

## New and updated Cochrane summaries for Midwifery

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**Women's position for giving birth without epidural anaesthesia**

**Induction methods for women who have had a prior caesarean birth**

**Can inserting a cervical stitch prevent early births of single babies?**

**Methods for monitoring blood glucose in pregnant women with diabetes to improve outcomes**

**Treating gum disease to prevent adverse birth outcomes in pregnant women**

**Doppler ultrasound of fetal vessels in pregnancies at increased risk of complications**

**Perineal techniques during the second stage of labour for reducing perineal trauma**

### **Women's position for giving birth without epidural anaesthesia**

Authors: Gupta JK, Sood A, Hofmeyr G, Vogel JP

#### **What is the issue?**

Women often give birth in upright positions like kneeling, standing or squatting. Some women give birth on their backs in what are known as 'supine' positions - including dorsal (the woman flat on her back), lateral (the woman lying on her side), semi-recumbent (where the woman is angled partly upright) or lithotomy (where the woman's legs are held up in stirrups). Birth position can be influenced by many different factors including setting, mother's choice, caregiver preference, or medical intervention. This Cochrane review assessed the possible benefits and risks to the mother and baby, by giving birth in upright positions compared with supine positions and also looked at some individual upright positions for benefits and harms.

#### **Why is this important?**

Giving birth in the supine position may have been adopted to make it more convenient for midwives and obstetricians to assist the labour and birth. However, many women report that giving birth on their backs feels

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painful, uncomfortable and difficult. It is suggested that women in upright positions give birth more easily because the pelvis is able to expand as the baby moves down; gravity may also be helpful and the baby may benefit because the weight of the uterus will not be pressing down on the mother's major blood vessels which supply oxygen and nutrition to the baby.

We looked at the upright positions such as: sitting (on an obstetric chair or stool); kneeling (either on all fours or kneeling up) and squatting (unaided or using a birth cushion or a squatting bar). We compared these with supine positions such as: dorsal; lateral; semi-recumbent and lithotomy. Our aim was to assess the effectiveness, benefits and possible disadvantages of the different positions for women without epidural, during the second stage of labour.

### **What evidence did we find?**

We searched for evidence up to 30 November 2016. This review now includes data from 30 randomised controlled trials involving 9015 pregnant women who gave birth without epidural anaesthesia.

Overall, evidence was not of good quality. When women gave birth in an upright position, as compared with lying on their backs, the length of time they were pushing (second stage of labour) was reduced by around six minutes (19 trials, 5811 women; *very low-quality evidence*). Fewer women had an assisted delivery, for example with forceps (21 trials, 6481 women; *moderate-quality evidence*). The number of women having a caesarean section did not differ (16 trials, 5439 women; *low-quality evidence*). Fewer women had an episiotomy (a surgical cut to the perineum to enlarge the opening for the baby to pass through) although there was a tendency for more women to have perineal tears (*low-quality evidence*). There was no difference in number of women with serious perineal tears (6 trials, 1840 women; *very low-quality evidence*) between those giving birth upright or supine. Women were more likely to have a blood loss of 500 mL or more (15 trials, 5615 women; *moderate-quality evidence*) in the upright position but this may be associated with more accurate ways of measuring the blood loss. Fewer babies had problems with fast or irregular heart beats that indicate distress (2 trials, 617 women) when women gave birth in an upright position although the number of admissions to the neonatal unit was no different (4 trials, 2565 infants; *low-quality evidence*).

### **What does this mean?**

This review found that there could be benefits for women who choose to give birth in an upright position. The length of time they had to push may be reduced but the effect was very small and these women might lose more blood. The results should be interpreted with caution because of poorly conducted studies, variations between trials and in how the findings were analysed.

More research into the benefits and risks of different birthing positions would help us to say with greater certainty which birth position is best for most women and their babies. Overall, women should be encouraged to give birth in whatever position they find comfortable.

## **Induction methods for women who have had a prior caesarean birth**

Authors: West HM, Jozwiak M, Dodd JM

### **What is the issue?**

Labour induction is a common procedure, carried out when it is judged to be safer for a baby to be born than to continue a pregnancy. When a woman who has had a caesarean in the past gives birth, current clinical practice supports helping her to have a vaginal birth. However, there is a higher risk of complications from induction for women who have previously had a caesarean section.

Methods for induction include: prostaglandin medication (including oral or vaginal prostaglandins E2 (PGE2) or misoprostol); mifepristone; mechanical methods (including Foley catheters and double-balloon catheters); nitric oxide donors (such as isosorbide mononitrate); and oxytocin. This review looked at the harms and benefits of different methods for induction of labour in women with a prior caesarean birth, if induction of labour was required in their current pregnancy.

### **Why is this important?**

Lots of women have caesareans: across the world between one in four and one in two babies are born by caesarean section. Many women go on to have another pregnancy, and we want to know how to deliver these babies safely. Women with a prior caesarean birth have an increased risk of uterine scar rupture, particularly when labour is induced. This is a serious complication, often leading to negative outcomes for mother and child, such as hysterectomy, genitourinary tract injury, and postpartum blood transfusions for the mother, and neurological impairment or even death for the child.

### **What evidence did we find?**

We searched for studies on 31 August 2016. Eight small randomised controlled trials are included in this updated review, with data from 707 women and babies. The studies compared different methods of inducing labour, so results could not be combined.

There were design problems in all of the trials: women and health professionals knew which induction method was being used in seven out of eight trials, which may have affected clinical decisions. Women were left out of the analysis in some trials, and trials often did not report important outcomes (vaginal birth not achieved within 24 hours of induction, overstimulation of the uterus with changes to the baby's heart rate, caesarean section, serious illness or death of the baby, serious illness or death of the mother).

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The trials were too small to show clear differences. The quality of the evidence was very low, low, or moderate, because the trials were small and had high risk of bias. We cannot be certain about the results, and future research may show something different.

**What does this mean?**

There is not enough information available from randomised controlled trials to advise on the best methods of labour induction in women with a previous caesarean birth. More high-quality randomised controlled trials are needed to find out which method is best for mothers and babies. However, such trials are unlikely to be carried out because they would need a very large number of participants in order to study the risk of infrequent but serious outcomes (such as rupture of the woman's uterus). Other types of studies (i.e. non-randomised controlled trials) might be the best alternative. Future research could focus on those methods of induction that are believed to be effective and have a low risk of serious harm. The outcomes identified as important in this review could be utilised in future studies.

**Can inserting a cervical stitch prevent early births of single babies?**

Authors: Alfirevic Z, Stampalija T, Medley N

**What is the issue?**

Cervical cerclage is a surgical procedure performed during pregnancy to place a stitch around the neck of the womb (cervix). The stitch is aimed to support the cervix and reduce risk of an early birth.

**Why is this important?**

The cervix stays tightly closed until towards the end of normal pregnancies, before starting to shorten and gradually soften to prepare for labour and delivery. However, sometimes the cervix starts to shorten and widen too early, causing either late miscarriage or an early birth. Inserting a cervical stitch may reduce the chance of late miscarriage or early birth.

**What evidence did we find?**

We searched for evidence up to 30 June 2016. This review includes 15 studies involving 3490 women (3 studies involving 152 women were added for this update).

Women with a stitch are less likely to have a baby who is born too early. Babies whose mothers had a stitch are also less likely to die during the first week of life. It is not clear whether a cervical stitch can prevent stillbirth or improve the baby's health once born.

**What does this mean?**

Inserting a stitch helps pregnant women who are at high risk avoid early births compared to no stitch. Inserting a stitch may also improve a baby's chance for survival. We found too few clinical trials to understand whether cervical stitch is more effective than other treatments for preventing early births, such as progesterone (a

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hormone drug used to prevent early birth). We found too few data to understand if it is better to have a stitch inserted early in pregnancy (based on the mother's previous history) or to wait to perform an ultrasound scan later in pregnancy to see if the cervix has become shortened.

## **Methods for monitoring blood glucose in pregnant women with diabetes to improve outcomes**

Authors: Moy F, Ray A, Buckley BS, West HM

### **What is the issue?**

If a mother already has diabetes when she becomes pregnant, she and her baby are at a higher risk of various problems in pregnancy, labour, birth and later. During pregnancy, the mother will have her blood glucose levels (sometimes referred to as blood sugar levels) monitored so appropriate steps can be taken to control her blood glucose. This Cochrane review looked for the best test for measuring blood glucose during pregnancy in order to control blood glucose levels and so reduce problems for babies and mothers. We collected and analysed all relevant studies to answer this question (search date: November 2016).

### **Why is this important?**

Diabetes can cause problems for pregnant women and their babies, including early births, large babies, difficult births and the need for caesarean section. The problems also include a risk to the baby of bleeding in the brain (intracranial haemorrhage), and during labour, there is an increased risk of the baby's shoulder becoming stuck (shoulder dystocia). After the birth, there is an increased risk of low blood sugar (hypoglycaemia), jaundice and breathing problems. The babies are more likely to be admitted to an intensive care unit. Later, there is an increased risk of the baby developing diabetes as a child.

Women with existing diabetes that is not well-controlled at the time of conception and in the first three months of pregnancy are at increased risk of miscarriage, of having a baby with developmental problems or stillbirth. Several methods for monitoring blood glucose levels are used including regular testing at antenatal clinics, self-monitoring, or the use of special equipment that can continuously monitor glucose levels during pregnancy. A more accurate measure of blood sugar may lead to more effective control of blood glucose and a reduction in the potential problems for babies and mothers.

### **What evidence did we find?**

We found 10 trials involving 538 women and babies. We found studies that compared various methods of glucose monitoring: self-monitoring versus standard care, self-monitoring versus hospitalisation, monitoring before meals versus monitoring after meals, glucose monitoring, automated monitoring versus conventional system, continuous glucose monitoring (CGM) versus intermittent monitoring and constant CGM versus intermittent CGM. The trials were from European countries and the USA. They looked at different techniques of



monitoring and reported on different outcomes. The number of women in each study was generally small. The evidence was mostly of very low-quality, so we cannot be certain of the results.

The results did not show that any one monitoring technique was better than others. There was no clear difference between the monitoring techniques when mothers' control of blood glucose or high blood pressure disorders were looked at. Similarly, we found no difference in rates of caesarean section, the number of large babies, the number of babies who died or had serious health problems, or the number of babies being born too early (preterm). We do not know if this is because there is no difference between the techniques, or if there is a difference that these studies did not manage to show.

### **What does this mean?**

The review showed that there is not enough evidence to say with any certainty which monitoring method for blood glucose is best. More research is needed to find out which monitoring method, if any, is best at reducing the risk of complications.

### **Treating gum disease to prevent adverse birth outcomes in pregnant women**

Authors: Iheozor-Ejiofor Z, Middleton P, Esposito M, Glenny A

### **What is the aim of this review?**

The aim of this Cochrane Review was to find out if treating gum disease can prevent adverse birth outcomes in pregnant women. Cochrane researchers collected and analysed all relevant studies to answer this question and found 15 relevant studies.

### **Key messages**

There is no evidence that the treatment of gum disease reduces the number of babies born before 37 weeks of pregnancy, however, it may reduce the number of babies born weighing less than 2500 g. It is uncertain whether there is a difference in adverse birth outcomes when different methods of treating gum disease are compared.

### **What was studied in the review?**

Gum health tends to worsen during pregnancy. There has been some research associating gum disease with adverse birth outcomes. The review assessed studies where pregnant women with gum disease were treated using a combination of different mechanical techniques with or without antibiotics.

### **What are the main results of the review?**

The review authors found 15 relevant studies. Five were from North America, four from South America, three from Europe, two from Asia and one from Australia. Eleven studies compared either scaling and root planing or

scale and polish with no treatment while the other four studies compared scaling and root planing with alternative mechanical treatments.

When pregnant women with gum disease who receive periodontal treatment are compared with those who receive no treatment:

- there is no clear difference in the number of babies born before 37 weeks (low-quality evidence);
- there may be fewer babies born weighing less than 2500 g (low-quality evidence).

It is unclear if one periodontal treatment is better than alternative periodontal treatments in preventing adverse birth outcomes.

### **How up-to-date is this review?**

The review authors searched for studies that had been published up to October 2016.

## **Doppler ultrasound of fetal vessels in pregnancies at increased risk of complications**

Authors: Alfirevic Z, Stampalija T, Dowswell T

### **What is the issue?**

Most babies in high-income countries grow well in the womb. However, when the mother has a medical problem such as diabetes, high blood pressure, heart or kidney problems, or the placenta does not develop properly, this may affect the growth of the baby. Also, sometimes babies do not grow well for reasons we do not fully understand. Babies with poor growth are more likely to have complications, resulting in babies being ill or dying. Doppler ultrasound detects changes in the pattern of blood flow through the baby's circulation. These changes may identify babies who have problems.

### **Why is this important?**

If babies with growth problems are identified, interventions such as early delivery might help to prevent serious illness and death. However, using Doppler ultrasound could increase interventions such as caesarean section.

### **What evidence did we find?**

We searched for evidence in March 2017. We found 19 trials involving over 10,000 women. Eighteen of these studies compared the use of Doppler ultrasound of the umbilical artery of the unborn baby with no Doppler or with cardiotocography (CTG, sometimes called electronic fetal monitoring). One more recent trial compared Doppler examination of other fetal blood vessels (ductus venosus) with computerised CTG (short-term variation).

Evidence from included studies was assessed as moderate to very low-quality due to incomplete reporting of methods and uncertainty of findings; when the strength of the evidence is low or very low, this means future research may change the results and we cannot be certain about them.

Results showed that Doppler ultrasound of the umbilical artery may decrease the number of babies who die, and may lead to fewer caesarean sections and inductions of labour. There was no clear difference in the number of stillbirths, births using forceps or ventouse, or babies with a low Apgar score five minutes after birth. Findings for serious problems in the neonate were not consistent in different studies. In babies with growth restriction, when the decision to deliver was based on late ductus venosus changes or abnormalities on computerised CTG, this appeared to improve long-term (two-year) developmental outcome.

### **What does this mean?**

Doppler ultrasound in high-risk pregnancies appears to reduce the number of babies who die, and may also lead to fewer obstetric interventions. However, the evidence was of moderate to very low-quality. Further studies of high-quality with long-term follow-up would help us to be more certain.

## **Perineal techniques during the second stage of labour for reducing perineal trauma**

Authors: Aasheim V, Nilsen A, Reinart L, Lukasse M

### **What is the issue?**

Vaginal births are often associated with some form of trauma to the genital tract, and tears that affect the anal sphincter or mucosa (third- and fourth-degree tears) can cause serious problems. Perineal trauma can occur spontaneously or result from a surgical incision (episiotomy). Different perineal techniques are being used to slow down the birth of the baby's head, and allow the perineum to stretch slowly to prevent injury. Massage, warm compresses and different perineal management techniques are widely used by midwives and birth attendants. The objective of this updated review was to assess the effect of perineal techniques during the second stage of labour on the incidence of perineal trauma. This is an update of a review that was published in 2011.

### **Why is this important?**

Trauma to the perineum can cause pain and other problems for women after the birth. The damage is described as first-, second-, third- and fourth-degree tears – first-degree tears being the least damage and fourth-degree tears being the most. Third- and fourth-degree tears, affect the anal sphincter or mucosa, thus causing the most problems. Reducing the use of episiotomies will reduce trauma to the perineum. Also, different perineal techniques are being used to slow down the birth of the baby's head. Massage, warm



compresses and different perineal management techniques are widely used by midwives and birth attendants. It is important to know if these do indeed reduce trauma and pain for women.

### **What evidence did we find?**

We searched for studies in September 2016. Twenty two trials were eligible for inclusion in this updated review but only twenty studies (involving 15,181 women), contributed results to the review. The participants in the studies were women without medical complications who were expecting a vaginal birth. The studies varied in their risk of bias, and the quality of the studies was very low to moderate.

#### ***Hands off (or poised) compared to hands on***

Using 'hands off' the perineum resulted in fewer women having an episiotomy (low-quality evidence), but made no difference to numbers of women with no tears (moderate-quality evidence), first-degree tears (low-quality evidence), second-degree tears (low-quality evidence), or third- or fourth-degree tears (very low-quality evidence). There were considerable unexplained differences in results between the four studies. None of the studies provided data on the number of tears requiring suturing.

#### ***Warm compresses versus control (hands off or no warm compress)***

Fewer women in the warm-compress group experienced third- or fourth-degree tears (moderate-quality evidence). A warm compress did not affect numbers of women with intact perineum (moderate-quality evidence), tears requiring suturing (very low-quality evidence), second-degree tears (very low-quality evidence), or episiotomies (low-quality evidence). It is uncertain whether warm compresses increase or reduce the incidence of first-degree tears (very low-quality evidence).

#### ***Massage versus control (hands off or routine care)***

There were more women with an intact perineum in the perineal massage group (low-quality evidence), and fewer women with third- or fourth-degree tears (moderate-quality evidence). Massage did not appear to make a difference to women with perineal trauma requiring suturing (very low-quality evidence), first-degree tears (very low-quality evidence), second-degree tears (very low-quality evidence), or episiotomies (very low-quality evidence).

#### ***Ritgen's manoeuvre versus standard care***

One small study found that women who had Ritgen's manoeuvre had fewer first-degree tears (very low-quality evidence), but more second-degree tears (very low-quality evidence). There was no difference between groups in terms of the number of third- or fourth-degree tears, or episiotomies (both low-quality evidence).

### **What does this mean?**

We found that massage and warm compresses may reduce serious perineal trauma (third- and fourth-degree tears). Hands-off techniques may reduce the number of episiotomies but it was not clear that these techniques

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had a beneficial effect on other perineal trauma. There remains uncertainty about the value of other techniques to reduce damage to the perineum during childbirth.

More research is necessary, to evaluate different perineal techniques and to answer questions about how to minimise perineal trauma. There is insufficient evidence on women's experiences and views (only one included study collected information on this). It is important for future research to ascertain whether these interventions are acceptable to women.

If you have any questions or comments with regard to the above document please feel free to contact me.

Kind regards

**Dr Vanessa Jordan PhD**

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