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REVIEW

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Upright positions in childbirth and the prevention of perineal lacerations: a systematic review and meta-analysis*

Posições verticalizadas no parto e a prevenção de lacerações perineais: revisão sistemática e metanálise

Posiciones verticales en el parto y prevención de laceraciones perineales: revisión sistemática y metaanálisis

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ABSTRACT

Objective: To investigate whether the adoption of upright positions by women during childbirth prevents perineal lacerations compared to the lithotomy position. **Method:** A systematic review with meta-analysis. The searches were carried out in the databases: LILACS, Medline/PubMed, CINAHL, Cochrane Library, Web of Science, Science Direct and Scopus. Searches in the gray literature were conducted on Google Scholar and OpenGrey databases. Reference lists of included articles were also considered. The Cochrane collaboration tool and ACROBAT-NRSI were used to analyze the methodological quality of the articles. **Results:** There were 26 studies listed and 8 were selected for the meta-analysis. The level of scientific evidence was classified by the GRADE System and considered high. There was no statistically significant difference between upright positions in relation to horizontal positions. Despite this finding, the upright positions showed reduced rates of severe perineal lacerations. **Conclusion:** Adopting upright positions in normal delivery can be encouraged by professionals as it can prevent severe perineal lacerations; however, it is not possible to accurately affirm their effectiveness to the detriment of horizontal positions for an intact perineum outcome.

DESCRIPTORS

Obstretric Nursing; Parturition; Modalities, Position; Lacerations; Review; Meta-Analysis.

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INTRODUCTION

Technological development, medical interference in the delivery scenario, as well as hyper-medicalization of obstetric practice has become routine in health institutions. Brazil is considered the country with the highest rates of cesarean sections and maternal and perinatal morbidity and mortality in the world. Therefore, there is an urgent need to strengthen the health system so that humanized, individualized and quality care is provided for all women[1].

According to the results of the national study "Born in Brazil", the country has high rates of cesarean sections and interventions with the justification of precipitating labor/delivery and childbirth. Inducing labor with synthetic oxytocin, performing the Kristeller Maneuver, episiotomy and keeping the woman in the lithotomy position are some of the most used practices presented by the research. Therefore, it is concluded that labor/delivery and childbirth are predominantly conducted by the professional so that the woman, who should be the protagonist, becomes adjunct to this process[2].

The trajectory of women's health in Brazil is considerably advancing in terms of public policies. From the perspective of a qualified and humanized healthcare model which aims to minimize maternal and neonatal risks, there is the Humanization of Labor/Delivery and Childbirth Program (*PHPN – Programa de Humanização do Parto e Nascimento*)[3]. The National Policy for Comprehensive Attention to Women's Health (*PNAISM – Política Nacional de Atenção Integral à Saúde da Mulher*) is also noteworthy, since aspects inherent to maternal and child health were expanded from this point on, such as encouraging women's empowerment and protagonism, beyond motherhood, including gender issues and considering human rights, with the purpose of reducing morbidity and mortality from preventable and avoidable causes[4]. In terms of managing maternal and child healthcare, the Stork Network (*Rede Cegonha*) initiative was implemented with the purpose of ensuring access to healthcare services, user embracement and resolution in the obstetric area by improving the quality of services and professional training[5].

At the international level, the World Health Organization (WHO) defends that professionals must guide their performed practice on the best scientific evidence for good conduct of normal delivery/childbirth. Based on this, it is argued that there is freedom of positions and movement during labor, a stimulation of upright positions in childbirth, and a restrictive practice of episiotomy which stand out among the "Good Care Practices for Labor/Delivery and Childbirth". This document (updated in 2018) reinforces the recommendation that health professionals should not impose a birth position on women, but rather encourage free choice of position, including upright ones, prioritizing comfort and respecting the woman's desire[6].

According to the best international scientific evidence, the lithotomy position at the time of delivery increases the occurrence of instrumented vaginal births, perineal pain and non-tranquilizing fetal heart rate. Therefore, women should be discouraged from adopting the lithotomy position and encouraged to choose a position which is most comfortable for them[7]. Corroborating this recommendation, the National Care Guidelines in Normal Childbirth also adds that different positions should be included such as squatting, side lying and all-fours[8].

It is worth highlighting the relevance of scientific evidence for qualifying practice in maternal and child health. The importance of implementing evidence-based practice in nursing is highlighted in this approach, as several maternities, normal birth centers and hospitals in Brazil are incorporating results from the syntheses of systematic reviews and meta-analyzes in their practice. Thus, especially obstetric nurses and midwives have a fundamental role in implementing scientific evidence in the routines of these health services[9]. However, there are still significant gaps in scientific production in the area when it comes to the effectiveness and applicability of good practices combined with clinical knowledge; a fact which can contribute to the management process in Brazilian maternity hospitals if implemented, especially when there is usual risk.

With regard to incorporating scientific evidence in obstetric practice, the literature indicates barriers in the work process of professionals and in the structural organization of health services such as the high demand for work, the precariousness of the physical structure and the reduced number of beds and professionals to attend the number of deliveries/births in the institutions. It also highlights limitations related to professional training, especially in the medical field which is still based on the biological model established prior to public humanization policies and focused on interventions in childbirth, which can be observed by their resistance to adhere to good practices and break the technicist care paradigm[9-10].

Considering these considerations, and based on the organization of maternal and child healthcare networks, combined with clinical evidence, this study aimed to carry out a systematic literature review with meta-analysis on adopting upright positions by women during delivery/childbirth compared to the lithotomy position in preventing perineal lacerations. All spontaneously adopted positions by the patient which differ from the conventional lithotomy position (lying on the delivery bed/stretcher) will be considered upright positions in this study, such as squatting (with or without the use of a stool, supported by their companion or not), semi-lateral, side lying, all-fours, and standing. Horizontal positions are considered to be the lithotomy position, with or without the use of leg support/stirrups, and the dorsal position.

METHOD

Study design

This study consists of a systematic review with meta-analysis, which followed the methodological path for elaborating systematic reviews as recommended by the Methodological

Guidelines for the Preparation of Systematic Reviews of the Ministry of Health. The construction of this ministerial document was mainly based on international guidelines such as those elaborated by "The Cochrane Reviewer's Handbook"[11] and by the "The Australian National Health and Medical Research Council"[12]. In addition, this study was also guided by the protocol for writing systematic review manuscripts, which is called the PRISMA recommendation (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)[13], prepared at a meeting held by The PRISMA Group, which includes review authors, methodologists, clinicians, editors and a consumer who reviewed and expanded the old flowchart called QUORUM (Quality of Reporting of Meta-analyses standards).

A systematic review protocol was developed based on the research project, which was registered in the PROSPERO database (International Prospective Register of Systematic Reviews), and which can be consulted in the referred database from the protocol CRD42016046322.

Thus, the seven steps for systematic reviews were followed based on this, and the following research guiding question was elaborated based on the PICO strategy (Population; Intervention; Comparison; Outcome): "Does the adoption of upright positions by women at the moment of childbirth prevent perineal lacerations compared to the lithotomy position?".

Data collection

Searches were carried out in Medline/PubMed, Lilacs (Latin American and Caribbean Literature in Health Sciences), CINAHL (Cumulative Index to Nursing & Allied Health Literature), Scopus (Scopus Info Site), Cochrane Library, Science Direct and Web of Science databases and two non-conventional literature databases, also called "gray literature": Google Scholar and Open Gray, in the period of December 2016. The main descriptors adopted in the search strategy indexed in the Health Sciences Descriptors (DECS) and Mesh Database (Medical Subject Headings) were: second stage of labor, perineum, posture, lacerations, and their corresponding terms in Portuguese: *segunda fase de trabalho de parto, posição, lacerações*, which were combined through the Boolean operator AND. Filters were used in certain databases, excluding other publication formats (theses, dissertations, comments and books) (Chart 1).

Selection criteria

Studies carried out with women in active labor submitted to vaginal delivery who had perineal lacerations in the expulsive period or kept their perineum intact after delivery were selected.

Regarding the eligibility criteria of the studies, publications of primary studies in full were included, with or without an available abstract, which included parturients in active labor, who adopted upright positions or lithotomy position, in the second phase of labor, and prevention or not of perineal lacerations when adopting the upright positions or the lithotomy position, regardless of parity and gestational age, without interventions such as labor analgesia and labor induction with synthetic oxytocin.

Chart 1 – Search strategy in the listed databases.

#1	second stage labor [MeSH Terms*]
#2	posture [MeSH Terms*]
#3	lacerations [MeSH Terms*]
#4	perineum [MeSH Terms*]
#5	*segunda fase de trabalho de parto [DeCS†]*
#6	*posição [palavra-chave]*
#7	*períneo [DeCS†]*
#8	*lacerações [DeCS†]*
Medline/Pubmed‡/Scopus§/Web of Science: #1 AND #2 **CINAHL**/Cochrane Library:** #1 AND #2 AND #3 (CINAHL titles** – research as keywords; Cochrane Library – Title, abtract, keywords) **Science Direct:** #1 AND #2 AND #4 (all fields) **Open Grey:** #1 **Google Scholar:** #1 AND #2 AND #3 AND #4; #5 AND #6 AND #7 AND #8 **LILACS††:** #5 AND #6 Filters: excluded dissertations, theses, reviews and books.	

* Medical Subject Headings Terms

† *Descritores em Ciências da Saúde*

‡ *Public Medline*

§ Scopus Info Site

** Cumulative Index to Nursing & Allied Health Literature

†† *Literatura Latino-Americana e do Caribe em Ciências da Saúde*

Articles which were not related to the research question, methodological design (reviews, critical reflections, theses, dissertations, book chapters and ministerial manuals), participants, type of intervention, type of comparison or outcome, as well as secondary studies such as: review and opinion articles, editorials, theses, dissertations and book chapters were excluded. There was no delimitation on time or language of the publications. The bibliographic references identified through the search strategy and which constituted the final sample were managed by the Mendeley software program.

The study did not have a pre-defined sample of articles, and as it is still an incipient theme in the literature in its specificity, all the possibilities for selecting publications in article format in the listed databases were exhausted based on the chosen research strategies.

Data extraction was composed of two stages performed independently by two reviewers. The relevance test I was initially performed in which the title and summary of the studies were read, and articles without an abstract were only evaluated by the title and its coherence with the theme. The lead investigator developed a standardized clinical record for data collection at this stage. The second stage consisted of the relevance test II by reading the articles in full. Obtaining descriptive and quantitative data related to the characteristics of the studies was carried out in the second stage by means of a specific form which contained the following information: article title, authors, area of activity, journal, publication year, study location, country, theme, objective, research question, methodology, population, sample number, ethical precepts, statistical tests, data collection, level of evidence, strength of recommendation, comparison between lithotomy position and upright positions, prevalence of each position and results. A manual search of articles was then performed after selecting the studies by cross-reference. A specialist in the obstetric area was contacted to decide on the differences between the two reviewers regarding the relevance test II. The degree of agreement of the reviewers was established by the Cohen Kappa measurement[11-12] for which the index reached was 0.261, considered moderately satisfactory. The flowchart of the systematic review can be seen below (Figure 1).

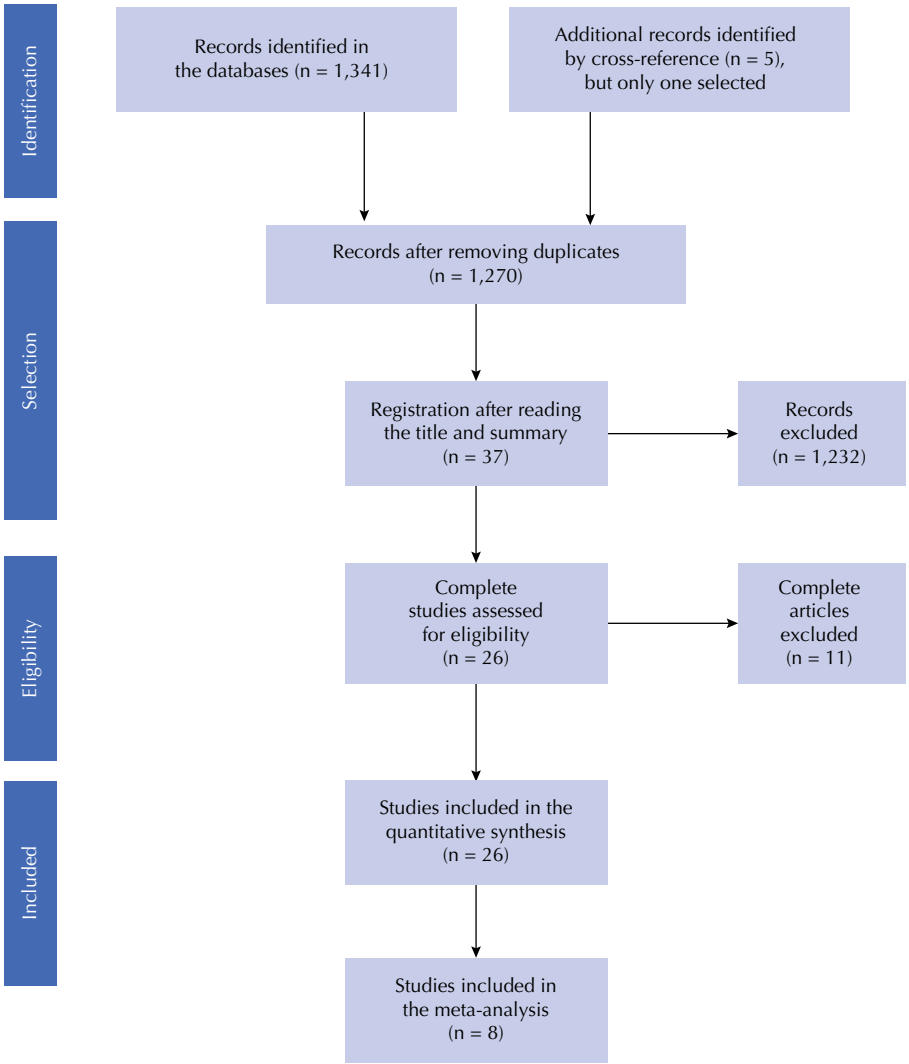

Figure 1 – Flowchart of the systematic review based on the PRISMA Recommendation.

Data analysis and processing

Data were analyzed through meta-analysis of randomized clinical studies (RCTs) and qualitative analysis of all listed studies. The methodological quality of the studies selected by the relevance test II was assessed using the Cochrane Collaboration Tool for Risk Assessment of Bias of Randomized Clinical Trials[14] and also by the ACROBAT-NRSI Tool (A Cochrane Risk Of Bias Assessment Tool: for Non-Randomized Studies of Interventions)[15].

Ethical aspects

As this is a research methodology which does not involve the participation of human beings, there is no need for review projects to be evaluated by an ethics committee. However, the project was sent to the ethics committee due to the need to contact a specialist in the subject to decide differences between the two reviewers after carrying out the relevance tests, as recommended by Resolution No. 466 of December 12, 2012, of the National Health Council, which deals with research involving human beings. Therefore, a Free and Informed Consent Form (ICF) was drawn up and signed by the specialist. The research project received a favorable opinion from the Ethics and Research Council under number 1.771.295, on October 11, 2016.

RESULTS

Two evaluation methods were used due to the different methodologies of the selected studies. In the Cochrane tool evaluation, most of the 13 clinical studies were classified as low risk of bias, especially those that were listed for the meta-analysis. The Acrobat evaluation showed that most cohort and case-control studies also had a low risk of bias. The quality of the evidence was assessed by the guidelines of the GRADE System (Grading of Recommendations Assessment, Development and Evaluation)[16].

Review Manager 5.0 software made available by The Cochrane Collaboration[17] was used for the statistical analysis. The fixed effect model (odds ratio and 95% confidence interval) was used since these are dichotomous variables. The Mantael-Haenzel chi-squared test and the Higgins inconsistency test (I^2) were used to assess the heterogeneity of the studies. The studies were organized using Microsoft Excel 2013 spreadsheets.

There were a total of 1,341 studies identified through the comprehensive search in the databases: 3 in Lilacs, 101 in Medline/Pubmed, 96 in Scopus, 314 in CINAHL, 293 in Science Direct, 6 in the Cochrane Library, 20 in the Web of Science, 499 in Google Scholar and 9 in OpenGrey. Next, 37 articles were selected in the analysis of the relevance test I, and 26 studies by the relevance test II. The manual search by cross-reference resulted in six eligible articles, and one study was selected after reading in full. By searching the databases and cross-referencing, 127 duplicate articles were excluded. Thus, the final sample consisted of 26 studies. The characterization of the 26 selected studies can be viewed on the following page and they are arranged according to the order in which they were found in the databases. The data can be viewed in Chart 2.

Chart 2 – Characterization of the studies selected for the systematic review and level of scientific evidence according to the GRADE system.

Author	Country/Year	Method	Intervention	Outcome	GRADE
Seratti et al[18]	Italy, 2016	Documentary prospective study	Squatting and side lying positions x lithotomy	Higher rates of severe lacerations in lithotomy position.	2C
Meyvis et al[19]	Belgium, 2012	Retrospective cross-sectional documentary study	Side lying x lithotomy	Lower laceration rates and higher intact perineum when adopting a side lying position.	1C
Thies-Lagergreen et al[20]	Sweden, 2011	Controlled RCS*	Stool x lithotomy and other horizontal positions	There was no increase in non-severe and severe perineal lacerations with the use of the stool.	4A
Brément et al[21]	France, 2007	RCS*	Lateral decubitus x dorsal decubitus	Lower rates of perineal lacerations in lateral decubitus.	4A
Hastings- Tolsma et al[22]	United States†, 2007	Retrospective documentary study	Side lying x lithotomy	Higher risk of lacerations in lithotomy position.	1C
Nasir; Korejo; Noorani[23]	Pakistan, 2007	Case control study	Squatting x lithotomy	Reduction in perineal laceration rates in the squatting position.	2C
Ragnar et al[24]	Sweden, 2006	RCS*	All-fours x sitting	All-fours position should be encouraged by professionals.	4[a]
Bodner-Adler et al[25]	Austria, 2003	Case control study	Upright x supine	There was no association between horizontal position and the occurrence of perineal lacerations.	2C

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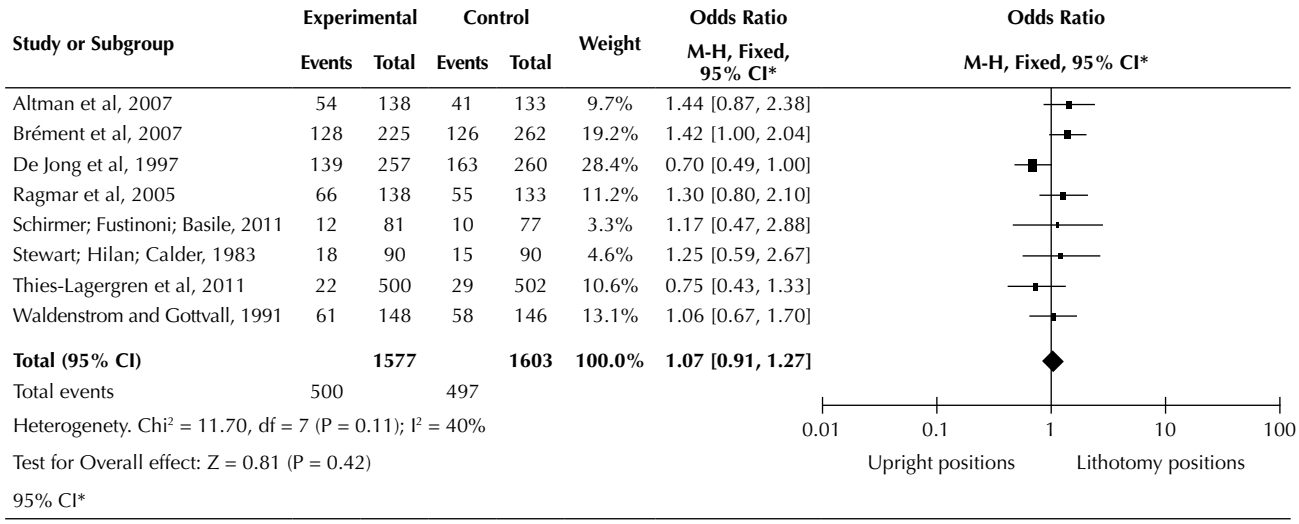
Bomfim-Hyppólito[26]	Brazil, 1998	RCS*	Upright x horizontal	Lower incidence of 2nd degree lacerations in an upright position.	2B
De Jong et al[27]	South Africa, 1997	RCS*	Upright positions vs. horizontal positions	Higher rates of lacerations in the lithotomy position; 3rd degree were slightly smaller in the upright position.	4A
Waldenstrom; Gottval[28]	Sweden, 1996	RCS*	Stool x supine	No significant differences between the two groups.	3B
Golay; Vedam; Sorger[29]	United States, 1993	Cohort study	Squatting/squatting x semi-sitting	Squatting should be encouraged to prevent perineal lacerations.	1C
Gardosi; Sylvester; B-Lynch[30]	England, 1989	Controlled CS†	Squatting, knees, sitting upright or standing x lying down	Reduction of severe lacerations in the squatting position.	2B
Gardosi; Hutson; B-Lynch[31]	United Kingdom, 1989	Controlled RCS*	Squatting x reclining	Higher incidence of intact perineum and lower 2nd degree lacerations in the squatting position.	2B
Stewart;Hillan; Calder[32]	Scotland, 1983	RCS*	Stool (squatting) x supine position	Stool can be used for perineal preservation.	3B
Gottvall; Allebeck; Ekéus[33]	Sweden, 2007	Cohort study	Upright positions (stool, semi-seated side leaning, squatting, all-fours, standing) x lithotomy and supine	Lithotomy and squatting may increase severe lacerations. Global effects of various positions are inconclusive.	2[a]
Da Silva et al[34]	Brazil, 2012	Retrospective cross-sectional study	Upright positions x supine position	Alternatives to dorsal positions can improve perineal integrity.	2B
Terry et al[35]	United States, 2006	Non-randomized CS†	Seated/squatting/all-fours x supine	Upright positions can reduce perineal lacerations.	2B
Albers et al[36]	Mexico and the United States, 1996	Cohort study	Semi-seated, seated, side lying, other positions x lithotomy	Lithotomy position should not be used to prevent perineal lacerations.	1C
Maheux-Lacroix et al[37]	Canada, 2013	Retrospective comparative exploratory study	Upright positions x supine position	Upright positions may be associated with lower rates of vaginal tears.	1C
Roberts; Kriz[38]	United States, 1984	Retrospective correlational descriptive study	Semi-seated/All-fours/lateral birth/squatting/standing x lithotomy	It was not possible to conclude that the position influences the perineal result.	1C
Gupta; Brayshaw; Lilford[39]	United Kingdom,1989	RCS*	Squatting x lithotomy	2nd degree lacerations were more common in the squatting position.	3A
Schirmer;Fustinoi; Basile[40]	Brazil, 2011	RCS*	Left side x semi-sitting upright	Higher frequency of 1st degree lacerations in side lying position.	4A
Altman et al[41]	Sweden, 2007	RCS*	All-fours x sitting	All-fours and sitting upright do not show significant differences in severe lacerations.	4A
Baracho et al[42]	Brazil, 2009	Cohort study	Squatting/sitting/semi-sitting x supine/lithotomy	No association between horizontal position and the occurrence of perineal lacerations.	2A
Heinz et al[43]	Austria, 2001	Case control study	Stool x dorsal position	Stool can be an alternative in childbirth.	2C

* Ranzomized Clinical Study
† Clinical Study

A statistical evaluation of methodologically similar studies (randomized clinical studies) was conducted (called meta-analysis), and the synthesis of the results was subsequently obtained. The final sample included eight articles.

Thus, eight studies were selected to perform the meta-analysis for the main outcome of the study (the prevention of perineal lacerations and the consequent occurrence of intact perineum), as they presented the adoption of upright positions in childbirth compared to horizontal positions (Figure 2).



* Confidence Interval

Figure 2 – Meta-analysis of upright positions versus horizontal positions for intact perineum and funnel plot graph, as elaborated by the *RevMan* tool.

The authors compared the squatting position in delivery with lithotomy positions in four studies. In the first publication, 500 women adopted the squatting position (experimental group), and 22 (44%) of these presented an intact perineum, compared with 29 (17%) of those who adopted lithotomy positions[20].

The statistical difference was not significant in the second publication listed, since 18 (5%) of 90 women who delivered squatted on the stool had an intact perineum versus 15 (6%) of those who adopted horizontal positions[32]. The same occurred in an older study published in 1991, as 27 (5.4%) from the 148 women who delivered squatted had an intact perineum compared with 22 (6.6%) of 146 in the supine position[28].

Two other publications compared the all-fours position with the sitting position. In the first, only 2% (66 women out of 138) had an intact perineum in the all-fours position versus 55 women (2.4) out of 133 who adopted a sitting position[24]. In the second publication, 54 women out of 138 (51%) had this outcome by adopting the all-fours position, while 41 (37%) of 133 in the sitting position.

Two studies from 2007 and 2011 analyzed the effect of a side lying versus supine and semi-sitting positions, respectively, where 128 women in side lying position presented intact perineum (56.9%) versus 48.1% in supine position[21]; in the second study, 12 women (14.8%) out of 81 had an intact perineum in a side lying position and 10 (13%) in a semi-seated position[40].

In a more comprehensive study which compared several upright versus horizontal positions, 139 (2%) of 257 women had an intact perineum in an upright position and 163 (1.5%) of 260 in the horizontal position[27].

A meta-analysis graph of the selected randomized clinical studies was developed using the Review Manager application (RevMan), also known as funnel plot or forest graph, which can be found on Figure 2.

According to the I^2 test, the heterogeneity of the studies can be classified as moderate. It can be inferred that some confounding factors may have caused heterogeneity. It was identified that there is no statistically significant difference between the experimental and control groups (p = 0.90; OR 0.99; 95% CI 0.82-1.20).

Regarding the studies which were not included in the meta-analysis, only six analyzed the intact perineum outcome. The other studies only analyzed the outcome of non-severe and severe perineal lacerations, and were selected for this study in order to support other articles which may be published. According to the data presented by these studies, the majority demonstrated an increase in the occurrence of intact perineum in women who adopted upright positions in childbirth. The studies which presented the outcome perineal lacerations pointed out lower rates of perineal trauma in women who adopted upright positions, mainly severe lacerations. On the other hand, for deliveries which took place on the stool, most studies showed high rates of severe lacerations (3rd and 4th degrees).

The quality of the scientific evidence according to the GRADE System regarding randomized clinical studies included in the meta-analysis was considered high in favor of an action, despite the great statistical similarity of the study results not pointing out a result which is totally in favor of one position or another (Chart 3).

Chart 3 – Summary of results of the quality of scientific evidence according to the GRADE System prepared by the Guideline Development Tool application.

Summary of the Results						
Upright positions compared to lithotomy positions for intact perineum						
Patient or population: parturients Context: normal labor Intervention: upright positions Comparison: lithotomy positions						
Outcomes	Potential absolute effects (95% CI†)		Relative effect (95% CI*)	No. of participants (studies)	Quality of evidence (GRADE‡)	Comments
	Risk with lithotomy positions	Risk with upright positions				
Intact perineum outcome	310 per 1,000	322 per 1,000 (295 out of 353)	RR§ 1.04 (0.95 out of 1.14)	3083 (8 RCS*)	⊕⊕⊕⊕ HIGH	
The quality levels of the GRADE working group† High Quality: There is a lot of confidence that the real effect is close to the estimated effect Moderate Quality: There is moderate confidence in the estimated effect: The actual effect is probably close to the estimated effect, but there is a possibility that it is substantially different Low Quality: Confidence in the estimated effect is limited: the actual effect may differ substantially from the estimated effect Very Low Quality: There is very little confidence in the estimated effect: The actual effect is likely to be substantially different from the estimated effect						

† Confidence Interval
‡ Grading of Recommendations Assessment, Development and Evaluation
§ Relative Risk
* Randomized Clinical Studies

DISCUSSION

Upright positions in childbirth have increasingly been the subject of studies in the obstetric area, as they constitute one of the best practices in the care provided during labor/delivery and childbirth, in turn contributing to the humanization of care and to the protagonism of women in labor and delivery.

The main justification for supporting the adoption of upright positions in childbirth is the gravitational action, which contributes to the descent of the fetus through the vaginal canal, in addition to modifying the angulation of the maternal pelvis. In the lithotomy position, the vaginal canal presents an upward curvature, making fetal descent difficult during the expulsive period[44].

Based on this, many studies have aimed to analyze the risks and benefits of upright positions in childbirth compared to horizontal positions. However, it is clear that most of them are outdated studies and they did not analyze the outcome of intact perineum (the main focus of this meta-analysis), but rather the perineal lacerations. In addition, not all results show significant differences between positions or argue that the supine position would be the best choice for parturient women.

In a meta-analysis of 20 studies on positions in the expulsive period of childbirth in women with epidural analgesia, a precise conclusion was not reached on the effectiveness of upright positions in childbirth. However, the statistical analysis showed an increase of 2nd degree lacerations in women who gave birth on a stool[45].

In an Italian cohort study comparing different delivery positions with maternal and neonatal variables, episiotomy was performed on 100% of women who adopted the lithotomy position. This is the main confounding factor for the data, making it difficult to make a reliable comparison. It should be noted that the number of lacerations in upright positions in this study was statistically higher. It can also be inferred that the lithotomy position contributes to an increase in interventions such as episiotomy. Furthermore, this study concludes that there are many benefits when adopting upright positions during a normal labor process, especially in rotating the babies in a variety from posterior occiput to anterior occiput positions[46].

There were 22 clinical studies selected in a recently published systematic review which aimed to assess the upright positions in the second stage of labor and their importance in the maternal-fetal outcome. In relation to the female perineum, studies show that the upright positions were effective in significantly reducing the performance of episiotomy. Even though some studies have shown that perineal integrity is best preserved when women adopt an upright position, other studies have shown the opposite. This significant heterogeneity between the studies made it impossible to reach a definitive conclusion, but the benefits of the upright positions are greater than the risks, and they should be encouraged by professionals, while also respecting the preference of women[47].

Corroborating some considerations of that same study, it is pointed out that factors were identified in the present meta-analysis which can negatively influence the results. For example, a lack of control over the length of time women remain in upright positions, as well as the adoption of these positions by them, as many are unable to remain in this

position. It is also important to emphasize that there are other factors which can influence the occurrence of lacerations and perineal integrity and which were not controlled by the study; for example, the use of techniques for perineal protection and reduction of lacerations, the perineum conditions, the performance of episiotomy (performed in most births in a lithotomy position and which end up confounding the results), the performance of pulling by the health professional, and the parity of women, among other aspects.

It is reiterated that upright positions were included in this meta-analysis, however some studies present comparisons for each type of upright position (all-fours, squatting, side lying) and supine position (semi-sitting, supine), which can also influence the results.

It is pointed out that there were limitations in this study due to the methodologies used by the listed articles regarding the control of several variables which may have interfered in the intact perineum outcome. Also, because studies which included low-risk vaginal delivery were listed, most of these variables were not considered, such as the induction of labor and analgesia. Further studies on the subject are suggested based on studies with more controlled methodologies.

CONCLUSION

In conducting this meta-analysis of studies, it was not possible to state that upright positions prevent perineal lacerations in comparison with horizontal positions because there was no statistically significant difference.

However, the following evidence was identified based on the results: despite the small statistical difference, adoption of upright positions in normal delivery should be encouraged by professionals, as they can help avoid serious trauma with the need for suture, and can contribute to perineal integrity. The lithotomy position should be used with caution by professionals, as it can increase the risk of severe perineal lacerations and unnecessary obstetric interventions, such as episiotomy.

The study points out that it is not possible to accurately affirm the effectiveness of upright positions in detriment to horizontal positions for an intact perineum outcome, but mainly the free choice of women for their childbirth position must be encouraged, and they must be instructed regarding the risks and benefits of upright and horizontal positions.

Finally, it is urgent to affirm the importance of the role of obstetric nurses and obstetricians in changing the paradigm of the obstetric model, since the health sector increasingly provides differentiated and expanded training. The knowledge of these professionals considers the scientific evidence as support in care and decision-making, enabling women to take part in childbirth through respect for their rights provided for by law and through the humanization of labor/delivery and childbirth care. In addition to scientific knowledge, these professionals also have the sensitivity to understand the birthing process as a unique and subjective moment for women who must respect the physiology of the female body and use invasive practices when strictly necessary.

RESUMO

Objetivo: Investigar se a adoção de posições verticalizadas pela mulher, no parto, comparada à posição litotômica, previne lacerações perineais. **Método:** Revisão sistemática com metanálise. As buscas foram realizada nas bases de dados: LILACS, Medline/PubMed, CINAHL, Cochrane Library, Web of Science, Science Direct e Scopus. As buscas na literatura cinzenta foram conduzidas nas bases Google Scholar e OpenGrey. Também foram consideradas as listas de referências dos artigos incluídos. Para análise da qualidade metodológica dos artigos, utilizou-se a ferramenta da colaboração Cochrane e a *ACROBAT-NRSI*. **Resultados:** Foram elencados 26 estudos e 8 foram selecionados para a metanálise. O nível de evidência científica foi classificado pelo Sistema GRADE e considerado alto. Não houve diferença estatística significativa entre posições verticalizadas em relação as posições horizontais. Apesar dessa constatação, as posições verticalizadas apresentaram índices reduzidos de lacerações perineais graves. **Conclusão:** A adoção de posições verticalizadas, no parto normal, pode ser encorajada pelos profissionais, pois pode evitar lacerações perineais graves, porém, não é possível afirmar com precisão a eficácia destas em detrimento das posições horizontais para o desfecho períneo íntegro.

DESCRITORES

Enfermagem Obstétrica; Parto; Modalidades de Posição; Lacerações; Revisão; Metanálise.

RESUMEN

Objetivo: Investigar si la adopción de posiciones verticales por parte de la mujer en el parto, en comparación con la posición de litotomía, previene las laceraciones perineales. **Método:** Revisión sistemática con metaanálisis. Se realizaron búsquedas en las siguientes bases de datos: LILACS, Medline/PubMed, CINAHL, Cochrane Library, Web of Science, Science Direct y Scopus. Se realizaron búsquedas en la literatura gris en las bases de datos Google Scholar y Opengray. También se examinaron las listas de referencia de los artículos incluidos. La herramienta de colaboración Cochrane y el ACROBAT-NRSI se utilizaron para analizar la calidad metodológica de los artículos. **Resultados:** Se enumeraron 26 estudios y se seleccionaron 8 para el metaanálisis. El nivel de evidencia científica fue clasificado por el Sistema GRADE y considerado alto. No hubo una diferencia estadística significativa entre las posiciones verticales y las horizontales. A pesar de este hallazgo, las posiciones verticales presentaban bajas tasas de laceraciones perineales graves. **Conclusión:** La adopción de posiciones verticales en el parto normal puede ser fomentada por los profesionales, ya que puede evitar desgarros perineales severos, sin embargo, no es posible afirmar con exactitud su eficacia en detrimento de las posiciones horizontales para el resultado perineal completo.

DESCRIPTORES

Enfermería Obstetrica; Parto; Modalidades de Posición; Laceraciones; Revisión; Metaanálisis.

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