



# Biomechanics in Pregnancy and Birth



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Bwrdd Iechyd Prifysgol  
Caerdydd a'r Fro  
Cardiff and Vale  
University Health Board

**Biomechanics is the study of biology and the mechanisms of movement**

**Biomechanics and positional changes can help babies to rotate and turn to navigate the pelvis**



*Midwives Beth and Laura demonstrating 'shake the apple tree' to expectant parents*

With special thanks to Kingston Maternity for sharing their original document with us



**Kingston Hospital**  
NHS Foundation Trust



# Side Lying Release



Weekly from 34 weeks

Any stage of labour

## When?

**In Pregnancy** – weekly from 34 weeks

**In Labour** – at any stage of labour

## How does it work?

This technique uses a 'static stretch' to temporarily enlarge and soften the pelvis. It can be done weekly to maintain balance and stability, help baby to rotate into an optimal position and encourage regular contractions. It can also ease back and labour discomfort.

## How to do side-lying release

- Begin by laying on a side of your choice. Your hips, shoulders, neck, and head should be inline.
- Your birth partner should stand in front of you for support.
- Move towards the edge of the bed until your bump extends over the edge. Flex your toes up towards your knees and allow your top leg to hang over the bed. Remain in this position for 3 contractions or 10 minutes. Repeat on the other side.



## Avoid if you suffer from

- Hypermobility
- Ehlers-Danlos Syndrome
- Severe pelvic or back pain



# Forward-Leaning Inversion



Daily from 32 weeks

Early or stalled labour

## When?

**In Pregnancy** – Daily from 32 weeks

**In Labour** – In early labour or stalled labour

## How does it work?

This technique increases room within the lower uterus for baby to move into an optimal position. It can be done in early labour, or when labour stalls. It can temporarily lengthen ligaments to aid alignment of the uterus with the pelvis. It may reduce back and hip pain and can help a breech or transverse baby to turn head down.

## How to do forward-leaning inversion

- Kneel on the edge of a couch, bed, or chair.
- With the help of your partner, carefully lower yourself to your hands on the floor and then lower further to rest on your forearms. Keep your elbows out and hands close.
- Let your head hang freely. Your knees should be close to the edge, and your bottom up high. Take three breaths.
- With the support of your partner, come back up on to your hands, then up to a high kneeling position. Take two breaths here, then sit on your heels.



## Avoid if you suffer from

- High blood pressure
- Polyhydramnios (increased amniotic fluid)
- Recent laser eye surgery
- Any condition related to an increased risk of a stroke



# Shake the Apple Tree



Daily from 32 weeks

Any stage of labour

## When?

**In Pregnancy** – Daily from 32 weeks

**In Labour** – During any stage of labour

## How does it work?

Jiggling activates stretch sensors in muscles, helping them to relax. Relaxed muscles create more space for babies to move. This can provide comfort in labour and encourage baby's head to descend into the pelvis in a good position. This can also help prevent a delay in labour.

## How to shake the apple tree

- Adopt an all-fours position or lean over a counter.
- Using a rebozo, scarf or blanket, a birthing partner places the material, so it is hugging both buttocks.
- Holding the edges of the material at the hips, gently jiggle from left to right. Jiggle for up to 20 minutes, depending on comfort. Always check whether it is comfortable with the birthing person



**Be cautious to never shake the hips vigorously**



## Sifting



Daily from 32 weeks

Any stage of labour

### When?

**In Pregnancy** – Daily from 32 weeks

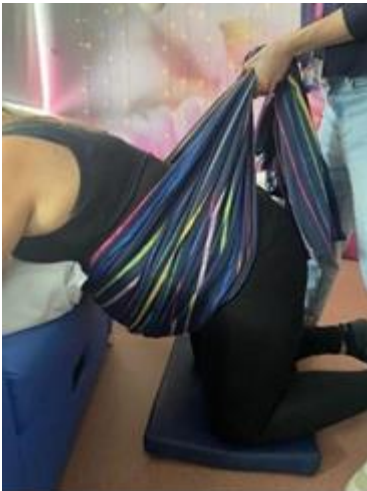
**In Labour** – During any stage of labour

### How does it work?

The sifting movement helps to relax abdominal muscles to encourage optimal fetal position. It can provide comfort in labour and encourage baby's head to descend into the pelvis.

### How to do sifting

- Adopt an all-fours position.
- Using a rebozo, scarf or blanket, a birthing partner places the material, so it is hugging the tummy comfortably, top to bottom.
- Standing close to the birthing person's hips (to protect the partner's back), lift gently upwards and cycle the hands to create a rocking sensation. Cycle for up to 20 minutes, depending on comfort. Always check whether it is comfortable with the birthing person



**Be cautious to never shake the hips vigorously**



More useful in labour

# Lunge



Establish or stalled

## When?

**In Pregnancy** – More useful in labour than in pregnancy

**In Labour** – During established labour or stalled labour

## How does it work?

This technique aids rotation and descent of baby's head by opening the mid-pelvis. Lifting one leg can help create more room for baby to rotate into a good position. Can be used when labour has slowed and is a useful upright position to adopt in labour.

## How to do a lunge

- Whilst facing forwards, place one foot on a chair or stool to your side, toes pointing away from your body (90° degree angle)
- During a contraction, gently rock towards your bent knee beyond your foot.
- A birth partner can stand close or in front for support if needed
- You can rest your foot on the floor between contractions if required
- Try 5 contractions, then change to the other leg



## Avoid if

- You are struggling to stand on one leg
- In the presence of severe knee pain



## Alternative Methods



**There are many other things which can help you to stay relaxed and comfortable in pregnancy and labour.**

- Massage
- TENs (electrical nerve stimulation), TENs machines can be hired or bought privately
- Changing position
- Warm or cool compress
- Paracetamol 1g every 4 to 5 hours (not exceeding 4g in 24 hours)
- Peanut ball
- Aromatherapy (please ask your midwife about this when in hospital or provide your own essential oils)
- Bath or shower
- Low lighting
- Music



## Useful Resources



[www.spinningbabies.com](http://www.spinningbabies.com)



[www.optimalbirth.co.uk](http://www.optimalbirth.co.uk)



***If you would like more information, please ask your midwife***