

**DISCLAIMER:** Results of database and or Internet searches are subject to the limitations of both the database(s) searched, and by your search request. It is the responsibility of the requestor to determine the accuracy, validity and interpretation of the results.

**Date:** 02 Jun 2017

**Sourced Searched:** Medline. Embase, Cinahl, PubMed.

## Lithotomy vs. Other Positions in Second Stage Labour With Epidural

---

### Evidence Summary:

Based on a recently updated [Cochrane review](#) (Feb 2017) there is inconclusive evidence to favour the use of either the lithotomy (recumbent) or upright positioning during second stage labour for women with epidural analgesia. Based on primary outcomes (operative delivery, duration of second stage labour and trauma to the birth canal) there is no clear difference between upright and recumbent positions. There are also no differences in terms of newborn outcomes; abnormal foetal heart patterns, abnormal cord PH and admission to neonatal intensive care.

More studies with larger sample sizes are needed in order for solid conclusions to be made about the effect of position on labour in women with an epidural. Two studies are currently ongoing the results of which will be incorporated into an updated Cochrane review.

Women with an epidural should be encouraged to use whatever position they find comfortable in the second stage of labour.

**Source:** [Kibuka M, Thornton JG. Position in the second stage of labour for women with epidural anaesthesia. \*Cochrane Database of Systematic Reviews\* 2017, Issue 2. Art. No.: CD008070. DOI: 10.1002/14651858.CD008070.pub3.](#)

## 1. Position in the second stage of labour for women with epidural anaesthesia.

**Author(s):** Kibuka, Marion; Thornton, Jim G

**Source:** The Cochrane database of systematic reviews; Feb 2017; vol. 2 ; p. CD008070

**Publication Date:** Feb 2017

**Publication Type(s):** Research Support, Non-u.s. Gov't Journal Article Review

Available in full text at [Cochrane Library, The](#) - from John Wiley and Sons

**Abstract:** BACKGROUND Epidural analgesia for pain relief in labour prolongs the second stage of labour and results in more instrumental deliveries. It has been suggested that a more upright position of the mother during all or part of the second stage may counteract these adverse effects. This is an update of a Cochrane review first published in 2013. OBJECTIVES To assess the effects of different birthing positions (upright and recumbent) during the second stage of labour, on important maternal and fetal outcomes for women with epidural analgesia. SEARCH METHODS We searched Cochrane Pregnancy and Childbirth's Trials Register (19 September 2016) and reference lists of retrieved studies. SELECTION CRITERIA All randomised or quasi-randomised trials including pregnant women (either primigravidae or multigravidae) in the second stage of induced or spontaneous labour receiving epidural analgesia of any kind. Cluster-RCTs would have been eligible for inclusion in this review but none were identified. Studies published in abstract form only were eligible for inclusion. We assumed the experimental type of intervention to be the maternal use of any upright position during the second stage of labour, compared with the control intervention of the use of any recumbent position. DATA COLLECTION AND ANALYSIS Two review authors independently assessed trials for inclusion, assessed risk of bias, and extracted data. Data were checked for accuracy. We contacted study authors to try to obtain missing data. MAIN RESULTS Five randomised controlled trials, involving 879 women, comparing upright positions versus recumbent positions were included in this updated review. Four trials were conducted in the UK and one in France. Three of the five trials were funded by the hospital departments in which the trials were carried out. For the other three trials, funding sources were either unclear (one trial) or not reported (two trials). Each trial varied in levels of bias. We assessed all the trials as being at low or unclear risk of selection bias. None of the trials blinded women, staff or outcome assessors. One trial was poor quality, being at high risk of attrition and reporting bias. We assessed the evidence using the GRADE approach; the evidence for most outcomes was assessed as being very low quality, and evidence for one outcome was judged as moderate quality. Overall, we identified no clear difference between upright and recumbent positions on our primary outcomes of operative birth (caesarean or instrumental vaginal) (average risk ratio (RR) 0.97; 95% confidence interval (CI) 0.76 to 1.29; five trials, 874 women;  $I^2 = 54\%$  moderate-quality evidence), or duration of the second stage of labour measured as the randomisation-to-birth interval (average mean difference -22.98 minutes; 95% CI -99.09 to 53.13; two trials, 322 women;  $I^2 = 92\%$ ; very low-quality evidence). Nor did we identify any clear differences in any other important maternal or fetal outcome, including trauma to the birth canal requiring suturing (average RR 0.95; 95% CI 0.66 to 1.37; two trials; 173 women; studies = two;  $I^2 = 74\%$ ; very low-quality evidence), abnormal fetal heart patterns requiring intervention (RR 1.69; 95% CI 0.32 to 8.84; one trial; 107 women; very low-quality evidence), low cord pH (RR 0.61; 95% CI 0.18 to 2.10; one trial; 66 infants; very low-quality evidence) or admission to neonatal intensive care unit (RR 0.54; 95% CI 0.02 to 12.73; one trial; 66 infants; very low-quality evidence). However, the CIs around each estimate were wide, and clinically important effects have not been ruled out. Outcomes were downgraded for study design, high heterogeneity and imprecision in effect estimates. There were no data reported on blood loss (greater than 500 mL), prolonged second stage or maternal experience and satisfaction with labour. Similarly, there were no analysable data on Apgar scores, and no data reported on the need for ventilation or for perinatal death. AUTHORS' CONCLUSIONS There are insufficient data to say anything conclusive about the effect of position for the second stage of labour for women with epidural analgesia. The GRADE quality assessment of the evidence in this review ranged between moderate to low quality, with downgrading decisions based on design

limitations in the studies, inconsistency, and imprecision of effect estimates. Women with an epidural should be encouraged to use whatever position they find comfortable in the second stage of labour. More studies with larger sample sizes will need to be conducted in order for solid conclusions to be made about the effect of position on labour in women with an epidural. Two studies are ongoing and we will incorporate the results into this review at a future update. Future studies should have the protocol registered, so that sample size, primary outcome, analysis plan, etc. are all clearly prespecified. The time of randomisation should be recorded, since this is the only unbiased starting time point from which the effect of position on duration of labour can be estimated. Future studies might wish to include an arm in which women were allowed to choose the position in which they felt most comfortable. Future studies should ensure that both compared positions are acceptable to women, that women can remain in them for most of the late part of labour, and report the number of women who spend time in the allocated position and the amount of time they spend in this or other positions.

**Database:** Medline

## **2. Maternal positions and mobility during first stage labour.**

**Author(s):** Lawrence, Annemarie; Lewis, Lucy; Hofmeyr, G Justus; Styles, Cathy

**Source:** The Cochrane database of systematic reviews; Oct 2013 (no. 10); p. CD003934

**Publication Date:** Oct 2013

**Publication Type(s):** Research Support, Non-u.s. Gov't Meta-analysis Comparative Study Journal Article Review

Available in full text at [Cochrane Library, The](#) - from John Wiley and Sons

**Abstract:** **BACKGROUND** It is more common for women in both high- and low-income countries giving birth in health facilities, to labour in bed. There is no evidence that this is associated with any advantage for women or babies, although it may be more convenient for staff. Observational studies have suggested that if women lie on their backs during labour this may have adverse effects on uterine contractions and impede progress in labour, and in some women reduce placental blood flow. **OBJECTIVE** To assess the effects of encouraging women to assume different upright positions (including walking, sitting, standing and kneeling) versus recumbent positions (supine, semi-recumbent and lateral) for women in the first stage of labour on duration of labour, type of birth and other important outcomes for mothers and babies. **SEARCH METHODS** We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (31 January 2013). **SELECTION CRITERIA** Randomised and quasi-randomised trials comparing women randomised to upright versus recumbent positions in the first stage of labour. **DATA COLLECTION AND ANALYSIS** We used methods described in the Cochrane Handbook for Systematic Reviews of Interventions for carrying out data collection, assessing study quality and analysing results. Two review authors independently evaluated methodological quality and extracted data for each study. We sought additional information from trial authors as required. We used random-effects analysis for comparisons in which high heterogeneity was present. We reported results using the average risk ratio (RR) for categorical data and mean difference (MD) for continuous data. **MAIN RESULTS** Results should be interpreted with caution as the methodological quality of the 25 included trials (5218 women) was variable. For Comparison 1: Upright and ambulant positions versus recumbent positions and bed care, the first stage of labour was approximately one hour and 22 minutes shorter for women randomised to upright as opposed to recumbent positions (average MD -1.36, 95% confidence interval (CI) -2.22 to -0.51; 15 studies, 2503 women; random-effects,  $T(2) = 2.39$ ,  $\text{Chi}(2) = 203.55$ ,  $df = 14$ , ( $P < 0.00001$ ),  $I(2) = 93\%$ ). Women who were upright were also less likely to have caesarean section (RR 0.71, 95% CI 0.54 to 0.94; 14 studies, 2682 women) and less likely to have an epidural (RR 0.81, 95% CI 0.66 to 0.99, nine studies, 2107 women; random-effects,  $T(2) = 0.02$ ,  $I(2) = 61\%$ ). Babies of mothers who

were upright were less likely to be admitted to the neonatal intensive care unit, however this was based on one trial (RR 0.20, 95% CI 0.04 to 0.89, one study, 200 women). There were no significant differences between groups for other outcomes including duration of the second stage of labour, or other outcomes related to the well being of mothers and babies. For Comparison 2: Upright and ambulant positions versus recumbent positions and bed care (with epidural: all women), there were no significant differences between groups for outcomes including duration of the second stage of labour, or other outcomes related to the well being of mothers and babies. **AUTHORS' CONCLUSIONS** There is clear and important evidence that walking and upright positions in the first stage of labour reduces the duration of labour, the risk of caesarean birth, the need for epidural, and does not seem to be associated with increased intervention or negative effects on mothers' and babies' well being. Given the great heterogeneity and high performance bias of study situations, better quality trials are still required to confirm with any confidence the true risks and benefits of upright and mobile positions compared with recumbent positions for all women. Based on the current findings, we recommend that women in low-risk labour should be informed of the benefits of upright positions, and encouraged and assisted to assume whatever positions they choose.

**Database:** Medline

### **3. Alternative model of birth to reduce the risk of assisted vaginal delivery and perineal trauma.**

**Author(s):** Walker C; Rodríguez T; Herranz A; Espinosa JA; Sánchez E; Espuña-Pons M

**Source:** International urogynecology journal; Sep 2012; vol. 23 (no. 9); p. 1249-1256

**Publication Date:** Sep 2012

**Publication Type(s):** Journal Article; Randomized Controlled Trial; Research Support, Non-U.S. Gov't

**PubMedID:** 22297706

Available in full text at [International Urogynecology Journal](#) - from Springer Link Journals

Available in full text at [International Urogynecology Journal](#) - from ProQuest

**Abstract:**INTRODUCTION AND HYPOTHESIS: This study was conducted to evaluate the effects of an alternative model of birth (AMB) on the incidence of assisted vaginal delivery (AVD) and perineal trauma (PT).METHODS: One hundred ninety-nine women with epidural anesthesia were randomized to a traditional model of birth (TMB) (n = 96) or AMB (n = 103). Women in TMB pushed immediately after complete dilatation and delivered in lithotomy position. In AMB, women followed a postural changes protocol while they delayed pushing and used a specific lateral position for delivery.RESULTS: AMB was associated with a significant reduction in AVD compared with TMB (19.8% vs 42.1%, p CONCLUSION: A combination of postural changes during the passive expulsive phase of labor and lateral position during active pushing time is associated with reductions in AVD and PT.

**Database:** PubMed

#### 4. Safe maternal positioning during labor and delivery

**Author(s):** Pridjian G.

**Source:** Obstetrics and Gynecology; Aug 2011; vol. 118 (no. 2); p. 413-414

**Publication Date:** Aug 2011

**Publication Type(s):** Editorial

Available in print at [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#) - from Obstetrics and Gynecology

Available in full text at [Obstetrics and Gynecology](#) - from Ovid

**Database:** EMBASE

#### 5. Effects of postural changes during the second stage of labor among women with epidural analgesia

**Author(s):** Simarro M.; Salinas C.; Martinez A.; Henriquez A.; Garcia G.; Espinosa J.; Walker C.

**Source:** International Urogynecology Journal and Pelvic Floor Dysfunction; Jun 2011; vol. 22

**Publication Date:** Jun 2011

**Publication Type(s):** Conference Abstract

Available in full text at [International Urogynecology Journal](#) - from Springer Link Journals

Available in full text at [International Urogynecology Journal](#) - from ProQuest

**Abstract:** Objective: To evaluate the effectiveness of a protocol of postural changes during the second stage of labor among women with epidural analgesia on mode of delivery, perineal trauma and the incidence of urinary incontinence postpartum. Background: The introduction of epidural analgesia has led to significant progress in reducing the pain of labor. However, a disadvantage is that it interferes with the normal mechanism of labor and extends the expulsive phase. The inhibition of the pushing efforts and the reduced possibility of adopting alternative position during the second stage of labor could be related with the increased of instrumental delivery in women with epidural analgesia. Recent studies have shown that maternal movement and position changes during labor with epidural analgesia could reduce instrumental deliveries (1), decrease pain, produce good maternal-fetal circulation, decrease length of labor and decrease perineal trauma (2).

Methods: We randomly assigned 150 women at full dilation to either an experimental group (EG) (n=73) or control group (n=77). Both groups delayed pushing and used lithotomy position during delivery. Women in the EG were encouraged to follow a protocol of postural change between different positions (hands and knees, sitting, lateral, kneeling and supine) which was monitored by a physiotherapist to assure the neutral position of the lumbo-pelvic spine in all positions. Women in the CG rest in horizontal position without perform postural changes. Statistical analyses were performed using Pearson chi-square for categorical and Student t test for continuous variables. Logistic regression models were used to evaluate whether obstetrical factors/interventions were independently associated with assisted vaginal delivery, as well as with perineal trauma. P values 0.05 lower than were considered statistically significant. Results: Instrumental delivery rate was significantly reduced in EG (39% vs 24% in CG and EG, p=0.005) as well as cesarean sections (10.4% vs 1.4%, CG and EG, p=0.05), Table 1. EG was associated with a significant reduction in the incidence of episiotomy (31.2% vs 17.8%, CG and EG, p<0.05) while the first-degree perineal tears was increased (32.9% vs 55.7%, CG and EG, p=0.005). The incidence of sphincter tears was significantly higher in CG (five cases in CG vs none in EG, p<0.05). In relation to the incidence of postpartum urinary incontinence, we found no significant differences. The length of the second stage of labor is shown in Table 2. We found significant reduction on the duration of the second stage of labor in EG (124.30+/-44.83 and 94.66+/-32.78 in CG and EG, p<0.001). Another significant finding is that the

fetal head station in the EG at the start of the active expulsive phase was at lower level of the birth canal than the fetal head of the CG. (Table presented) Conclusions: Promote postural changes during the expulsive phase of labor in women with epidural analgesia is associated with a lower incidence of instrumental delivery, cesarean section and length of second stage of labor. In addition, the protocol present in this trial is associated with a lower rate of episiotomy and sphincter lacerations.

**Database:** EMBASE

## **6. A meta-analysis of upright positions in the second stage to reduce instrumental deliveries in women with epidural analgesia.**

**Author(s):** Roberts CL; Algert CS; Cameron CA; Torvaldsen S

**Source:** Acta obstetrica et gynecologica Scandinavica; Aug 2005; vol. 84 (no. 8); p. 794-798

**Publication Date:** Aug 2005

**Publication Type(s):** Comparative Study; Journal Article; Meta-Analysis; Research Support, Non-U.S. Gov't; Review

**PubMedID:** 16026407

Available in full text at [Acta Obstetrica et Gynecologica Scandinavica](#) - from John Wiley and Sons

**Abstract:**BACKGROUND: Epidural analgesia is associated with an increased risk of instrumental delivery. We, in this study, present a systematic review in order to assess the effectiveness of maintaining an upright position during the second stage of labor to reduce instrumental deliveries among women choosing epidural analgesia. The study population included women with uncomplicated pregnancies at term with epidural analgesia established in the first stage of labor.METHODS: We searched MEDLINE, EMBASE, and CINAHL databases and the Cochrane Trials Register up to July 2003 and cross-checked the reference lists of published studies. Trial eligibility and outcomes were pre-specified. Group tabular data were obtained for each trial and were analyzed by using meta-analytic techniques.RESULTS: Only two studies were included with data on 281 women (166 upright and 115 recumbent). Upright positions in the second stage were associated with a non-significant reduction in the risk of both instrumental delivery (relative risk (RR) = 0.77, 95% confidence interval (CI) = 0.46-1.28) and cesarean section (RR = 0.57, 95% CI = 0.28-1.16). Both studies reported a statistically significant reduction in labor duration associated with upright positions. Data on other outcomes, including perineal trauma, postpartum hemorrhage, maternal satisfaction, and infant well-being, were insufficient.CONCLUSIONS: There were insufficient data to show a significant benefit from upright positions in the second stage of labor for women who choose epidural or to evaluate safety aspects. However the magnitude of the reductions in instrumental delivery and cesarean section warrants an adequately powered randomized, controlled trial to fully evaluate the practice of upright positions in the second stage for women with an epidural.

**Database:** PubMed

**7. A prospective randomised trial on the effect of position in the passive second stage of labour on birth outcome in nulliparous women using epidural analgesia.**

**Author(s):** Downe S; Gerrett D; Renfrew MJ

**Source:** Midwifery; Jun 2004; vol. 20 (no. 2); p. 157-168

**Publication Date:** Jun 2004

**Publication Type(s):** Academic Journal

Available in print at [Patricia Bowen Library and Knowledge Service West Middlesex university Hospital](#) - from Midwifery

**Abstract:**OBJECTIVE: To determine whether the rate of instrumental birth in nulliparous women using epidural analgesia is affected by maternal position in the passive second stage of labour. DESIGN: A pragmatic prospective randomised trial. SETTING: Consultant maternity unit in the Midlands. PARTICIPANTS: One hundred and seven nulliparous women using epidural analgesia and reaching the second stage of labour with no contraindications to spontaneous birth. INTERVENTIONS: The lateral versus the supported sitting position during the passive second stage of labour. MEASUREMENTS: Mode of birth, incidence of episiotomy, and perineal suturing. FINDINGS: Recruitment was lower than anticipated (107 vs. 220 planned). Lateral position was associated with lower rates of instrumental birth rate (lateral group 33%; sitting group 52%;  $p=0.05$ , RR 0.64, CI for RR: 0.40-1.01; Number-needed-to-treat (NNT)=5), of episiotomy (45% vs. 64%;  $p=0.05$ , RR 0.66, CI for RR: 0.44-1.00, NNT=5), and of perineal suturing (78% vs. 86%;  $p=0.243$ , RR 0.75, CI for RR 0.47-1.17). The odds ratio for instrumental birth in the sitting group was 2.2 (CI 1.00-4.6). Logistic regression of potential confounder variables was undertaken, due to a large variation in maternal weight between the randomised groups. Of the nine possible confounders tested, only position of the baby's head at full dilation affected the risk of instrumental birth significantly ( $p=0.4$ , OR 2.7 where the fetal head was in the lateral or posterior position). Maternal weight did not appear to have any effect. The odds ratio for instrumental delivery for women randomised to the sitting position was slightly higher within the logistic regression model (adjusted OR 2.3). KEY CONCLUSIONS: Women randomised to the lateral position had a better chance of a spontaneous vaginal birth than those randomised to the supported sitting position. Position of the babies head at full dilation had an additional effect on mode of birth. These effects are not conclusively generalizable. RECOMMENDATIONS FOR PRACTICE: The lateral position is likely to be at best beneficial, and at the worst no less harmful than the sitting position for most women and their babies who meet the criteria set for this study. Conclusive evidence for or against the technique should be established using larger trials.

**Database:** CINAHL

**8. Use of upright positioning with epidural analgesia: findings from an observational study.**

**Author(s):** Mayberry LJ; Strange LB; Suplee PD; Gennaro S

**Source:** MCN. The American journal of maternal child nursing; 2003; vol. 28 (no. 3); p. 152-159

**Publication Date:** 2003

**Publication Type(s):** Journal Article

**PubMedID:** 12771693

Available in full text at [MCN, American Journal of Maternal Child Nursing](#) - from Ovid

**Abstract:** PURPOSE: To present research findings and related nursing implications from an observational study designed to evaluate the use of upright positioning during second stage labor with patients who had received low-dose epidural analgesia. STUDY DESIGN AND METHODS: This descriptive study evaluated outcomes from a sample of 74 healthy women having their first childbirth. They had all received epidural analgesia during the first and second stages of labor. Data were also collected by nurses on the use of birthing beds, and the extent of physical and emotional support the women needed while following the upright positioning study protocol. RESULTS: All women were able to maintain upright positions throughout the second stage of labor following epidural analgesia administration. No adverse neonatal outcomes or maternal problems (such as excessive vaginal bleeding) were documented. CLINICAL IMPLICATIONS: Although women were capable of assuming upright positions during second stage, the study results indicated that constant physical and emotional support was necessary for most women. Future research on methods to prepare women for multiple position options after administration of low-dose epidural analgesia should be undertaken. In addition, nurses should evaluate the benefits of upright positioning in terms of facilitating progress of labor.

**Database:** PubMed

**9. Maternal positioning in labor with epidural analgesia. Results from a multi-site survey.**

**Author(s):** Gilder, Kathy; Mayberry, Linda J; Gennaro, Susan; Clemmens, Donna

**Source:** AWHONN lifelines; 2002; vol. 6 (no. 1); p. 40-45

**Publication Date:** 2002

**Publication Type(s):** Research Support, Non-u.s. Gov't Multicenter Study Journal Article

Available in full text at [AWHONN Lifelines](#) - from John Wiley and Sons

**Database:** Medline

## **10. Upright versus recumbent position in the second stage of labour in women with combined spinal-epidural analgesia.**

**Author(s):** Golar, M; Plaat, F; Shennan, A H

**Source:** International journal of obstetric anesthesia; Jan 2002; vol. 11 (no. 1); p. 19-22

**Publication Date:** Jan 2002

**Publication Type(s):** Randomized Controlled Trial Clinical Trial Journal Article

**Abstract:** Neuraxial blockade is widely used for pain relief in labour. This form of analgesia may be associated with an increase in instrumental delivery rates due to dystocia. 'Traditional' epidurals cause motor blockade and hence immobility. Using a low dose anaesthetic-opioid combination with either epidural or combined spinal-epidural, selective sensory blockade can be achieved, allowing mobility as well as pain relief. In this study, we randomised women with combined spinal-epidural analgesia either to mobilise (upright group n = 25) or to remain recumbent (n = 41) in the second stage of labour. We found women in the upright group had significantly shorter total second stage, (132 vs 109 min,  $P = 0.019$ ) particularly during the pushing phase (73 vs 51 min,  $P = 0.011$ ). Although there were fewer instrumental deliveries in the upright group, this was not statistically significant. Women who were randomised to the upright group, did actually mobilise. We conclude that mobilisation in the second stage of labour is possible, and may reduce the length of the second stage.

**Database:** Medline

## **11. The effect of maternal position on fetal heart rate during epidural or intrathecal labor analgesia.**

**Author(s):** Eberle, R L; Norris, M C; Eberle, A M; Naulty, J S; Arkoosh, V A

**Source:** American journal of obstetrics and gynecology; Jul 1998; vol. 179 (no. 1); p. 150-155

**Publication Date:** Jul 1998

**Publication Type(s):** Research Support, Non-u.s. Gov't Randomized Controlled Trial Clinical Trial Journal Article

**Abstract:** **OBJECTIVE** This study was designed to determine the relationship between maternal position and the incidence of prolonged decelerations after epidural bupivacaine or intrathecal sufentanil analgesia for labor. **STUDY DESIGN** Laboring, healthy, term parturient women, with reassuring fetal heart rate tracings, requesting either epidural (n = 145) or intrathecal (n = 160) analgesia were randomly assigned to lie either supine with measured 30-degree left uterine displacement (n = 136) or in the left lateral decubitus position (n = 145). Patients received either intrathecal sufentanil, 10 microg, or epidural 0.25% bupivacaine, 13 mL. An obstetrician, unaware of patient position or type of anesthesia, examined the fetal heart rate tracings. **RESULTS** No demographic differences were noted among the groups. Prolonged decelerations occurred with equal frequency after epidural bupivacaine and intrathecal sufentanil (3.9%). Prolonged decelerations were not related to maternal position. No emergency cesarean deliveries were performed as a result of prolonged decelerations. Prolonged decelerations correlated with the frequency of contractions before induction of analgesia ( $P < .05$ ). Fewer fetal heart rate accelerations were noted after intrathecal sufentanil than after epidural bupivacaine ( $P < .005$ ). More ephedrine was used after epidural bupivacaine ( $P < .001$ ). Patients who received epidural analgesia in the left lateral position were more likely to have an asymmetric block ( $P < .05$ ). **CONCLUSION** The risk of prolonged deceleration after epidural bupivacaine or intrathecal sufentanil labor analgesia is unrelated to maternal position or analgesic technique.

**Database:** Medline

## **12. Positional effects on maternal cardiac output during labor with epidural analgesia.**

**Author(s):** Danilenko-Dixon, D R; Tefft, L; Cohen, R A; Haydon, B; Carpenter, M W

**Source:** American journal of obstetrics and gynecology; Oct 1996; vol. 175 (no. 4); p. 867-872

**Publication Date:** Oct 1996

**Publication Type(s):** Randomized Controlled Trial Clinical Trial Journal Article

**Abstract:**OBJECTIVEOur purpose was to test the hypothesis that the supine versus the lateral position is associated with a greater decrement in cardiac output after epidural analgesia in labor.STUDY DESIGNTwenty-one normal term subjects were randomized to the left lateral or supine position in early labor. Cardiac output measured by the acetylene rebreathing method, stroke volume, heart rate, mean arterial pressure, and systemic vascular resistance were obtained at 5-minute intervals, beginning before a 500 ml intravenous fluid bolus (baseline) and ending 45 minutes after epidural injection.RESULTSMean baseline supine versus lateral group differences were significant for 21% lower cardiac output, 21% lower stroke volume, 19% higher mean arterial pressure, 50% higher systemic vascular resistance, and equivalent heart rate. In the supine group fluid bolus resulted in significantly increased cardiac output and stroke volume, decreased mean arterial pressure and systemic vascular resistance, and unchanged heart rate. In the supine group cardiac output and stroke volume decreased significantly after epidural injection. The lateral position group exhibited no hemodynamic alterations after fluid bolus or epidural.CONCLUSIONSIn contrast to the lateral position, the supine position is associated with a significant postepidural decrement in cardiac output, not identified by a change in heart rate. This likely reflects an inability to maintain stable preload volume in the supine position.

**Database:** Medline

## **13. Maternal positioning affects fetal heart rate changes after epidural analgesia for labour.**

**Author(s):** Preston, R; Crosby, E T; Kotarba, D; Dudas, H; Elliott, R D

**Source:** Canadian journal of anaesthesia = Journal canadien d'anesthesie; Dec 1993; vol. 40 (no. 12); p. 1136-1141

**Publication Date:** Dec 1993

**Publication Type(s):** Randomized Controlled Trial Clinical Trial Journal Article

Available in full text at [Canadian Journal of Anesthesia/Journal canadien d'anesthesie](#) - from Springer Link Journals

Available in full text at [Canadian Journal of Anesthesia](#) - from Free Access Content

**Abstract:**Adverse fetal heart rate (FHR) changes suggestive of fetal hypoxia are seen in patients with normal term pregnancies after initiation of epidural block for labour analgesia. It was our hypothesis that, in some parturients, these changes were a consequence of concealed aortocaval compression resulting in decreased uterine blood flow. We expected that the full lateral position compared with the wedged supine position would provide more effective prophylaxis against aortocaval compression. To test our hypothesis we studied the role of maternal positioning on FHR changes during onset of epidural analgesia for labour. Eighty-eight ASA Class I or II term parturients were randomized into two groups: those to be nursed in the wedged supine position and those to be nursed in the full lateral position during induction of an epidural block. External FHR monitoring was employed to assess the fetal response to initiation of labour epidural analgesia. Epidural catheters were sited with the parturients in the sitting position and the patients then assumed the study position. After a negative test dose, a standardized regimen of bupivacaine 0.25% was employed to provide labour analgesia. The quality and efficacy of the block were assessed using VAS pain scores,

motor block scores and sensory levels. The results demonstrated that there was no difference in the quality of analgesia provided nor in the incidence of asymmetric blocks. There was no difference in the observed incidence of FHR changes occurring during the initiation of the epidural block.(ABSTRACT TRUNCATED AT 250 WORDS)

**Database:** Medline

#### **14. Epidural analgesia in labour and maternal posture.**

**Author(s):** Rickford, W J; Reynolds, F

**Source:** Anaesthesia; Dec 1983; vol. 38 (no. 12); p. 1169-1174

**Publication Date:** Dec 1983

**Publication Type(s):** Research Support, Non-u.s. Gov't Comparative Study Randomized Controlled Trial Clinical Trial Journal Article

**Abstract:**The effect of maternal position in the period immediately following epidural administration on analgesia and side effects was examined during labour. Patients were randomly allocated to two groups and were either turned from left to right lateral position within 5 minutes of bupivacaine administration (n = 35), or kept in the supine position, modified as appropriate, until pain relief or side effects indicated a change (n = 35). There was no significant difference between the two groups in onset or duration of analgesia, the need for supplements or in absorption of bupivacaine. Circulatory disturbances, all mild and transient, were seen in 14 patients (eight lateral, six supine). There was no significant difference between the two groups either in the frequency of hypotension (four lateral, five supine) or of fetal heart deterioration (four lateral, three supine). However motor block occurred in 15 of the lateral group and five supine (p less than 0.02). Such differences are not thought sufficient to counterbalance the potential circulatory disadvantage of the supine position.

**Database:** Medline

## Strategy 215297

#	Database	Search term	Results
1	Medline	(Lithotomy ADJ2 position*).ti,ab	730
2	Medline	((second OR 2nd) ADJ3 (labor* OR labour*)).ti,ab	2988
3	Medline	exp "LABOR STAGE, SECOND"/	1200
4	Medline	(2 OR 3)	3483
5	Medline	(epidural*).ti,ab	37073
6	Medline	exp "ANALGESIA, EPIDURAL"/	7437
7	Medline	exp "ANESTHESIA, EPIDURAL"/	12907
8	Medline	(5 OR 6 OR 7)	42613
9	Medline	(1 AND 4 AND 8)	8
10	Medline	(1 AND 4)	26
11	Medline	(position*).ti,ab	507290
12	Medline	exp "PATIENT POSITIONING"/	4426
13		(11 OR 12)	509181
14	Medline	(4 AND 8 AND 13)	75
15	CINAHL	(Lithotomy ADJ2 position*).ti,ab	73
16	CINAHL	exp "LITHOTOMY POSITION"/	28
17	CINAHL	(15 OR 16)	84
18	CINAHL	(epidural*).ti,ab	4841
19	CINAHL	exp "ANALGESIA, EPIDURAL"/	1977

20	CINAHL	exp "ANESTHESIA, EPIDURAL"/	1627
21	CINAHL	(18 OR 19 OR 20)	6099
22	CINAHL	(17 AND 21)	9
23	CINAHL	exp "BIRTHING POSITIONS"/	373
24	CINAHL	(21 AND 23)	28
25	EMBASE	exp "LITHOTOMY POSITION"/	1235
26	EMBASE	(Lithotomy ADJ2 position*).ti,ab	1466
27	EMBASE	(25 OR 26)	1846
28	EMBASE	(epidural*).ti,ab	49810
29	EMBASE	exp "EPIDURAL ANALGESIA"/	593
30	EMBASE	exp "EPIDURAL ANESTHESIA"/	31241
31	EMBASE	(28 OR 29 OR 30)	59504
32	EMBASE	(27 AND 31)	71
33	EMBASE	exp "BIRTHING POSITION"/	152
34	EMBASE	exp "LABOR STAGE 2"/	1666
35	EMBASE	(31 AND 33 AND 34)	12
36	EMBASE	(stirrup*).ti,ab	338
37	EMBASE	(31 AND 34 AND 36)	1
38	Medline	((maternal OR birth*) ADJ2 position*).ti,ab	719
39	Medline	(8 AND 38)	59
40	EMBASE	(31 AND 33)	22

41	PubMed	(Lithotomy).ti,ab	1208
42	PubMed	(epidural*).ti,ab	45384
43	PubMed	(41 AND 42)	44
44	PubMed	(position*).ti,ab	513643
45	PubMed	(labour OR labor OR birth*).ti,ab	1245658
46	PubMed	(42 AND 44 AND 45)	347
47	PubMed	(second OR 2nd).ti,ab	970902
48	PubMed	(46 AND 47)	105
49	Medline	(Maternal positions AND mobility during first stage labour).ti	3