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# The Effect of Auricular Acupressure on Postpartum Perineal Pain: A Systematic Review

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#### Abstract

**Background and objectives:** One of the potentially effective methods for relieving postpartum perineal pain is auricular acupressure. This review aimed to evaluate the clinical effect of auricular acupressure on postpartum perineal pain in a systematic review.

*Material and Methods:* An extensive systematic search was performed on online electronic databases, including Scopus, PubMed/MEDLINE, ProQuest, Web of Science, and Cochrane using the keywords related to the purpose, from the earliest to June 30, 2021.

**Results:** Of 263 articles, three studies were included in the review. A total of 386 women with a mean age of 29.79 years were included in the review. Of the participants, 192 women were in the intervention group. Of the studies included, two studies evaluated auricular acupressure, and one study evaluated battlefield auricular acupuncture plus standard analgesia. Overall, the number of acupressure points varied from 3 to 5. In most cases, auricular acupressure was used at points of Shen Men (n=3) and the external genital area (n=2). Overall, auricular acupressure in one study out of three studies had a significant effect on reducing postpartum perineal pain. Two out of three studies reported no side effects of auricular acupressure for participants.

*Conclusion:* It seems that auricular acupressure can be used as a simple, low-cost, and practical intervention to reduce postpartum perineal pain. However, future well-designed studies are needed to confirm the findings of this systematic review.

*Keywords:* Complementary Therapies[<u>MeSH</u>]; Complementary Therapies[<u>MeSH</u>]; Acupuncture, Ear[<u>MeSH</u>]; Postpartum period[<u>MeSH</u>]; Pain[<u>MeSH</u>]



#### Highlights

- One of the potentially effective methods for relieving postpartum perineal pain is auricular acupressure.
- Auricular acupressure in one study out of three studies had a significant effect on reducing postpartum perineal pain.
- Two out of three studies reported no side effects of auricular acupressure for participants.
- Therefore, auricular acupressure can be used as a simple, low-cost, and practical intervention to reduce postpartum perineal pain. However, future well-designed studies are needed to confirm the findings of this systematic review.

### Introduction

The episiotomy is a surgical incision of the perineal muscles that is carried out to enlarge the soft tissue space of the inferior pelvic aperture, avert perineal injuries during delivery, facilitate it, and reduce the time of fetal descent at the end of the second stage of delivery (1). The episiotomy is related to some adverse effects/outcomes such as fatigue, post-procedure pain, insomnia, and difficulty in sitting and hugging the baby (2, 3). Perineal pain is the most common and early problem of episiotomy (4). Since this pain delays, the mother's closeness to the baby (even prevent the mother-baby emotional relationship) and unable the mother to care for the baby (5), the pain caused by the episiotomy must be minimized so that the mother can do the role of mother in peace and without stress (6).

There are various medical and nonpharmacological methods that can be used to decrease perineal pain (7). Due to side effects, many of the medications may have an adverse effect on the baby (8). Therefore, the use of nonpharmacological therapies, such as complementary medicine has been recommended due to their proven effectiveness and having a holistic care approach (9). However, the information published on non-pharmacological

methods used to control pain after episiotomy is rare. Acupressure is a non-pharmacological method based on the principles of acupuncture (10). Ear therapy or auricular therapy as part of acupressure includes the use of the ear and its relationship with different parts of the body in the diagnosis and treatment of diseases (11), which returns the body to a harmonious and balanced state. By stimulating the ear parts, its benefits can be enjoyed for days and even weeks (12).

In a large number of clinical studies, the positive effects of auricular therapy have been confirmed, but a limited number of researchers have discussed the effects of auricular therapy on reducing pain after episiotomy. Since nonpharmacological interventions such as auricular therapy are safe, low risk, and have minimal side effects in controlling pain after episiotomy, further study and review of the literature in this field is necessary. Therefore, this study aimed to comprehensively review the available research literature regarding the effect of auricular acupressure on postpartum perineal pain.

# **Materials and Methods**

The systematic review was performed based on Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (13).

#### Search strategy

An extensive systematic search was performed on online electronic databases, including Scopus, PubMed/MEDLINE, ProQuest, Web of Science, and Cochrane via keywords extracted from Medical Subject Headings from the earliest to June 30, 2021. Keywords were selected based on the PICO style (Participants, Intervention, Comparison, and Outcome) to answer the research question. In this study, auriculotherapy was selected as an intervention, and postpartum perineal pain was selected as the outcome. The search syntax was customized based on the specific attributes of each database. For example, the search strategy in the PubMed/MEDLINE database was ("Impact" OR "Effect" OR "Improve" OR "Influence" AND "Intervention") AND ("Postpartum Period" OR "Labor Pain" OR

"Obstetric Pain") AND ("Auriculotherapy" OR "Auricular Acupuncture" OR "Ear Acupuncture" OR "Auricular Acupressure" OR "Ear Acupressure"). The language of the studies was limited to English. The search process was conducted by two researchers, independently. In the present study, the gray literature including expert conference presentations, opinion, dissertations, research and committee reports, and ongoing research was ignored due to inaccurate results (14).

#### Inclusion and exclusion criteria

Published English experimental studies focusing on the effect of auricular acupressure on postpartum perineal pain were included in this systematic review. Observational studies, letters to the editor, case reports, conferences, qualitative studies, and reviews were excluded.

#### Study selection

Data management was performed using EndNote X8 software. The study selection process was conducted in the following steps: 1) removal of duplicates, 2) evaluation of the title and abstract of studies, and 3) evaluation of the full text of the articles. The reference list of included studies was assessed to prevent the loss of relevant data.

#### Data extraction and quality assessment

Information such as first author name, year of publication, location, sample size, male/female ratio, age, design, and aim (s) of the study, interventions, and key findings of studies was extracted from the included studies. The risk of bias was assessed for the included studies using the Cochrane Risk of Bias Assessment Tool. This tool evaluates selection bias (random sequence generation allocation concealment), and performance bias (blinding of participants and personnel), detection bias (blinding of outcome assessment), attrition bias (incomplete outcome data), and reporting bias (selective reporting), other biases (15). Two researchers assessed the of bias for the included studies. risk independently.

## **Results**

#### Study Selection

In total, 263 articles were obtained through initial database searches and three articles were found by hand-searching of the references. After evaluating duplicate records, 33 studies were excluded. After evaluating the title, abstract, and full text of the articles, three studies (16-18) were included in this systematic review (Figure 1).

#### Study Characteristics

A total of 386 women with a mean age of 29.79 years were included in the systematic review. All studies had a Randomized Control Trial (RCT) design. Of the participants, 192 women were in the intervention group. In two studies (17, 18) only the visual analogue scale (VAS) was used to assess pain and in one study (16) the verbal descriptive pain scale (VDPS) and VAS were used. Of the included studies, one study (18) was conducted in the USA, one study (16) in Hong Kong, and one study (17) in Croatia (Table 1).

#### Quality assessment

Based on the Cochrane Risk of Bias Assessment Tool, two studies (16, 18) had a low risk of bias and one study (17) had a high risk of bias (Figures 2 and Table 1).



Figure 1. Flow diagram of the studies



Figure 2. Methodological quality assessment of included studies

| First                                       | Location     | Study   | M/F   | Age                    | Control  | Pain            | Key results  | Risk    |
|---|--------------|---|-------|------------------------|--|-----------------|--|---------|
| Author/year                                 |              | characteristics<br>1. Design<br>2. Sample Size (I/C)<br>3. Intervention                             | ratio | (mean±S<br>D)          | Group  | measur<br>ement |  | of bias |
| Kwan et al.,<br>/2014 <sup>16</sup>         | Hong<br>Kong | 1. RCT<br>2. 256 (126/130)<br>3. Auricular<br>acupressure   | 0/100 | 30.87<br>(SD=4.51<br>) | Application<br>of tapes and<br>seeds on four<br>irrelevant<br>points | VDPS<br>& VAS   | No significant differences were found between the intervention and control groups in the VDPS & VAS results obtained at any point in time. VAS scores were generally lower in the intervention group at all time points after the first six hours (P>0.05). It was found that the accumulative mean consumption of paracetamol tablets was greater in the control group at all times (P>0.05).   | Low     |
| Kim <i>et al.</i> , /2019 <sup>18</sup>     | USA          | 1. RCT<br>2. 70 (37/33)<br>3. Battlefield<br>Auricular<br>Acupuncture plus<br>standard<br>analgesia | 0/100 | 27.50                  | Standard<br>analgesia<br>alone                                       | VAS             | The mean time to 50% sustained reduction of initial pain in control and intervention groups was 6 and 5 days, respectively (P=0.35). The mean total morphine equivalent units in the control and intervention groups were 88 and 82 mg respectively (P=0.45). Participants did not have any side effects such as infection, inflammation, retained needle.   | Low     |
| Jaić <i>et al.</i> ,<br>/2019 <sup>17</sup> | Croatia      | 1. RCT<br>2. 60 (29/31)<br>3. Auricular<br>acupuncture  | 0/100 | 31.00                  | Routine care   | VAS             | Pain in the intervention group decreased in the second<br>and third postpartum days (P <0.05). No side effects<br>were reported in patients who received auricular<br>acupuncture. The groups did not significantly differ<br>during all 3 days in total analgesic consumption, type<br>of analgesics, and number of daily doses of<br>analgesics. There were no statistically significant<br>differences between the groups in pain intensity at rest<br>and during activity during the 1st day. However, on<br>the 2nd day, patients in the acupuncture group had a<br>statistically lower VAS score during rest and activity.<br>On the third day, a lower VAS score was noted both<br>during activity and rest in the acupuncture group. | High    |

**Table 1.** Basic characteristics of the studies included in the systematic review

VAS: Visual Analogue Scale; VDPS: Verbal Descriptive Pain Scale; RCT: Randomized Control Trial; SD: Standard Deviation.

# The effect of auricular acupressure on postpartum perineal pain

In this systematic review, three studies (16-18) assessed the effect of auricular acupressure on postpartum perineal pain. Of the studies included, two studies (16, 17) evaluated auricular acupressure and one study (18) evaluated Battlefield Auricular Acupuncture plus standard analgesia (Table 2).

1. Auricular acupressure: In one study, participants in the intervention group received an application of tapes and seeds of Vaccaria segetalis Garcke on four designated acupressure points on both ears. The apex of the auricle and the Shen Men points were used to relieve pain and inflammation. Anus and external genital organs points were also used for their correspondence to the anatomical regions. Participants received the same number of seeds. Four adhesive tapes of size 6×6 mm were used to secure one seed to each stimulation point. The intervention was performed every four hours for 30 seconds (16). In another study, auricular acupuncture was performed using three needles on the dominant ear based on French auriculotherapy guidelines at three points including the internal genital area, external genital area, and Shen Men. Sterile  $0.2 \times 1.4$  mm press needles were used for auricular acupuncture 6 to 8 hours after childbirth by a certified acupuncturist (17).

2. Battlefield Auricular Acupuncture plus standard analgesia: One study (18) evaluated Battlefield Auricular Acupuncture plus standard analgesia. In the intervention group, a qualified physician placed semi-permanent acupuncture needles into all five standard Battlefield Auricular Acupuncture points (Point Zero, Shen Men, Thalamic point, Omega 2, and Cingulate Gyrus) bilaterally for a total of ten needles. Patients were followed up once daily for 10 days (<u>18</u>).

The number of acupressure points varied from 3 to 5 (16-18). In most cases, auricular acupressure was used at points of Shen Men (n=3) (16-18) and the external genital area (n=2) (16, 17). Overall,

auricular acupressure in one study had a significant effect on reducing postpartum perineal pain (17). Two studies (17, 18) reported no side

effects of auricular acupressure for participants (Table 2).

**Table 2.** Interventions of the studies included in the systematic review.

| First                                       | Type of   | Number of      | Acupressure points   | Description  |
|---|---|----------------|--|--|
| Author/yea                                  | intervention  | acupressure    |  |  |
| <b>r</b><br>Kwan <i>et al.</i> .            | Auricular   | points<br>Four | ✓ Shen Men   | Participants in the intervention group received an application of  |
| /2014 16                                    | acupressure   |                | <ul> <li>✓ External<br/>Genitalia</li> <li>✓ Anus</li> <li>✓ Apex of auricle</li> </ul>  | tapes and seeds of Vaccaria segetalis Garcke on four designated acupressure points on both ears. The apex of the auricle and the Shen Men points were used to relieve pain and inflammation. Anus and external genital organs points were also used for their correspondence to the anatomical regions. Participants received the same number of seeds. Four adhesive tapes with size $6\times6$ mm was used to secure one seed to each stimulation point. The intervention was performed every four hours for 30 seconds. |
| Kim <i>et al.</i> , /2019 <sup>18</sup>     | Battlefield<br>Auricular<br>Acupuncture<br>plus standard<br>Analgesia | Five           | <ul> <li>✓ Point Zero</li> <li>✓ Shen Men</li> <li>✓ Thalamic point</li> <li>✓ Omega 2</li> <li>✓ Cingulate<br/>Gyrus</li> </ul> | In the intervention group, a qualified physician placed semi-<br>permanent acupuncture needles into all five standard Battlefield<br>Auricular Acupuncture points bilaterally for a total of ten needles.<br>Patients were followed up once daily for 10 days.   |
| Jaić <i>et al.</i> ,<br>/2019 <sup>17</sup> | Auricular<br>acupuncture  | Three          | <ul> <li>✓ Internal genital<br/>area</li> <li>✓ External genital<br/>area</li> <li>✓ Shen Men</li> </ul>                         | Auricular acupuncture was performed using three needles on the dominant ear based on French auriculotherapy guidelines at three points including internal genital area, external genital area, and Shen Men. Sterile $0.2 \times 1.4$ mm press needles were used for auricular acupuncture 6 to 8 hours after childbirth by a certified acupuncturist.   |

# Discussion

The present study aimed to comprehensively review the available research literature regarding the effect of auricular acupressure on postpartum perineal pain. Based on the findings of this review, auricular acupressure in one of three studies had a significant effect on reducing postpartum perineal pain. Two of three studies reported no side effects of auricular acupressure for participants. However, future studies are needed to confirm the findings of this systematic review.

As the findings of this study showed, auricular acupressure in one of three studies had a significant effect on reducing postpartum perineal pain. Consistent with this finding, an overview of systematic reviews showed that auricular therapy had positive results on pain, but acupuncture, acupressure, and electrical acupuncture were associated with different therapeutic effects (19). A study in Denmark found that auricular acupressure was less effective in reducing pain during surgical repair than local anesthetics (20). Also, a randomized prospective study showed that auricular therapy could reduce the severity of Arthroscopic Meniscectomy pain that was not significant (21). Another study in the USA found that auricular therapy had no significant effect on reducing pain in patients with low back pain (22). In fact, a variety of treatments, including acupuncture/acupressure, electronic acupuncture, and the use of different needles, will lead to different treatment outcomes. Therefore, using the same pattern and the correct method may solve this challenge (19, 23). However, some published studies have reported the effectiveness of auricular therapy on pain management (24-26). A systematic review and meta-analysis showed that auricular therapy affects the severity of acute and chronic pain (24). Another study showed that auricular therapy is effective in a variety of chronic, acute, pre-, and post-operative pain and trauma pain as a simple, inexpensive, effective, and low-risk intervention (25). Also, other review results showed that the use of auricular point acupressure in combination with other interventions, regardless of the severity of pain, better cures acute pain and compared to chronic pain, requires a shorter treatment period (26). Therefore, more scientific evidence is needed for the efficacy of auricular acupressure on postpartum perineal pain.

#### Limitations

The main limitation of the present study is the lack of meta-analysis due to the limited number of studies. Also, the limited number of studies may affect the outcome of this systematic review.

#### Implications for practice

Auricular acupressure can be used as a nonpharmacological intervention with no side effects to reduce postpartum perineal pain in the clinic. Also, auricular acupressure is a simple, low-cost, and practical intervention that can be used as an alternative to pharmacological interventions.

#### Implications for future research

Limited studies have evaluated the effect of auricular acupressure on postpartum perineal pain. Therefore, it is suggested that future researchers design well-designed interventions in this area.

# Conclusion

Overall, auricular acupressure in one of three studies had a significant effect on reducing postpartum perineal pain. Also, two of three studies reported no side effects of auricular acupressure for participants. Therefore, it seems that auricular acupressure can be used as a simple, low-cost, and practical intervention to reduce postpartum perineal pain. However, future welldesigned studies are needed to confirm the findings of this systematic review.

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