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Techniques used during the labour to encourage optimal fetal position and improve the process of delivery.[1]

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Abstract: The course of labour is influenced by many factors, only some of which are under the control of the woman in labour and/or the medical staff. The conditions for efficient movement of the head in the birth canal, including the anatomy of the pelvis and soft tissues, uterine contractility, fetal positioning and the attitude of the birthing women, are crucial. This article describes techniques and methods to improve the movement of the fetus through the birth canal in the case of suboptimal condition of childbirth.
Keywords: malposition, optimal mother position, optimal fetal position

Introduction

We are currently observing changes in midwifery characterized by an increasing rate of cesarean sections (CS) instrumental labours and a significant medicalization of childbirth. It reflects the needs for an impact and control during the labour, presented by both medical staff and parents preparing for parenthood. However, their influence on the birth process is very limited. The factors determining the progress of labour, referred to as the 4 P law, include: power–contraction activity, passenger–fetal position, passage–pelvis and pelvic floor, psyche–mental attitude of the birthing women. An important factor determining the progress of labour is both uterus activity and the mental health condition of the woman giving birth. Due to the need to minimize the negative experience of difficult childbirth, there is a need to for research for techniques that would improve this process. Based on close observations of experienced midwives, there are two trends described the aim of which is to support the physiological course of childbirth. Originally formulated principle of Optimal Fetal Position (OFP) and the second added later, Optimal Maternal Position (OMP). These two trends complement each other and describe efforts to create optimal space in the pelvis encouraging the fetus to obtain optimal position. Midwives' ability to promote physiological birth can be enhanced by implementing this knowledge. Supportive techniques can be used to improve birth outcomes and contribute to a positive birth experience. When midwives work effectively with the birthing woman and her partner, their work can also be experienced as more stimulating and contributing to a new understanding of childbirth (Sirviö and Ohlsson, 2021).

1 Article in polish language: Techniki stosowane w trakcie porodu w celu korekty pozycji płodu i usprawnienia jego przebiegu: https://www.stowarzyszeniefidesetratio.pl/fer/2023-3Wit.pdf

1. Optimal Fetal Position (OFP)

The term 'Optimal Fetal Position' has been used in midwifery since 1995 thanks to Jean Sutton, a midwife working with women in the perinatal period in New Zealand. Based on her own observations, she concluded that the position of the fetus in the uterus and the way of engagement to the pelvis have a significant impact on the process of the birth. She defined the OFP as the longitudinal cephalic presentation, left position, in which the back of the baby is turned towards the left front of the uterus (LOA–Left Occiput Anterior) (Sutton, 2001). According to her observations, the proportions of this setting in the population have decreased over recent years, which was the result of civilization changes and changes in the lifestyle of pregnant women (Sutton, 2001), and consequently resulted in the need for increased medicalization.

In order to encourage the OFP, a new approach has been created called Spinning Babies®. It includes workshops for parents in the antenatal period and training for medical staff supporting women in the perinatal period. This method, described by midwife Gail Hart, is based on the recognition that a significant factor determining the progress of labour is the position of the fetus. Gravity, balance and movement are natural forces that are used to achieve optimal fetal positioning at the end of pregnancy or during labour that is not progressing as expected. Spinning Babies® techniques based on the natural forces of nature and the potential of the woman's body should therefore support physiological childbirth, in which medical interventions are minimalised (Tully, 2015). Spinning Babies® is based on "Fantastic Four" approach, which means: 1. Using Rebozo to encourage fascia and deep muscles relaxation, 2. Inversion with forward leaning to create space in the lower uterus and compensate for any anatomical asymmetries, 3. Sidelying release to increase space in the pelvis and relieve tension in the pelvic floor muscles; 4. Standing Release–relieving the pressure on the sacrum and surrounding ligaments through a standing position, enabling its mobility and thus increasing the capacity of the pelvis (Spiteri, 2019). However, no reliable scientific research has been conducted so far to confirm the validity and effectiveness of these techniques. Information regarding the use of the Spinning Babies® technique can be found in midwives' case studies and professional journals, but not in peer-reviewed scientific journals (Tully, 2012; Waechter, 2018; Morales, 2019; Wainer, 2019). There are also records of negative opinions of midwives related to the use of this technique (Tritten, 2017).

So far in the research comparing the OFP with other anterior positions there is no significant differences found in the frequency of normal vaginal births or instrumental and operational labour (Ahmad et al., 2014).

2. Optimal Maternal Position (OMP)

Restricted impact of the actions of medical staff on the position of the fetus both in antenatal and intrapartum led Ginny Phang-Davey to create the trend called Optimal Mother's Position (OMP). The foundation of this theory assumes that the mobility and position of the woman giving birth, not the position of the fetus, can help achieve optimal pelvic capacity. Positioning the woman giving birth in a specific position to facilitate vaginal labour is more important than ensuring that the fetus is optimally positioned in the pelvis. According to this trend, the term 'abnormal fetal position' is avoided, recognizing that the baby's position is consistent with the structure of the pelvis (ie. the OP position is not treated as an abnormality, but as a variety of normal). According advocates of the theory, the fetus engages into the pelvis and passes through it in a way that is most optimal for it considering the given shape of the pelvis. In many cases, this process may differ significantly from the textbook mechanism of childbirth which is characteristic only for gynecoid pelvis (Brittany Sharpe McCollum). It is not recommended the use of internal rotation of the fetus from the OP position if the patient is diagnosed with an anthropoid pelvis. The shape of the pelvic brim in this case is in harmony with the shape of the head engaged in this way (Barth Jr, 2015). This theory is consistent with the modern model of thinking present in other areas, expressed in the existence of a continuum, considering differences not as abnormal, but only less common.

3. Optimal relaxation of the woman in labour

An indirect form of influence on the fetal position is elimination of the emotional and muscular tension of the woman in labour. The technique aims to minimize or eliminate labour pain, which is the source of this tension. This pain may be perceived as unphysiological and unacceptable, especially in the case of abnormal fetal position. This is a type of positive feedback. Obtaining relaxation of soft tissues (ligaments, fascia, pelvic floor muscles) by eliminating pain in the sacrum area may lead to proper fetal rotation. If the reason for the unusual positioning of the fetus in the pelvis is excessive tension of the soft tissues, whether it is primary or caused by pain, then after applying techniques that eliminate pain or eliminate tension, the position of the fetus should change. Techniques that help improve the mental and anatomical condition include all natural methods of pain relief, ie. TENS, water immersion, manual techniques and the methods included in the Spinning Babies® approach like: rebozo scarf or side lying realise, shaking the thighs and buttocks. A more invasive method is the use of intradermal injections of a water for injection into the sacrum area. These methods still do not have reliable scientific studies confirming their effectiveness.

4. Techniques used to correct fetal position and achieve optimal pelvic capacity

Engagement of the fetal head, previously considered as atypical, or the atypical shape of the pelvis may be associated with prolonged labour. It often requires greater involvement of medical personnel and the use of appropriate supportive techniques. Assistive techniques used in case of difficult labour (especially long labour) are intended not only to enable natural childbirth, but also to protect the mother from traumatic experience.

It is advised that labour suite professionals use accessible techniques to assist in the labour process. One of the easiest and natural methods is the use of the vertical position, especially in the second stage of labour. According to the OMP theory, women are encouraged to remain in almost not natural positions, to which the body is not accustomed, in order to open particular bone structures by pulling the ligaments strongly (Calais-Germain and Vives Parés, 2009). However, this requires the medical personnel to carefully identify the engagement of the head in the birth canal, and to precisely determine in which plane the head is located. This knowledge allows you to use the appropriate position to open a specific pelvic space. Even a subtle adjustment to typical birthing positions can have a significant effect when done at the right time. For the woman in labour and for the staff member, these activities do not require much effort or physical fitness, because they are usually associated with changing the angle of the foot, proper rotation of the femur or the angle of the torso in relation to the pelvis. They can also be performed in a situation where the woman in labour is lying down all the time due to a strong effect of epidural or the need for constant fetal monitoring. Changing the birthing position is much easier to achieve than changing the position of the fetus. However, this requires the trust of the medical staff that there is a certain regularity in the way the fetus moves through the pelvis and the focus should be on maximally opening the passage through which the child has to pass. The advantage of these techniques is also the fact that they do not qualify as interventions that would involve any risk and they are not associated with side effects.

In the case of suboptimal fetal positioning, in particular OP position, there are additional corrective techniques available. The assessment of techniques aimed at correcting the malposition of the fetus, used in intrapartum setting, does not indicate their high effectiveness (Table 1). The use of methods such as turning the woman to the position on all fours, using the rebozo sling, using birthing ball, laying in the side lateral position significantly improve the comfort of the woman in labour, but very rarely lead to the desired rotation of the fetus to the optimal position (Kariminia et al., 2004; Cohen and Thomas, 2015). Manual fetal rotation performed during vaginal examination in the second stage of labour seems to be the

Tab. 1. Techniques used to correct fetal malposition

Position on all fours *(Hands-and-knees position)* Two recent systematic reviews assessing the use of this position to improve fetal positioning did not confirm its effectiveness in achieving an optimal vertex rotation, both immediately after the intervention and in the second stage of labour. There was also no effect on reducing rates of cesarean section (CS), use of epidural, severe perineal trauma, maternal satisfaction and Apgar scores less than seven in five minutes.	(Barrowclough et al., 2022; Levy et al., 2021)
Side lateral position Based on the studies included in the review, use of this position may have little or no effect on reducing rates of CS, instrumental births and maternal satisfaction, but this evidence is uncertain and further research is needed.	(Barrowclough et al., 2022)
Manual internal rotation A review by Burd et al. (2022) shows that prophylactic manual rotation of the fetus from the occipitoposterior (OP) or occipitotransverse (OT) position, confirmed by ultrasound (USS), did not increase the rate of spontaneous vaginal labour compared with no manual rotation. Manual vertex rotation from a OP position during the early second stage of labour was associated with a significant 12.8-minute reduction in length, without changes in maternal and fetal outcome. No difference were found for vertex rotated from an OT position or for a combination of those positions. Berthold et al. (2022) in the review found that manual rotation was associated with an increased rate of spontaneous vaginal delivery: 64.9% vs 59.5% (RR, 1.09; 95% CI, 1.03-1.16; P =.005; 95% prediction interval, 0.90-1.32). Manual rotation was associated with spontaneous vaginal labour only for the OP position (RR, 1.08; 95% CI, 1.01-1.15). Additionally, it was associated with a reduction in OP or OT position at labour (RR, 0.64; 95% CI, 0.48-0.87) and the rates of episiotomy (RR, 0.84; 95% CI, 0.71- 0.98). The groups did not differ significantly in the rates of CS, instrumental labours and neonatal outcomes.	(Bertholdt et al., 2022; Burd et al., 2022)
Lithotomy position *(Classic delivery position)* This systematic review found no significant association between lithotomy position and fetal rotation from OP to occipitoanterior (OA) position during the first stage of labour.	(Lee et al., 2021)
Sims position *(Lateral recumbent position)* In labours where womens' chosen position was the Sims position, fetus with vertex in OP position rotated to the OA in 50.8% of cases, while in the free position group rotation occurred in 21.7% of cases (p=.001). The rate of vaginal labour was significantly higher in the Sims group compared to the free position group (84.7% vs 68.3%, p= .035).	(Bueno-Lopez et al., 2018)
Rebozo Technique The research contains a description of techniques offered to woman in labour to correct fetal malposition. However, no clinical studies have been conducted to assess the effectiveness of this technique. Authors advices, additional research is needed to continue to explore the traditional use of this tool and compare its effectiveness with other fetal positioning interventions during labour.	(Cohen and Thomas, 2015)
Birthing ball and Peanut ball The use of the peanut ball increase the comfort and imitate vertical positioning by widening the pelvic outlet for women giving birth. A recent research found that the use of a birthing ball in labour significantly reduces maternal pain in labour by 1.7 points on a standard 1 to 10 visual analogue scale (MD, -1.70 points; 95% CI, -2.20 to–1.20). The use of the birthing ball did not significantly affect the mode of completion of the birth or frequency of the other obstetric events. There is a need for further research assessing the effectiveness of using a birthing ball to encourage optimal fetal positioning.	(Grenvik et al., 2023)
Walcher's position A technique described at the end of the 19th century, used in difficulties in descending of the head into the birth canal. The woman giving birth is shuffled to the edge of the bed and her legs are hanging freely so that the weight of the legs can relieve the symphysis pubic and allow the fetal head to enter the pelvis. However, there is a lack of scientific research confirming the effectiveness and safety of this method.	(Tully, 2016)
Acupuncture and moxibustion Compared to the control group, moxibustion significantly increased the possibility cephalic presentation at birth (RR = 1.39; 95% CI = 1.21-1.58). The effect of acupuncture in correction of breech position after sensitivity analysis was inconsistent compared to control group. The evidence of the outcome in using moxibustion and acupuncture was synergistic in correcting breech position (RR = 1.53; 95% CI = 1.26-1.86).	(Liao et al., 2021)

p–statistical significance, RR–relative risk, MD–mean difference

most effective technique, but invasive. Its legitimacy is also undermined due to the fact that a significant number of foetuses' approaching into the pelvis in the OP position rotate spontaneously to the OA position in the plane of the greatest pelvic dimension (Broberg and Caughey, 2021; Burd et al., 2022).

Summary

Is it justified to change fetal position?

The decision to manipulate fetal position requires careful diagnostics. It is necessary to analyse whether delayed progress of labour actually results from malposition of the fetus in the birth canal or from other factors determining the progress of labour like uterus activity, consistency of soft tissues or maternal excessive stress and tension. It should be noted that these factors are in constant relationship with each other. Changing or improving the functioning of one of the factors will affect the others. However, it is unlikely to be possible to identify the factor that originally caused the cascade of events.

An ability to identify by the midwife or the doctor of whether a given method of fetal head engagement will cause obstruction and lack of progress in labour or is it the favourable option for the shape of a pelvis requires knowledge, extensive experience and still there is no certainty that the diagnosis will be accurate. In the absence of evidence based confirmation of the effectiveness of methods for correcting the position of the fetus and the lack of experience or knowledge in labour mechanism itself, it would be advised to accept such a position and direct actions towards optimizing the functioning of other factors determining the progress of labour.

Therefore, it is beneficial to use non-invasive techniques and encourage birthing woman to obtain position, in which the pelvis increase its capacity in various plans, depending on the stage of labour.

The emotional state of a woman during the labour is also an important factor determining its progress, all actions aimed at reducing pain and lowering anxiety can bring positive effects visible in the anatomical area. This is related to the strong correlation between mental tension and muscle tension.

Redirecting the actions of medical professionals to improve the position of the fetus or the position of the mother to facilitate optimal relaxation of the woman in labour, both in the emotional and myofascial area, can lead to satisfactory progress of labour, as well as a positive experience of the woman.

In antenatal education and medical staff training, it is important to determine the scope of human influence. Awareness of limitations in this area helps build an attitude of acceptance towards the processes taking place during childbirth. The attention and direction of activities of people responsible for creating maternity care systems should be aimed at facilitating conditions for the implementation of the above-mentioned optimizations.

Despite the lack of scientific evidence indicating the effectiveness of the above-mentioned techniques, it is worth using them because they are safe, non-invasive methods that do not cause any side effects. Additionally, women are placed in the centre of care, which is an important element in a positive childbirth experience.

When communicating with a woman in labour who has been diagnosed with a suboptimal fetal position, it should be avoided using the terms indicating an abnormality. When estimating a long, difficult labour, the focus should diverse towards activities aimed at creating conditions to build a positive experience, ie. "one to one" care, appropriate pain management, using the support of a doula, presence of birthing partner, meeting the essential needs of the woman giving birth, labour ward staff familiar with the above-mentioned techniques, etc.

In case of prolonged labour, it is crucial for midwife to identify when and how to support the mental condition of the woman giving birth, and encourage methods to optimize the fetal position and pelvic space.

An awareness of the natural moments of slowdown in labour or even lack of progress in labour is essential (Weckend, Davison and Bayes, 2022). It is advisable to accept situations in which not action solves the problem, but the time and patience. Accepting not everything can be controlled in labour protects against excessive interventions, even if they are non-invasive.

Bibliography

Ahmad, A. *et al.* (2014). Association between fetal position at onset of labor and mode of delivery: a prospective cohort study. *Ultrasound in Obstetrics & Gynecology, 43*(2), 176–182. https://doi.org/10.1002/uog.13189

Barrowclough, J.A. *et al.* (2022). Maternal postures for fetal malposition in labour for improving the health of mothers and their infants. *The Cochrane Database of Systematic Reviews*, *8*(8),CD014615. https://doi.org/10.1002/14651858.CD014615

Barth Jr, W.H. (2015). Persistent occiput posterior. *Obstetrics & Gynecology*, 125(3), 695–709.

Bertholdt, C. *et al.* (2022). Manual rotation of occiput posterior or transverse positions: a systematic review and meta-analysis of randomized controlled trials. *American Journal of Obstetrics and Gynecology, 226*(6), 781–793. https://doi.org/10.1016/j.ajog.2021.11.033

Broberg, J.C. and Caughey, A.B. (2021). A randomized controlled trial of prophylactic early manual rotation of the occiput posterior fetus at the beginning of the second stage vs expectant management. *American Journal of Obstetrics & Gynecology MFM, 3*(2),100327. https://doi.org/10.1016/j.ajogmf.2021.100327

Bueno-Lopez, V. *et al.* (2018). Efficiency of the modified Sims maternal position in the rotation of persistent occiput posterior position during labor: A randomized clinical trial. *Birth (Berkeley, Calif.), 4*5(4), 385–392. https://doi.org/10.1111/birt.12347

Burd, J. *et al.* (2022). Prophylactic rotation for malposition in the second stage of labor: a systematic review and meta-analysis of randomized controlled trials. *American Journal of Obstetrics & Gynecology MFM, 4*(2),100554. https://doi.org/10.1016/j.ajogmf.2021.100554

Calais-Germain, B. and Vives Parés, N. (2009). *Preparing for a Gentle Birth: The Pelvis in Pregnancy*. Rochester: Healing Atrs Press.

Cohen, S.R. and Thomas, C.R. (2015). Rebozo Technique for Fetal Malposition in Labor. *Journal of Midwifery & Women's Health, 60*(4), 445–451. https://doi.org/10.1111/jmwh.12352

Grenvik, J.M., Coleman, L.A. and Berghella, V. (2023). Birthing balls to decrease labor pain and peanut balls to decrease length of labor: what is the evidence?. *American Journal of Obstetrics and Gynecology*, S0002-9378(23)00115–1. https://doi.org/10.1016/j.ajog.2023.02.014

Kariminia, A. *et al.* (2004). Randomised controlled trial of effect of hands and knees posturing on incidence of occiput posterior position at birth. *British Medical Journal, 328*(7438),490. https://doi.org/10.1136/bmj.37942.594456.44

Lee, N. *et al.* (2021). Maternal positioning with flexed thighs to correct foetal occipito-posterior position in labour: A systematic review and meta-analysis. *Midwifery, 9*9,103008. https://doi.org/10.1016/j.midw.2021.103008

Levy, A.T. *et al.* (2021). Hands-and-knees posturing and fetal occiput anterior position: a systematic review and meta-analysis. *American Journal of Obstetrics & Gynecology MFM*, *3*(4),100346. https://doi.org/10.1016/j.ajogmf.2021.100346

Liao, J.-A. *et al.* (2021). Correction of Breech Presentation with Moxibustion and Acupuncture: A Systematic Review and Meta-Analysis. *Healthcare, 9*(6),619. https://doi.org/10.3390/healthcare9060619

Morales, N. (2019). First Stage: The Division of a Labor. *Midwifery Today*, 21 March. (From:) https://www.midwiferytoday.com/mt-articles/first-stage-the-division-of-a-labor/ (Access: 16 April 2023).

Sirviö, R. and Ohlsson, M. (2021). Barnmorskors erfarenheter av att tillämpa Spinning Babies vid förlossning: En kvalitativ intervjustudie.' (From:) https://www.diva-portal.org/smash/get/diva2:1518054/FULLTEXT01.pdf (Access: 16 April 2023).

Spiteri, G. (2019). The Spinning Babies® Approach. *Malta Midwives Journal, 14*, 17–19.

Sutton, J. (2001). *Let Birth be Born Again!: Rediscovering & Reclaiming Our Midwifery Heritage*. Birth Concepts UK.

Tritten, J. (2017). On Posterior Conversations from Facebook. *Midwifery Today, 121*, 24–26.

Tully, G. (2012). Arm behind the back: a shoulder dystocia complication. *Midwifery Today with International Midwife*, *103*, 18–19, 69.

Tully, G. (2015). Posterior Perspective. *Midwifery Today with International Midwife, 114*, 8–11.

Tully, G. (2016). Opening the Pelvic Brim with Walcher's Position. *Midwifery Today with International Midwife, 117*, 26–27.

Waechter, M. (2018). Labor: Short and Long; Physical and Mental. *Midwifery Today, 1* June. (From:) https://www.midwiferytoday.com/mt-articles/labor-short-and-long-physical-and-mental/ (Access: 16 April 2023).

Wainer, N. (2019). Leaving the Farmhouse: Musings on the First Stage of Labor. *Midwifery Today*, 26 March. (From:) https://www.midwiferytoday.com/mt-articles/leaving-the-farmhouse/ (Access: 16 April 2023).

Weckend, M., Davison, C. and Bayes, S. (2022). Physiological plateaus during normal labor and birth: A scoping review of contemporary concepts and definitions. *Birth, 49*(2), 310–328. https://doi.org/10.1111/birt.12607