**. *Complementary therapies in clinical practice, 8*(24), 99-102. View full-text.

Both heat therapy and birth ball can use as inexpensive complementary and low risk treatment for labor pain.

# APPENDIX

## SEARCH METHODOLOGY

A systematic search was conducted for literature. The results were screened by librarians using Covidence.

### SEARCH LIMITS

- English-language
- Published within the last 10 years

### DATABASES SEARCHED

- Medline – index of peer reviewed articles across health sciences and medicine.
- Embase – index of biomed and pharmacological peer reviewed journal articles.
- Emcare – index of nursing, allied health, critical-care medicine and more.
- Cochrane Library – collection of databases containing high-quality independent evidence.
- APA PsycInfo – index of peer-reviewed literature covering behavioural and social sciences
- PEDro – index of physiotherapy evidence based database for RCTs, systematic reviews and guidelines
- Grey literature – Google, Google Scholar, Trip database

## SEARCH TERMS



| Concept | MeSH headings | Keywords |
|---|---|---|
| Heat therapy | Pain management/ or Hot temperature/ | Heat pack(s) or heat therapy or heat therapies or heat pad(s) or hot (water) bottle or hot pack(s) or hot therapy or hot therapies or hot pad(s) |
| Labour | Labor, Obstetric/ or Natural Childbirth | Labor or labour |

## MEDLINE SEARCH STRATEGY

1 (heat* adj3 (pack* or therap* or pad)).ti,ab,kf. 2089
2 (hot adj3 (bottle or pack* or therap* or pad)).ti,ab,kf. 1061
3 Pain management/ or hot temperature/ 168718
4 1 or 2 or 3 171066
5 (Labour or labor).ti,ab,kf. 135111
6 exp Labor, Obstetric/ or Natural Childbirth/ 51203
7 5 or 6 157440
8 4 and 7 1208
9 limit 8 to (english and last 10 years) 463

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