

Influence of acupuncture and acupressure on labor duration: a systematic review

Influencia da acupuntura e acupressão no tempo do trabalho de parto: uma revisão sistemática

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Abstract

Objective: in this regard, the main goal of this systematic review is to identify and compare results that can build different perspectives on the efficacy of acupuncture using work time. **Methods:** the model followed for the construction of this systematic review was the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The keywords chosen were "Acupuncture" and "Labor Time". Studies originally published were analyzed in English and Portuguese between 1987 and 2020. The selected articles were those including acupuncture and acupressure techniques during labor. **Results:** 17 articles were in eligibility criteria. In six studies, the use of a standard questionnaire was not described. Sixteen were randomized clinical trials. Fourteen articles had the size of the sample equal to or less than one hundred, and only two exceeded three hundred participants. In most studies (n = 12), the early average acupuncture was between 37^o and 42^o week of pregnancy. Ten studies used acupuncture as the main technique. All cited the types of points used, including more present: SP6 and LI4. **Conclusion:** Acupuncture can be considered an effective technique in reducing the duration of work. However, more high-quality articles are needed to consolidate these positive results.

Keywords: acupuncture; labor; obstetrics; integrative medicine.

Resumo

Objetivo: identificar e comparar resultados que possam construir diferentes perspectivas sobre a eficácia da acupuntura no tempo de trabalho de parto. **Métodos:** O modelo seguido para a construção desta revisão sistemática foi o Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). As palavras-chave escolhidas foram "Acupuncture" e "Labor Time". Foram analisados estudos originalmente publicados em inglês e português entre 1987 e 2020. Os artigos selecionados foram aqueles que incluíam técnicas de acupuntura e acupressão durante o trabalho de parto. **Resultados:** Dezesete artigos estavam dentro dos critérios de elegibilidade. Em seis estudos, o uso de um questionário padrão não foi descrito. Dezesesseis foram ensaios clínicos randomizados. Quatorze artigos tinham o tamanho da amostra igual ou inferior a cem participantes, e apenas dois ultrapassaram trezentos participantes. Na maioria dos estudos (n = 12), a média inicial da acupuntura foi entre a 37^a e a 42^a semana de gestação. Dez estudos utilizaram a acupuntura como técnica principal. Todos citaram os tipos de pontos utilizados, sendo os mais presentes: BP6 e IG4. **Conclusão:** A acupuntura pode ser considerada uma técnica eficaz na redução da duração do trabalho de parto. No entanto, mais artigos de alta qualidade são necessários para consolidar esses resultados positivos.

Palavras-chave: acupuntura; trabalho de parto; obstetrícia; medicina integrativa.

INTRODUCTION

Acupuncture, a form of integrative medicine, can be considered a therapeutic method involving the insertion of thin needles into specific points of the body to promote health and treat diseases¹. Evidence of this practice, refined over centuries, dates back over five thousand years with origins in China². Chinese medicine has principles that differentiate it from Western medicine, with the former based on a holistic approach, while the latter focuses on classifying disorders as physical, emotional, or mental. Considering the current scenario, the past decades have been essential for the development and establishment of

acupuncture, which has come to be recognized as a medical specialty in various countries³.

Pregnancy, the period preceding childbirth, is a phase of great importance in a woman's life. Typically, pharmacological intervention during this stage was a priority, with oxytocin and misoprostol, uterotonic drugs, commonly used to induce labor⁴. However, with the advancement of research and studies, integrative methods have been developed and increasingly used to intervene in pregnancy⁵. When the process of labor

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does not progress physiologically, or there are maternal-fetal risks, from a medical perspective, the use of artificial means to stimulate uterine contractions is necessary to progress labor⁶. The application of acupuncture in labor induction has been studied and applied, proposing a more natural stimulation for the woman compared to medications. Needles are applied to points identified as inducers of labor or near them⁷.

From the perspective of Chinese medicine, which values a holistic view of the human being and the integrity of natural elements, the use of acupuncture to relieve the pain of the parturient aims to promote better maternal-fetal well-being involving the entire therapeutic field⁸. The main objective of this systematic review is to gather data on the effectiveness of acupuncture in labor duration. Thus, it is hoped that this article can provide means for the construction of different perspectives on the topic.

METHODOLOGY

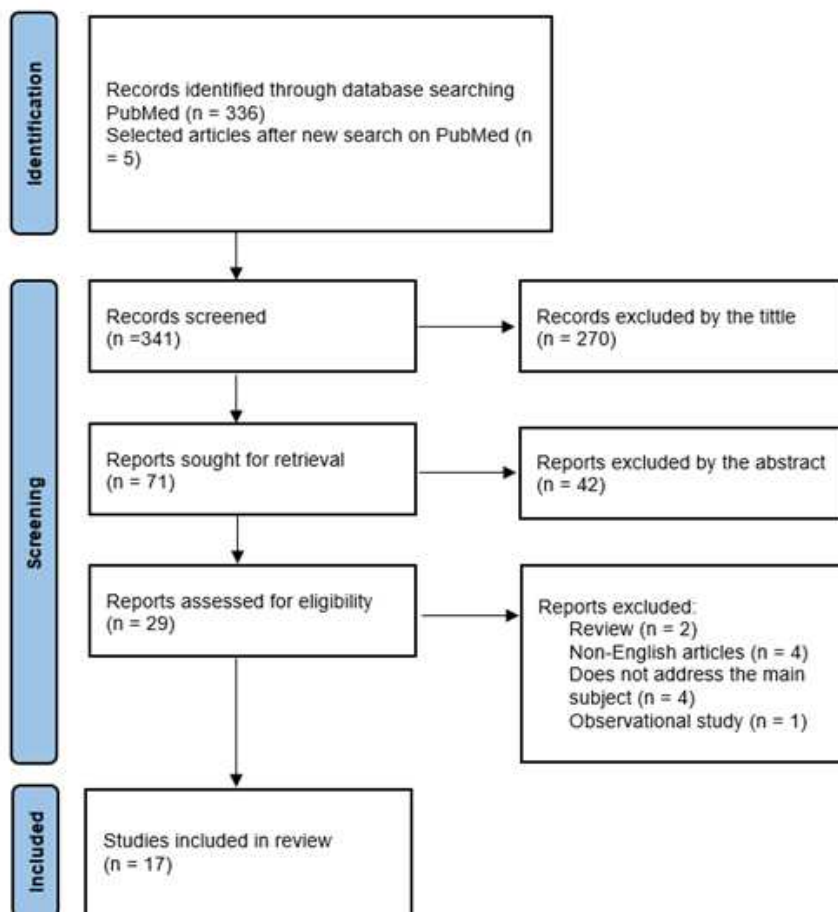
The model followed for constructing this systematic review was the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)⁹, which analyzed scientific articles originally published in English and Portuguese, with no publication

year limit up to June 2022, using the PubMed database. The established keywords for the search were "acupuncture" [majr] and "labor time" [majr]. The inclusion criteria for the selected articles were: focusing on pregnant women who practiced traditional acupuncture during labor, regardless of whether they were nulliparous or multiparous, in the selected languages, published up to the search date, being empirical, longitudinal, quantitative, or qualitative studies.

Scientific articles that did not include this context were disregarded, as well as systematic and literature reviews, books, chapters, dissertations, theses, non-indexed studies, and those that did not show clarity on the topics established for this research. For study selection, titles were initially identified, followed by abstracts and the reading of the entire article, reviewed by four authors. Any disagreements were resolved after the first author's review. Duplicate studies were excluded. Authors of studies for which full-text access was not possible were contacted, and articles impossible to read were considered ineligible (Figure 1).

The variables used to collect information from the articles were study author, country, year of publication, sample size, labor period, study design, and main outcomes.

Figure 1: PRISMA Flowchart for Study Selection.



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RESULTS

Out of 341 articles found in the search, 17 met the eligibility criteria (Table 1). Among them, five studies were conducted in Europe, five in Asia, three in Eurasia, three in North America, and one in Oceania. Regarding the year of publication, half of the articles (n=9) were published in the last ten years (2012-2022).

In six studies, the use of a standard questionnaire was not described. In the remaining eleven, two studies, none of the questionnaires used were formalized, meaning they were created by the authors to meet their demands. In nine studies, at least one questionnaire or scale was standardized, including the labor agency scale (n=1), ANOVA (n=2), KWH (n=1), Pregnant Watch Form (n=1), and Visual Analog Scale (VAS) (n=6), none related to acupuncture itself.

Of the articles analyzed, sixteen were randomized clinical trials, one was a non-randomized clinical trial, and one was a case-control study. Fourteen articles had sample sizes equal to or less than one hundred, and only two exceeded three hundred participants. In only 1 article, acupuncture began from the first week of gestation until

the moment of delivery (Ajori, Ladan et al). In most studies (n=12), the average onset of acupuncture was between 37° to 42° weeks. In 1 study, the standard timing of performing the technique in the sample was not described.

Ten studies used acupuncture as the main technique, six used acupressure, and among them, one study included electroacupuncture as one of the comparison groups. All cited the types of points used, among which Sp6 and LI4 were most commonly present. Only two studies mentioned the type of needle used (Seirin needles, 1–2 inches). Ten articles detailed the duration of acupuncture, with an average of 20-30 minutes.

Finally, eleven studies showed a positive outcome regarding the influence of acupuncture on labor duration; two showed a neutral outcome where the use and non-use of the technique had similar results; two had negative outcomes, where the use of acupuncture, according to these studies, did not have as good results as other techniques performed, and two were inconclusive, not stating whether the results found regarding the use of acupuncture were satisfactory or not.

Table 1: Characteristics of the studies included in this systematic review.

Authors	Country	Year	Sample Size	Period	Study Design	Results
Lyrenäs, S et al ¹² .	Sweden	1987	Acupuncture group (n = 56) and no intervention control group (n = 112)	End of 36th week	Non-randomized clinical trial	In women who received treatment, the mean durations of the latent, active, and second stages of labor were 4.1, 3.4, and 1.4 h, respectively. In women not treated with acupuncture, the corresponding durations were 4.4, 3.5, and 1.1 h.
Tempfer, C et al ¹⁴ .	Austria	1998	Acupuncture group (n = 40) and no intervention control group (n = 40)	From 35th week of gestation	Randomized clinical trial	The mean difference in total labor duration between pairs combined with and without acupuncture was 2,136.5 minutes. The mean difference in the duration of the first stage of labor between pairs combined with and without acupuncture was 2,138.8 minutes. The mean difference in the duration of the second stage of labor between combined pairs with and without acupuncture was 2.3 minutes.

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Authors	Country	Year	Sample Size	Period	Study Design	Results
Rosted, Palle, and Mads Bundgaard ²³ .	England	2003	Segmental acupuncture group (n = 10), superficial acupuncture group (n = 10), and control group received only a dummy block (n = 10)	Not described	Randomized clinical trial	The onset time of local analgesia was 62 seconds after segmental acupuncture was administered, compared to 115 seconds taken during extra segmental acupuncture. The time required to achieve sufficient analgesia in the group receiving a dummy block was only 119 seconds.
Lee, Mi Kyeong et al ²² .	South Korea	2004	Acupressure group (n = 36) and SP6 touch control group (n = 39)	Above 37 weeks	Randomized clinical trial	The total labor time (from 3 cm dilation to delivery of fetus) was significantly shorter in the SP6 acupressure intervention group than in the control group. The results showed that women in the SP6 acupressure group had a significantly shorter duration of the first stage of labor (from cervical dilation of 3 cm to complete dilation) and total labor time than women in the SP6 touch group, although the duration of the second stage of labor (from complete dilation to delivery) did not differ between the two groups.
Harper, Terry C et al ¹³ .	USA	2005	Acupuncture group (n = 30) and no intervention control group (n = 26)	Between 39 4/7 to 41 weeks	Randomized clinical trial	Bishop's scale was similar in both groups. Time to delivery occurred 21 hours earlier in the acupuncture group, but this difference was not considered significant. Compared to the control group, women with acupuncture have a trend for spontaneous labor and less chance of having a cesarean section.
Gaudet, Laura M et al ⁶ .	Canada	2008	Acupuncture group (n = 9) and simulated acupuncture control group (n = 7)	Between 39+0 and 40+3 weeks	Randomized clinical trial	There was a difference in labor of 62 hours in favor of those who participated in treatment; additionally, women in this group had shorter labors by 2 hours and 20 minutes. The average interval between intervention and delivery in the acupuncture group was 146 hours, while the control group's average interval was 208 hours.

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Authors	Country	Year	Sample Size	Period	Study Design	Results
Smith, Caroline A et al ¹⁰ .	Australia	2008	Acupuncture group (n = 181) and simulated acupuncture control group (n = 183)	41 weeks	Randomized clinical trial	The duration of labor in the acupuncture group (P=23) was 5.9 hours, excluding women who had cesarean deliveries; in contrast, the duration of labor in the control group (P=5) was 6.5 hours.
Asher, Gary N et al ¹¹ .	USA	2009	Simulated acupuncture group (n = 29), acupuncture group (n = 30), and no intervention control group (n = 30)	Between 38 and 41 weeks	Randomized clinical trial	Spontaneous labor occurred in 72% of participants, with proportions equally distributed among the three groups. There was also no significant change in time until delivery among the groups, in labor induction, and in the average cesarean section rate.
Ajori, Ladan et al ²¹ .	Iran	2012	Acupuncture group (n = 38) and simulated acupuncture control group (n = 37)	During the period of 1 week until delivery	Randomized clinical trial	The labor time tended to be shorter for the acupuncture group (7.76 ± 6.84 days) compared to the non-acupuncture group (9.46 ± 5.97 days).
Allameh, Zahra et al ¹⁹ .	Iran	2014	Pethidine group (n = 28), acupuncture group (n = 30), and no intervention control group (n = 27)	Between 37 to 42 weeks	Randomized clinical trial	A comparison of active labor phase duration shows that the mean of this time in the acupuncture group was 175.8 min, with a min of 45 min and a max of 300 min. The mean of this duration in the Pethidine group was 175.13 minutes, with a min of 60 and a max of 300 minutes. However, in the control group, the average is 243.77.
Vixner, Linda et al ¹⁶ .	Sweden	2014	Acupuncture group (n = 99), electroacupuncture group (n = 103), and no intervention control group (n = 101)	Active or latent phase of labor and after spontaneous onset of labor	Randomized clinical trial	When comparing each group, some differences emerged: at 120 and 270 minutes, manual acupuncture was more efficient for pain compared to electroacupuncture. At 360 minutes, traditional acupuncture scored lower for pain compared to traditional labor.
Yesilcicek Calik, Kiyemet, and Nuran Komurcu ²⁰ .	Turkey	2014	Acupressure group (n = 50) and no intervention control group (n = 50)	Between 37 to 41 weeks	Randomized clinical trial	The first stage of labor was 225 min (3.75 hours), and the second was 15 min in pregnant women in the acupressure group. The first stage lasted 320 minutes (5:33 hours), and the second stage lasted 20 minutes in the control group. The difference in labor duration between the groups was found to be statistically significant in favor of the acupressure group.

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Authors	Country	Year	Sample Size	Period	Study Design	Results
López-Garrido, Beatriz et al ¹⁵ .	Spain	2015	Acupuncture group (n = 47) and simulated acupuncture control group (n = 29)	Third stage of labor	Randomized clinical trial	There was a decrease of at least 7.71 minutes in the acupuncture group compared to the placebo group.
Torkzahrani, Shahnaz et al ¹⁷ .	Iran	2017	Acupressure group (n = 50), simulated acupressure group (n = 50), and no intervention control group (n = 50)	Between 39 to 40 weeks	Randomized clinical trial	The mean interval from procedure to birth in the acupressure group was 124.88 ± 75.93 h, 135.39 ± 70.09 h in the simulated acupressure group, and 114.16 ± 52.64 h in the routine care group.
Hamlacı, Yasemin, and Saadet Yazıcı ¹⁸ .	Turkey	2017	Acupressure group (n = 44) and no intervention control group (n = 44)	Between 37 to 40 weeks	Randomized clinical trial	There is a significant difference between groups that received acupressure for Point LI4 and other groups in terms of labor duration.
Alimoradi, Zainab et al ²⁴ .	Iran	2020	Ear acupressure group (n = 30), body acupressure group (n = 30), and no intervention control group (n = 30)	Between 37 to 42 weeks	Randomized clinical trial	The duration of the active labor phase in the ear acupressure group was significantly shorter than that in the control group. However, the duration of the active labor phase was not significantly different between the body acupressure and control groups, and no harm or side effects were observed in the participants.
Gönenç, Ilknur Munevver, and Füsün Terzioğlu ²⁵ .	Turkey	2020	Massage group (n = 30), acupressure group (n = 30), massage acupressure group (n = 30), and no intervention control group (n = 30)	Between 38 and 42 weeks	Randomized clinical trial	The massage-only group had the shortest time to complete cervical dilation (245 minutes), and the control group had the longest (350 minutes), although the differences between the groups were not significant.

DISCUSSION

As acupuncture is a technique recognized for sparking debates about its ability to reduce the duration of labor phases and bring benefits that are achieved with more invasive techniques, this study seeks to generate a reflective comparison of acupuncture techniques in labor compared to Western techniques currently used globally and how they may differ in labor time outcomes.

Due to the recent Western acceptance of acupuncture, its practice still faces various doubts about its effectiveness. For a long time, acupuncture has been integrated into Eastern science, and a growing base of scientific sources and evidence of knowledge has attested to this technique as a method for treating patients in different multidisciplinary health fields. However, given the growing interest and demand in the West for increasingly less invasive and alternative techniques, acupuncture is being brought to various areas to become accessible and promote the integration of modern scientific knowledge with new levels²⁶.

However, in a recent Brazilian study published on the implementation of acupuncture in Brazil's Unified Health System (SUS), it was found that 84.4% of the documents from the analyzed municipalities did not refer to acupuncture, suggesting a lack of availability of the technique in the majority²⁷.

This finding may be explained by a possible undervaluation of acupuncture in the local health system but also by limitations, gaps in monitoring, evaluation, and development and/or adequacy of specific legislation aimed at the participation of this practice and the lack of priority given to acupuncture in the political agenda, highlighting the difficulty of implementing the technique at different levels of SUS, especially in primary care²⁷.

In addition to these existing barriers in the implementation of acupuncture in healthcare and doubts about its effectiveness, few patients are aware of the benefits of the technique in childbirth and are presented by their doctors with the possibility of its use during pregnancy²⁸.

When we talk about childbirth, an extremely delicate moment for women who face various physical and psychological challenges, this is their greatest satisfaction, according to the literature. It is significantly linked to their participation in decision-making, both in prenatal care and during labor²⁹. Many want childbirths to be as quick and painless as possible. Therefore, pain management needs to be individualized for women and depend on each individual's choices to be effective and satisfactory³⁰.

In an Australian study, it was found that many women would like to avoid pharmacological or invasive methods of pain relief during labor, which may be one of the precursors to increasing the popularity of alternative pain and time control methods³¹. The most commonly used pharmacological induction in the West is done through intracervical or vaginal infusion of

prostaglandins and/or oxytocin, also known to generate various maternal and fetal side effects, such as uterine tachysystole and fetal cardiac compromise^{32,33}.

Related to this, the lack of information about acupuncture in pregnancy and other integrative alternatives perpetuated the choice of more invasive pharmacological methods when alternative techniques may have similar or better results. However, the method choice needs to be individualized so that each mother achieves a satisfactory result considering their preferences.

Thus, more recent studies have begun to be published, showing different options that can act as replacements for pharmacological induction. In a 2011 article, it was reported that acupuncture is increasingly useful for less painful childbirth because it has been shown to trigger labor phases easily, reduce the procedure duration and placental release, and prevent excessive bleeding³⁴.

However, as seen in this study, although several works demonstrate the positive effects of acupuncture, most of them are related to pain reduction, just as most of the formalized questionnaires used in eligible studies related to it. Therefore, there is a scarcity in the literature of articles addressing the influence of acupuncture on labor duration. Although there are studies published in the early part of the decade, such as a randomized clinical trial by Rabl et al, which demonstrated that women receiving acupuncture have a three-day decrease in labor time compared to the non-intervention group, the lack of knowledge about this approach persists after years³⁵.

Nevertheless, positive results were found in most eligible articles compared to acupuncture or acupressure with simulated or conventional procedures, showing that the technique can cause a decrease in labor time. In one of the studies included in this systematic review, it was found that in the acupressure group, the duration of the first stage of labor was 225 minutes (3.75 hours). The second stage was 15 minutes, while in the control group without intervention, the first stage lasted 320 minutes (5:33 hours) and the second 20 minutes. The difference in duration between the groups was statistically significant in favor of acupressure³⁶. Additionally, in a second article, the results also showed that compared to the control group, women with acupuncture tend to have spontaneous labor and are less likely to have a cesarean section²⁹.

Limitations of this review include the homogeneity regarding the regions of the studies, without the inclusion of countries from South America, North America, Central America, and Africa. Although most articles were from Europe and only three from Asia, several were not considered eligible because they were not in the English language. Additionally, few recent articles were included, with only half of them published in the last ten years and three before the 2000s, indicating the need for more recent studies to corroborate the positive results of the majority and influence the inclusion of acupuncture in

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childbirth. Small sample sizes were found in most studies, and although the number of standardized questionnaires was high, many added their questionnaire to assess the results. Nevertheless, regarding acupuncture, there is a lack of studies with adequate methodology, with protocols describing the beginning, middle, and end of the technique and the dilation scale concerning time.

CONCLUSION

Based on the findings of this systematic review, acupuncture can be considered an effective technique in reducing the duration of labor. However, numerous limitations still exist in these

studies, such as the lack of more recent articles, methodological weaknesses, and scarcity of complete descriptions of the techniques used in patients, which corroborate and perpetuate doubts regarding the viability of acupuncture. Although the quality and number of studies have notably improved over the years, more high-quality trials are needed to verify and confirm these results.

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