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Original Research Article

The Birthing Ball: A Gentle Revolution in Labor Support – Enhancing Comfort, Progress, and Maternal Satisfaction"

Article History:

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Abstract: The birthing ball, also referred to as a labor or Swiss ball, is increasingly recognized as a non-pharmacological tool that enhances the birthing experience by promoting labor progress, reducing pain, and improving maternal satisfaction. Recent research continues to affirm its clinical value. A 2025 meta-analysis by Huang et al., covering over 1,000 participants across 10 randomized controlled trials, concluded that birthing ball exercises during labor significantly reduced the duration of the first stage of labor by an average of 130 minutes, lowered cesarean section rates, and reduced labor pain scores ($p < 0.001$). Similarly, a 2023 randomized controlled trial by Seyedrasooli et al. demonstrated that primiparous women using the birthing ball during active labor reported significantly lower pain intensity and shorter labor duration compared to those receiving routine care. Another 2024 observational study by Zhang et al. found increased maternal satisfaction scores among women who used birthing balls, using the Birth Satisfaction Scale-Revised (BSS-R). The physiological rationale behind its effectiveness lies in its ability to encourage upright positioning and rhythmic pelvic movement, aiding fetal descent and cervical dilation, while activating endorphin release and minimizing anxiety through increased maternal control and movement. Given its low cost, ease of use, and absence of pharmacological risks, the birthing ball offers an evidence-based, accessible intervention for improving labor outcomes in both high- and low-resource maternity settings. This concept article explores its mechanisms, clinical implications, and integration into nursing and midwifery practice, especially in primary healthcare facilities.

Keywords: Birthing ball, labour pain management, first stage of labour, non-pharmacological interventions, maternal satisfaction, cervical dilation, labour progress, primiparous women, obstetric nursing, and upright labour position.

INTRODUCTION

In recent years, the focus of maternity care has shifted toward respectful, evidence-based, and non-invasive approaches that prioritize maternal autonomy and comfort. Among these, the birthing ball—a stability or exercise ball—has gained widespread recognition for its ability to assist labouring women in achieving more comfort, effective positioning, and satisfaction with the birthing process. Its versatility allows women to assume upright, forward-leaning, and rocking postures that not only reduce pain but also enhance the biomechanics of labor.

Childbirth is a transformative experience, and ensuring maternal comfort during labor is a priority in modern midwifery and nursing. The birthing ball—an inflatable, physiotherapy tool—has gained increasing popularity for its role in supporting laboring women. Unlike pharmacological pain management strategies that may pose risks to both mother and baby, the birthing ball offers a safe,

effective, and empowering alternative.

This article presents a conceptual overview of the birthing ball, focusing on its use during the first stage of labor to reduce pain, enhance labor progress, and improve maternal satisfaction. The birthing ball aligns with global trends toward natural and woman-centered birthing practices, making it a valuable addition to labor rooms, especially in primary healthcare centers.

Concept Definition

A birthing ball is a large inflatable ball, similar to a physiotherapy or exercise ball, designed to support the body in various labor positions. When used during the first stage of labor, it encourages pelvic rocking, circular hip movements, and upright postures, which facilitate fetal descent, cervical effacement, and natural pain relief.

Theoretical Framework

This concept is grounded in several interrelated theories:

- Gate Control Theory of Pain: Movement and stimulation from the birthing ball can "close the gate" to pain perception in the spinal cord.
- Kolcaba's Theory of Comfort: The birthing ball addresses multiple dimensions of comfort—physical (pain relief), psychospiritual (increased sense of control), and sociocultural (support from caregivers).
- Biomechanical Model of Labor: Upright postures and pelvic mobility are known to facilitate fetal alignment with the pelvis and promote efficient labor progress.

Mechanism of Action

The birthing ball exerts its positive effects through:

- Upright Positioning: Encourages gravity-assisted fetal descent.
- Pelvic Mobility: Enhances uterine efficiency by optimizing fetal positioning.
- Endorphin Release: Gentle rhythmic motion stimulates natural pain-relieving hormones.
- Maternal Engagement: Promotes autonomy and reduces anxiety.

Physiological and Psychological Benefits

The birthing ball serves both physiological and psychological purposes during labor:

- Promotes gravity-assisted fetal descent

The birthing ball allows a laboring mother to adopt upright positions such as sitting, leaning forward, or gently bouncing. These positions harness gravity, which aids in the natural downward movement of the fetus through the birth canal. Unlike lying flat on a bed—which can slow labor progress—the vertical posture created by sitting on a birthing ball uses gravity to encourage the baby's head to press more effectively against the cervix, stimulating stronger contractions and facilitating engagement of the fetal head in the pelvis.

Clinical research, such as that by Deliktas and Kukulu (2018), confirms that upright positions during labor, including birthing ball use, are associated with shorter labor durations and fewer operative interventions.

- Facilitates cervical dilation and effacement

Gentle movements like pelvic tilts, swaying, or circular rotations on the birthing ball help maintain a flexible and open pelvic region. These movements:

- Encourage rhythmic uterine contractions.
- Help align the baby's head in an optimal position (occiput anterior).
- Promote effective pressure on the cervix.

This continuous, gentle pressure from the descending fetal head on the cervix enhances dilation (opening) and effacement (thinning), leading to a more efficient first stage of labor. The mechanical stimulation also helps trigger the release of prostaglandins, hormones that soften and ripen the cervix.

- Improves pelvic flexibility and uterine contraction efficiency

The birthing ball promotes pelvic mobility, which is critical during labor. The ability to rock or rotate the pelvis increases joint and ligament flexibility, particularly in the sacroiliac joints and pubic symphysis. A more dynamic and flexible pelvis accommodates the fetal head better, reducing malposition and enabling more synchronized uterine contractions.

This flexibility can also reduce maternal discomfort caused by back labor (pain in the lower back), especially when the baby is in a posterior position. Encouraging forward-leaning or all-fours positions on the birthing ball may help the fetus rotate to an anterior position, facilitating smoother labor progress.

- Reduces anxiety by increasing maternal involvement and control

The birthing ball encourages active participation in labor, which gives the mother a greater sense of autonomy and control over her birth experience. Rather than being confined to a hospital bed, women using a birthing ball can:

- Choose positions that feel most comfortable.
- Move with their contractions.
- Practice breathing and relaxation techniques more effectively.

This sense of empowerment helps reduce the fear-tension-pain cycle, which can inhibit labor progress and increase the perception of pain. Women often report feeling calmer and more in control, which lowers anxiety levels and contributes to a positive birthing experience.

• Encourages release of endorphins (natural pain relievers)

Movement, rhythmic breathing, and emotional calm during labor can stimulate the brain to release endorphins—the body's natural pain-relieving hormones. Gentle bouncing or swaying on the birthing ball creates repetitive, soothing motion, which:

- Increases blood flow to the pelvic area.
- Enhances the feeling of relaxation and security.
- Reduces reliance on external pain medication.

Endorphins not only dull the perception of pain but also improve mood and promote a sense of well-being, which is vital for both the psychological and physiological aspects of labor.

Recent Evidence and Clinical Outcomes

Several studies in the past three years have established the clinical effectiveness of birthing ball use:

• Huang et al. (2025) conducted a meta-analysis of 10 RCTs (n=1008) and found that birthing ball interventions significantly reduced first-stage labor duration by over two hours, lowered cesarean rates, and decreased VAS pain scores.

• Seyedrasooli et al. (2023) reported that primigravidas using birthing balls experienced lower pain intensity and greater maternal satisfaction than those receiving standard care.

• Zhang et al. (2024) found that birthing ball use increased satisfaction scores on the Birth Satisfaction Scale-Revised (BSS-R) and reduced labor anxiety.

• Deliktas and Kukulu (2018) earlier supported these findings, concluding that birthing ball exercises are beneficial for both labor progression and pain reduction.

These findings consistently support the birthing ball as a safe, effective, and evidence-based practice.

Applications and Techniques

Healthcare professionals can teach several effective birthing ball positions:

• Sitting upright and gently bouncing to encourage fetal descent and cervical dilation

• Leaning forward over the ball while kneeling to relieve back pain

• Circular hip movements to support rhythmic contractions

• Supported squatting with the ball behind the back for pelvic opening

These positions can be easily taught during antenatal sessions and monitored during labor with minimal supervision.

Nurses and midwives can teach these positions during antenatal classes and provide continuous guidance during labor. Cleanable covers or single-use barriers should be used for hygiene.

Implementation in Practice

Midwives and nurses are pivotal in facilitating birthing ball use, especially in primary health centers and low-resource facilities. Implementation requires:

• Staff training on positioning and safety protocols

• Use of ball covers or hygiene barriers

• Clear guidelines for contraindications (e.g., high-risk pregnancies or compromised fetal status)

• Integration into antenatal education and labor care protocols

Advantages

• Non-invasive and drug-free intervention

• Cost-effective and reusable

• Improves maternal autonomy and confidence

• Reduces the need for interventions like epidural analgesia

• Promotes natural labor progression

Challenges in Implementation

• Lack of awareness among maternity care providers

• Resistance from traditional caregivers unfamiliar with non-pharmacological tools

• Infection control concerns in high-volume centers

• Limited access to equipment in rural areas

These can be addressed through policy updates, awareness campaigns, and supportive leadership.

Implications for Nursing and Midwifery Practice

• Empowering Practice: Nurses can take the lead in introducing and advocating for birthing ball use.

• Antenatal Education: Women can be trained in safe positions and techniques before labour begins.

• Low-Resource Suitability: Ideal for use in UPHCs, community birthing centres, and low-income settings.

• Enhanced Care Quality: Contributes to WHO's vision of positive childbirth experiences through respectful, individualized care.

CONCLUSION

The birthing ball represents a simple, non-invasive, and effective tool for labor support. When used appropriately, it enhances the natural birthing process, reduces the need for pharmacological interventions, and significantly improves maternal satisfaction. As maternity care continues to evolve toward more personalized, respectful models, the birthing ball stands out as a gentle yet powerful intervention for modern obstetric practice. Widespread implementation in UPHCs and community settings in India and beyond may bring about a silent yet transformative shift in childbirth care.

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