

**BIRTHING BALL EXERCISE IN REDUCING LABOR PAIN AND CERVICAL
DILATATION ENHANCEMENT**

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Abstract

Women who go through the first stage in an upright position are less likely to require an epidural. It can be beyond argument that mother who want to give natural births need some physical exercise such as walking around, standing, sitting, or kneeling in order to promote for the “gravity effect” that would eventually help in speeding up the dilation & effacement of the cervix. The birthing ball is considered as a powerful, practical and easy method of promoting the progress of labor and relieving pain. This present research aims at studying the use of the birthing ball during the first stage of labor and its effect on the progress of labor, reduction in pain intensity and outcome among nulliparous women. The design: The quasi-experimental design was used. A group of 60 laboring women was included by purposive sampling technique; the study subjects randomly assigned into two equal group. Setting: The study was implemented

in the maternity Units of selected hospital. Tool used was structured observational schedule, numerical Pain scale & WHO simplified Partograph. The **Findings** of the present research results reveals that there is a high significant statistical difference between the two groups concerning the decrease in pain intensity, improvement of the dilatation of the cervix and fetus head descent that ends in the shortening of the labor.

Conclusion: the usage of birth ball throughout the first stage of labor is linked with positive effect on labor progress and its outcomes. Thus as a professional midwives, need to encourage women to use birthing ball during the first stage of labor as significant modalities.

Keywords: Birthing ball, First stage of labor, Progress of labor, Partograph, level of pain, cervical dilatation, Nulliparous.

INTRODUCTION

Women who go through the first stage in an upright position are less likely to require an epidural. Some studies have found that for women without epidurals, walking around or being seated upright (e.g. on a Birthing Ball) may shorten the first stage of labor by approximately one hour. Moving around, sitting in a chair or on a ball, showering and baths may also reduce discomfort during contractions. Being seated in an upright position during cervical dilation from 6 to 8 centimeters results in less back pain than lying on the back. The midwife and birth attendant will help the woman find a position in which she feels comfortable.¹

Birthing Ball in labor: A great comfort tool for labor the birth ball has a myriad of uses for early labor at home and in the birth center or hospital. Realize that pain is common in childbirth. How you choose to overcome the pain is your choice. Using Birthing Ball to assist in labor can help, suggests that Parents. Making rocking movements on the ball can help your baby move into favorable position. A Birthing Ball can also ease contractions²

When the mother walks or moves around during labor, her uterine muscles work more efficiently. Changing position frequently moves the bones of the pelvis to help the baby find the best fit, while upright positions use gravity to help bring the baby down the birth canal The diameter of the pelvic inlet and outlet can increase as a woman exercise during labor.³ Activity during labor will distract the mother from discomfort & will give a sense of greater personal freedom, and will provide a way to release muscle tension. Restricting women's movement may result in worse birth outcomes and may decrease women's satisfaction with their birth

experiences.⁴ Not only does the ball facilitate the physiologic benefits of movement to help the baby find his best fit through the pelvis but it also relieves the mother of agonizing labor pain.⁵ An ideal labor pain relief method should meet the following criteria having the least possible side effects for mother and fetus, having permanent effect, could be administered easily, having appropriate sedative effect without intervening the uterine contractions⁶

Parturition is a unique, exciting, wonder some, yet sometimes worrisome experience for the women. For the women or the couple, labor blooms as a critical period in the process of child bearing .The child bearing women experience many demanding sensation and discomforts during labor and birth. Labor, the culmination of pregnancy, is an event with great psychological, social and emotional meaning for the mother and her family. Labor pain should be given more importance to women and measures should be taken to reduce pain during labor.⁷

Non-pharmacologic pain relief techniques like breathing techniques, relaxation, acupressure and massage were found to be the most effective. The results provide directions for child birth educators in designing and implementing an effective childbirth education that assists women to have empowered birth experiences.⁸ There are a wide range of interventions available to help the laboring woman manage pain during labor. A number of related pain theories, including the gate control, neuromatrix, sensory discriminative system (mechanoreceptors, chemoreceptor and thermo receptors), and the influence of endorphins can explain how these strategies help to decrease pain in labor.⁹

Objectives

- To assess the labor pain intensity before Birthing Ball Exercise during 1st stage of labor among experimental group and control group.
- To assess the cervical dilatation before Birthing Ball Exercise during 1st stage of labor among experimental group and control group.
- To find out effectiveness of Birthing Ball Exercise on labor pain intensity after Birthing Ball Exercise among experimental group.
- To determine the effectiveness of Birthing Ball Exercise on cervical dilatation after sessions of Birthing Ball Exercise among experimental group.

MATERIAL AND METHODS:

The quasi-experimental design was used. A group of 60 laboring women was included by purposive sampling technique; the study subjects randomly assigned into two equal group. Setting: The study was implemented in the maternity Units of selected hospital. Tool used was structured observational schedule, numerical Pain scale, Modified Fordyce pain behavior scale & WHO simplified Partograph.

60 mothers in 1st stage of labor were selected through the purposive sampling who were admitted in labor room and meeting inclusion criteria like mothers having single live fetus & vertex presentation and all primi parturient having cervical dilatation between 4- 9 cms.

Tool: The tool consisted of three sections.

Section A: Socio-Demographic data of Mothers.

Section B: It consisted of Numerical Pain Assessment scale

Participants were asked to rate her intensity of labor pain between 0-10. This scale was used before and after the intervention. Pain scores range from 0-10 according to the severity of pain.

Section C: It consisted of partograph. Partograph was monitored during 1st stage of labor to assess the progress of the mother.

For **Data collection**, the procedure was explained to mothers and their relatives and a written consent were taken. Per vaginal examination was done to assess cervical dilatation of parturients, 4 to 10cms that is active phase of labor were included in the study. Partograph was maintained during entire labor process. The labor pain intensity of mother was assessed on Numerical Pain Assessment Scale.

The investigator then explained all the steps to parturients by showing demonstration to mother with the ball in that student nurses help were also taken. The mother was asked first to sit on the ball with her legs slightly apart and body Spine aligned so as to support and stabilize herself. The parturient was asked then to roll backward and forward trying to keep back straight. The step was repeated 10 times for backward and forward moves each. This step takes approximately 5 minutes the investigator helped the parturients to do the steps. The parturient were then allowed to take rest for 5 minutes. The procedure was then continued for sideway moves for 10 times. The steps again took approximately 5 minutes. The parturient was firmly held during each move. Allow the patient to take rest again for 5 minutes. Talked to the patient during exercise to allay

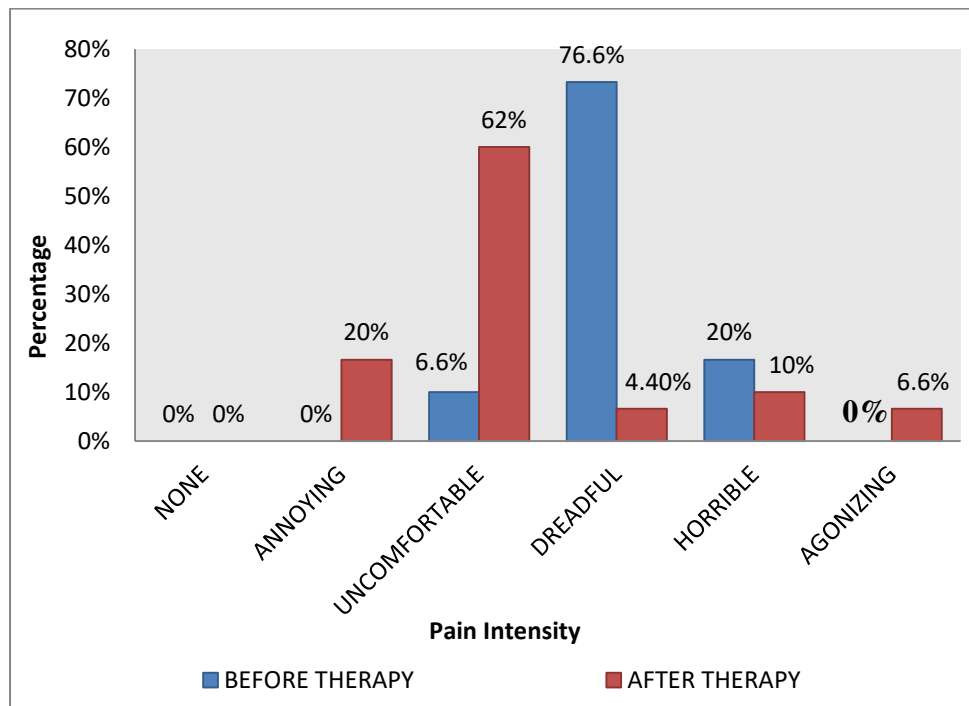
fear and anxiety & attain maximum co- operation. Once the parturient was comfortable, encouraged her to rotate and repeated every half an hour till full dilatation of cervix the same exercise was repeated.

FINDINGS

Socio- demographic Data

Majority 45(75%) of mothers were in the age group of ≤ 20 to 25 years and none of them below 20 yrs. Regarding educational status, majority of samples, 31(51.6%) were illiterate. 50 (83.3%) of them were housewives and only 10 (16.6%) of them were working. All the 60 (100%) parturients had companionship during of their 1st stage of labor and majority of them they selected their mother as a companion.

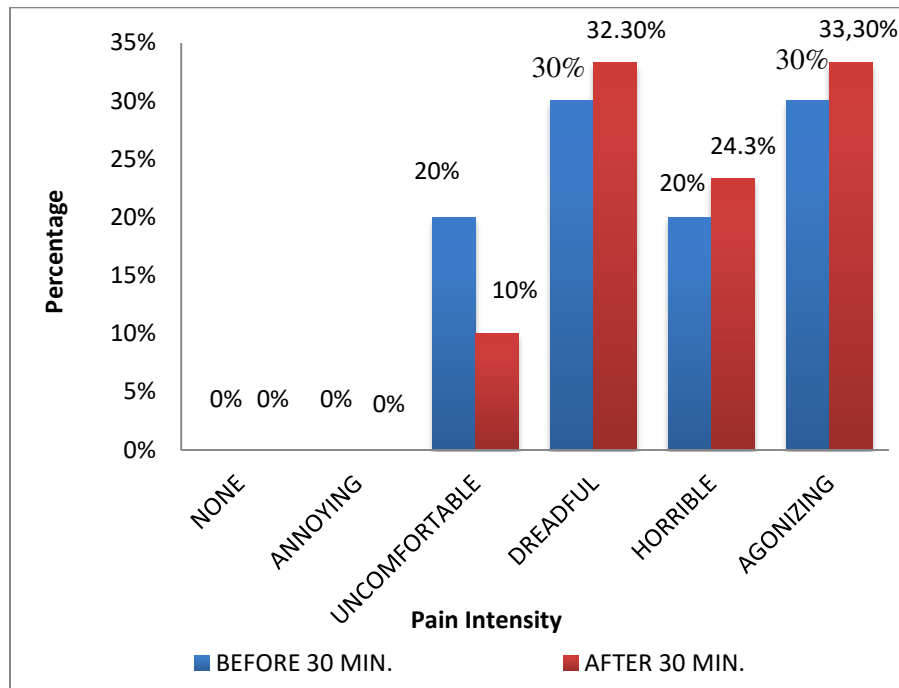
Assessment of intensity of pain by Numerical Pain Scale of experimental group:



Above data shows that on Numerical Pain Assessment Scale , around 20% of mothers felt uncomfortable during labor pain, Majority of samples,76.6% experienced dreadful pain and 20% experienced horrible pain before starting Birthing Ball Exercise. After giving Birthing Ball

Exercise, there was reduction in labor pain intensity as 20% of the mothers had Annoying pain, 62% of them had Uncomfortable, 4.40% of them had dreadful pain, 6.6% had agonizing pain

Assessment of intensity of pain by Numerical Pain Scale of control group:



Above data shows that labor pain intensity among control group shows as 20% of mothers experienced horrible pain, 30% experienced dreadful pain, 30% experienced agonizing pain and 20% experienced uncomfortable pain. 24.3% of mothers experienced horrible pain, 32.3% experienced dreadful pain, 33.3% experienced agonizing pain and 10% experienced uncomfortable pain found in labor pain intensity after 30 minutes of routine care.

Assessment of cervical dilatation of experimental & control group at the Time of First Observation

(n = 60)

Cervical Dilatation (cm)	Experimental Group		Control Group	
	Frequency	Percentage (%)	Frequency	Percentage (%)
4-5	7	23.3%	8	26.6%

6-7	14	46.6%	14	46.6%
8-9	9	30%	8	26.6%

Data in table shows that among experimental group 14 of the samples had 6-7 cm cervical dilatation at the time of first observation, the quite same findings were there in control group as well.

Effectiveness of Birthing Ball Exercise on Labor Pain after 30min of Birthing Ball Exercise among Experimental Group.

(n = 60)

GROUP	MEAN	MEAN DIFFERENCE	SD	SE	df	't' VALUE
EXPERIMENTAL	2.35					
CONTROL	0.22	2.13	0.11	0.5	58	18.44*** S

*P≤ 0.05 **P≤ 0.01 ***P≤ 0.001 S – Significant, NS- not Significant

Pain intensity assessed by Numerical Pain Assessment Scale for experimental group was 2.35 and for control group was 0.22 The mean difference was 2.13. Statically, there was a significant difference in pain intensity of experimental group and control group at the level of $P \leq 0.001$. Hence it was inferred that Birthing Ball Exercise was effective in reducing labor pain.

Effectiveness of Birthing Ball Exercise on Cervical Dilatation after using Birthing Ball

(n = 60)

GROUP	MEAN	MEAN DIFFERENCE	SD	SE	df	't' VALUE
EXPERIMENTAL	1.28					
CONTROL	0.80	0.48	0.20	0.04	58	1.73 NS

*P≤ 0.05 **P≤ 0.01 ***P≤ 0.001 S – Significant, NS- not significant

Above tabulated data depicts that 1.28 was the mean scores of cervical dilatation for experimental group and for control group was 0.80. The mean difference was 0.48 statistical significance could not be established for enhancement of cervical dilatation between control and experimental group.

DISCUSSION

Findings showed that mean scores of pain intensity assessed by Numerical Pain Assessment Pain intensity assessed by Numerical Pain Assessment Scale for experimental group was 2.35 and for control group was 0.22 The mean difference was 2.13. Statically, there was a significant difference in pain intensity of experimental group and control group at the level of $P \leq 0.001$. Hence it was inferred that Birthing Ball Exercise was effective in reducing labor pain. Hence it was inferred that Birthing Ball Exercise was effective in reducing labor pain.

The above findings were supported by **Callaghan J.P.** whose review of paper shows before labor, a Birthing Ball can be used to improve or eliminate backaches that are common during pregnancy. Sitting on a Birthing Ball while pregnant helps a woman to maintain the proper posture to support her growing asymmetrical body. This posture encouraged by the Birthing Ball also helps to strengthen the back and abdominal muscles, which prevents the occurrence of back problems throughout pregnancy. The use of a Birthing Ball before labor prepares the body for giving birth. It widens and flexes the pelvic bones and joints, helping the baby descend into the birth canal more easily. It also strengthens the muscles of the pelvic floor, which are responsible

for the pushing stage of childbirth. The use of a Birthing Ball during labor helps to relieve discomfort and pain associated with contractions, as well as providing focus for the laboring mother..¹⁰

CONCLUSION

Using Birthing Ball Exercise, during their antenatal advices to the mothers and they can make use of Birthing Ball Exercise, while caring the mothers in the labor room, so as to reduce pain perception and provide comfort. Knowledge about these positions and their practice would help the midwives. This paradigm shift from traditional pain management to newer evidence based passed non- pharmacologic practices like Birthing Ball Exercise should be promoted among mothers and used by the midwives for controlling labor pain perceptions without harm to the mother.

Ethical approval

Since the study involved human subjects, a formal ethical approval received from institutional ethical committee.

Conflict of interest

The authors declare no conflict of interest.

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