

## New and updated Cochrane summaries for Midwifery

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**Bed rest with and without hospitalisation for women who are pregnant with twins or triplets for improving outcomes**

Authors: da Silva Lopes K, Takemoto Y, Ota E, Tanigaki S, Mori R

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

Twins, triplets or pregnancies with a greater number of babies have a higher risk of preterm births (birth before 37 weeks of gestation) and poor growth of the babies compared with single baby pregnancies. Women with a multiple pregnancy are often advised to rest in bed at home or in hospital to reduce the risk of preterm birth and other pregnancy complications.

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

Although bed rest is widely used in multiple pregnancies currently there is insufficient evidence to support the routine use of bed rest to reduce the risk of preterm birth. Furthermore, many studies have reported on adverse effects of bed rest. It is important to evaluate bed rest and weigh up the potential benefits and risks for women with multiple pregnancies.

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

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We searched for evidence on 30 May 2016. We identified six randomised controlled trials involving a total of 636 women and 1298 babies. The women were at 17 to 33 weeks pregnant when they entered the trials. The overall risk of bias of the trials was low and the evidence in general was of low quality.

Advising women with a multiple pregnancy to either continuously rest in bed (five trials, 495 women and 1016 babies) or rest in bed for several hours during the day but with some physical activity allowed (one trial, 141 women and 282 babies) in hospital did not reduce the risk of very preterm birth (birth before 34 weeks of gestation), infant deaths before or up to one week after the birth or, low birthweight babies (strict bed rest only) compared with women who maintained daily activities at home. Women receiving strict bed rest in hospital were more likely to go into labour normally (four trials, 488 women) and had babies with a higher mean birthweight (three trials, 314 women) compared with women without activity restrictions at home. Partial bed rest in hospital reduced the number of pregnant women developing high blood pressure (one trial, 141 women, low-quality evidence) but the same benefit was not observed with strict bed rest (five trials, 495 women).

Adverse effects such as the development of venous thromboembolism or mental, emotional, social and spiritual well-being (psychosocial) effects, and women's views and experiences of bed rest were not reported in the included trials. Neither were the costs of the intervention reported on.

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

We did not find sufficient evidence to support or refute bed rest for women with a multiple pregnancy as a way of preventing preterm birth and other pregnancy complications.

## **Fundal pressure during the second stage of labour for improving maternal and fetal outcomes**

Authors: Hofmeyr G, Vogel JP, Cuthbert A, Singata M

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

The second stage of labour is the pushing stage, from when the cervix is fully dilated (to 10 cm) until the baby is born. Fetal distress, failure to progress, maternal exhaustion or a medical condition where prolonged pushing is dangerous, can complicate this stage. Applying fundal pressure by pushing on the mother's abdomen in the direction of the birth canal is often used to assist spontaneous vaginal birth, shorten the length of the second stage and reduce the need for instrumental birth (forceps- or vacuum-assisted) or caesarean section. It is particularly relevant in low-resource settings where options for operative birth are limited or not available. Manual pressure can be applied each time the woman has a contraction. Alternatively an inflatable belt can be worn which inflates to apply pressure during the contractions.

This review aimed to answer whether fundal pressure during contractions in the second stage of labour helps women give birth vaginally, and whether it causes any negative consequences for the woman or her unborn baby.

**Why is this important?**

A long labour can sometimes be dangerous for some women and their babies. Sometimes the unborn baby and woman can become exhausted during the labour and birth. In many countries, there are trained professionals who can assist with ventouse, forceps or caesarean sections. However in other countries, these resources are often lacking, and long labours can be life-threatening. Fundal pressure may help the woman to give birth. It may also possibly increase complications for the baby and mother. There is not a lot of knowledge on this topic, and it is important to know how these techniques might affect the women and their babies.

**What evidence did we find?**

This updated Cochrane Review found nine randomised controlled trials involving 3948 women (search date 30 November 2016). Five studies (including 3057 women) looked at manual fundal pressure versus no fundal pressure and four studies (including 891 women) looked at fundal pressure applied using an inflatable belt. We found no evidence that manual fundal pressure made a difference to numbers of women giving birth vaginally within a given time (very low-quality evidence), or having an instrumental birth, caesarean section, or vaginal birth (very low-quality evidence). The time women took to give birth when pushing was not affected by manual fundal pressure (very low-quality evidence). The numbers of babies who did not cope well with labour and had low arterial cord pH, or low Apgar scores were the same whether their mother had fundal pressure or not (all very low-quality evidence). No babies died in either group. Studies did not report on possible severe problems or death of the women.

For women giving birth for the first time, fundal pressure by inflatable belt could possibly mean that fewer women had an instrumental or caesarean birth (very low-quality evidence), but the evidence was not clear. In these women, the inflatable belt meant they pushed for less time than women pushing without the belt (very low-quality evidence). The inflatable belt did not make any difference to numbers of women having caesarean sections, babies with low arterial cord pH (low-quality evidence), or Apgar scores five minutes after birth (very low-quality evidence). No studies reported if the women gave birth within a given time, numbers of babies that died or possible serious problems or death of the women. No studies used inflatable belts in women who had given birth before.

**What does this mean?**

There is not enough evidence from randomised controlled trials to show whether manual fundal pressure or fundal pressure by inflatable belt are effective ways of shortening the pushing stage of labour and avoiding

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operative births, and whether the techniques are safe. So currently there is insufficient evidence to support the use of fundal pressure by any method in the second stage of labour.

Future studies should be of good quality, clearly describe how fundal pressure was applied, and focus on safety of the unborn baby, perineal outcomes, longer-term maternal outcomes and the mothers' satisfaction.

### **Long chain polyunsaturated fatty acid supplementation in infants born at term**

Authors: Jasani B, Simmer K, Patole SK, Rao SC

**Review question:** Does feeding full-term babies with formula milk enriched with long chain polyunsaturated fatty acids (LCPUFA) result in improved vision and overall neurodevelopment compared with feeding formula milk not enriched with LCPUFA?

**Background:** LCPUFA is a type of fat that is essential for the development of brain and vision in newborn babies. Breast milk contains adequate amounts of LCPUFA and hence is considered better than formula milk. Some milk formulae with added LCPUFA are commercially available.

**Study characteristics:** This review analysed studies that compared outcomes of full-term babies (born at  $\geq 37$  weeks of pregnancy) who were given formula milk enriched with LCPUFA versus outcomes of full-term babies fed formula milk without enrichment with LCPUFA.

**Key results:** Review authors found that full-term babies fed formula milk supplemented with LCPUFA did not have better outcomes than were reported for full-term babies fed formula milk without LCPUFA.

**Quality of evidence:** We considered the overall quality of evidence to be low.

### **Screening tests for Down's syndrome in first 24 weeks of pregnancy**

Authors: Aldred S, Takwoingi Y, Guo B, Pennant M, Deeks JJ, Neilson J, Alfirevic Z

#### **Background**

Down's syndrome (also known as Down's or Trisomy 21) is an incurable genetic disorder that causes significant physical and mental health problems, and disabilities. However, there is wide variation in how Down's affects people. Some individuals are severely affected whilst others have mild problems and are able to lead relatively normal lives. There is no way of predicting how badly a baby might be affected.

Expectant parents are given the choice to be tested for Down's during pregnancy to assist them in making decisions. If a mother is carrying a baby with Down's, then there is the decision about whether to terminate or continue with the pregnancy. The information offers parents the opportunity to plan for life with a Down's child.

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The most accurate tests for Down's involve testing fluid from around the baby (amniocentesis) or tissue from the placenta (chorionic villus sampling (CVS)) for the abnormal chromosomes associated with Down's. Both these tests involve inserting needles through the mother's abdomen and are known to increase the risk of miscarriage. Thus the tests are not suitable for offering to all pregnant women. Rather, tests that measure markers in the mother's blood, urine or on ultrasound scans of the baby are used for screening. These screening tests are not perfect, they can miss cases of Down's and also give a 'high risk' test results to a number of women whose babies are not affected by Down's. Thus pregnancies identified as 'high risk' using these screening tests require further testing using amniocentesis (from 15 weeks' gestation) or CVS (from 10 + 0 to 13 + 6 weeks' gestation) to confirm a diagnosis of Down's.

### **What we did**

The aim of this review was to find out which of the first trimester ultrasound screening tests, with or without first trimester serum tests done during the first 14 weeks of pregnancy are the most accurate at predicting the risk of a pregnancy being affected by Down's. We looked at 11 different ultrasound markers and 12 different serum markers that can be used alone, in ratios or in combination, taken before 14 weeks' gestation, thus creating 60 screening tests for Down's. We found 126 studies, involving 1,604,040 fetuses (including 8454 fetuses affected by Down's syndrome).

### **What we found**

For the first 14 weeks of pregnancy, the evidence supports the use of first trimester ultrasound tests in combination with two serum (blood) markers - especially pregnancy-associated plasma protein A (PAPP-A) and free beta human chorionic gonadotrophin ( $\beta$ hCG) - and maternal age, for Down's syndrome screening. In general, these tests are better than ultrasound markers on their own. They detect nine out of 10 pregnancies affected by Down's syndrome. Five per cent of women undertaking the test will have a high risk test result, however the majority of these pregnancies will not be affected by Down's syndrome.

### **Other important information to consider**

The ultrasound tests themselves have no adverse effects for the woman, blood tests can cause discomfort, bruising and rarely infection. However some women who have a 'high risk' screening test result, and are given amniocentesis or CVS have a risk of miscarrying a baby unaffected by Down's. Parents will need to weigh up this risk when deciding whether or not to have an amniocentesis or CVS following a 'high risk' screening test result.

### **Pushing methods for the second stage of labour**

Authors: Lemos A, Amorim MMR, Dornelas de Andrade A, de Souza AI, Cabral Filho J, Correia JB

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

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During the second stage of labour a common technique is to encourage women to take a deep breath at the beginning of a contraction then hold it and bear down throughout the contraction (this is known as directed pushing). In spontaneous pushing, women are free to follow their own instincts and generally push three to five times per contraction. Delayed pushing involves instructing women to avoid pushing until there is an irresistible urge to push or when the presenting part of the baby has descended to the perineum.

**Why is this important?**

We need to know the benefits and possible disadvantages of different kinds of techniques regarding maternal pushing/breathing during the expulsive stage of labour on maternal and fetal outcomes.

**What evidence did we find?**

We searched for evidence on (search date 19 September 2016) and identified eight trials (884 women) comparing the types of pushing: spontaneous pushing versus directed pushing with or without epidural analgesia and 13 trials (2879 women) comparing timing of pushing: delayed pushing versus immediate pushing with epidural analgesia. The quality of the evidence in this updated review ranges from moderate to very low quality.

**Comparison 1: Spontaneous pushing versus directed pushing**

For types of pushing (spontaneous pushing versus directed pushing) there was no clear difference in the duration of the second stage (*very low-quality evidence*), perineal laceration (*low-quality evidence*), episiotomy, time spent pushing (*very low-quality evidence*), or number of women with a spontaneous vaginal birth (*moderate-quality evidence*) between the women who spontaneously pushed and the women who were directed. Outcomes relating to the baby (such as five-minute Apgar score less than seven (*very low-quality evidence*), admission to neonatal intensive care (*very low-quality evidence*)) were not clearly different. None of the studies reported on the outcome of babies with hypoxic ischaemic encephalopathy.

**Comparison 2: Delayed pushing versus immediate pushing (women with epidural)**

For the timing of pushing: delayed pushing versus immediate pushing (all women with epidural) - delayed pushing was associated with an increase in the duration of the second stage by about 56 minutes (*very low-quality evidence*). There were no clear differences between the two groups in the number of women with perineal laceration (*moderate-quality evidence*) and episiotomy. Delayed pushing reduced the duration of pushing by about 19 minutes (*very low-quality of evidence*), and slightly increased the number of women with a spontaneous vaginal birth (*moderate-quality evidence*). There were no clear differences between the delayed and immediate pushing groups in terms of important outcomes for the baby: Apgar score less than seven at five minutes (*very low-quality evidence*), admission to neonatal intensive care (*low-quality evidence*). None of the studies reported on the outcome of babies with brain damage due to lack of oxygen to the brain.

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Furthermore, delayed pushing was associated with an increased incidence of low umbilical cord pH and increased the cost of intrapartum care by CDN\$ 68.22.

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

We are unable to say whether spontaneous pushing or directed pushing coaching methods are best. Until further high-quality studies are available, women should be encouraged to push and bear down according to their comfort and preference.

Delaying pushing for women with epidural reduces the time spent pushing when giving birth, and increases the likelihood of a spontaneous vaginal birth. However, it increases the duration of the second stage. The possible effects on important neonatal outcomes and maternal perineal injury (serious tears) is still unclear. Therefore, the evidence is still insufficient and inconclusive to support any indication of specific timing of pushing as well as for the type of pushing once there is no conclusive evidence to indicate an adequate style of pushing to be used in the clinical practice.

Further properly well-designed randomised controlled trials are required to produce more evidence-based information. These trials should address clinically important maternal and neonatal outcomes and will provide more complete data to be incorporated into a future update of this review.

## **Pelvimetry for fetal cephalic presentations at or near term for deciding on mode of delivery**

Authors: Pattinson R, Cuthbert A, Vannevel V

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

Does the use of pelvimetry to assess the size of the woman's pelvis improve outcomes for baby and mother? Pelvimetry might identify babies whose heads are too big for their mother's pelvis. In this case, an elective caesarean section might improve the outcome. Forms of pelvimetry include radiological pelvimetry (X-ray, computerised tomography (CT) scan or magnetic resonance imaging (MRI)) and clinical examination of the woman. We planned to include all studies comparing the use of clinical or radiological (X-ray, CT or MRI) pelvimetry versus no pelvimetry, or different types of pelvimetry.

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

Sometimes, normal labour does not progress because the baby's head is too big, or the pelvis of the mother is too small, for the baby to pass through. This is called "cephalo-pelvic disproportion" or "obstructed labour" which may lead to an emergency caesarean section with possible risks for both mother and baby. A pregnant mother or her caregiver might be worried that disproportion could occur and for this reason, pelvimetry can be performed either before or during labour. It can be undertaken by clinical examination, X-ray, CT-scan or MRI. Pelvimetry measures the diameters of the pelvis and the baby's head. However, doing a pelvimetry also has

implications: clinical examination might be very uncomfortable for the mother, X-ray and CT-scanning might be harmful for the baby and MRI is very expensive. All of these techniques have to be performed meticulously by experienced and skilled people to have any real value.

If we could diagnose the disproportion accurately before birth using pelvimetry, we might reduce the need for an emergency caesarean section and plan an elective procedure, with better outcomes for the baby and less complications for the mother.

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

We searched for evidence on 30th November 2016 and identified five trials with a total of 1159 pregnant women. All five trials used X-ray pelvimetry in comparison to no X-ray pelvimetry.

The women who received X-ray pelvimetry were more likely to have a caesarean section (*low-quality evidence*). Whether a woman had pelvimetry or not, we found no difference in the numbers of babies that died (*very low-quality evidence*), who did not have enough oxygen during labour, or were admitted to special care baby units (*very low-quality evidence*). For the women, no differences were found between numbers of women with wound sepsis, those who received a blood transfusion, or those whose caesarean section scar began to break down (*all very low-quality evidence*). Apgar score less than seven at five minutes was not reported in any study.

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

There is too little evidence (the majority of which is low quality) to show whether measuring the size of the woman's pelvis (pelvimetry) is beneficial and safe when the baby is in a head-down position. The number of women having a caesarean section increased if women had X-ray pelvimetry but there was insufficient good-quality evidence to show if pelvimetry improves outcomes for the baby. More research is needed.

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

Kind regards

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