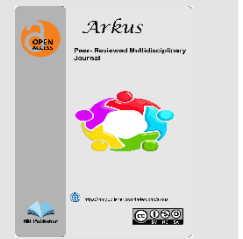




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## The Effectiveness of the Birthing Ball (Gym Ball) on the Progress of Opening the First Stage of Labor in the Working Area of Muka Health Center, Purwakarta District, Purwakarta Regency, Indonesia

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### ARTICLE INFO

#### Keywords:

Birthing ball  
Duration of labor  
First stage of labor

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The author has reviewed and approved the final version of the manuscript.

<https://doi.org/10.37275/arkus.v9i2.384>

### ABSTRACT

The birthing ball allows gravity to help the baby descend into the pelvis, which can speed up the opening of the cervix. Apart from that, the Birthing Ball also provides extra comfort and support to pregnant women, which can reduce pain and anxiety during the birthing process. This study aimed to determine the effectiveness of the birthing ball (gym ball) on the progress of the opening the first stage of labor in the Muka Health Center Working Area, Purwakarta District, Purwakarta Regency, Indonesia. This study is experimental research with a post-test approach with the control group and uses primary data, namely measuring the length of the first stage of labor. A total of 30 research subjects took part in this study. The birth ball showed the potential to increase the speed of duration of the first stage of labor statistically significantly,  $p < 0.05$ . The duration of the first stage of labor in the intervention group was around  $195.83 \pm 16.76$  minutes, while the duration of labor in the control group was  $345.83 \pm 26.76$  minutes. In conclusion, there is the effectiveness of the birthing ball (gym ball) in the progress of the opening the first stage of labor in the Muka Health Center Working Area, Purwakarta District, Purwakarta Regency, Indonesia.

### 1. Introduction

In modern times, the approach to the birthing process has undergone many developments and changes. One innovation that is increasingly popular is the use of a birthing ball or gym ball as a tool to facilitate the birthing process. A birthing ball is a large ball made of sturdy and elastic material, which is usually used in physical training, especially in the field of fitness for pregnant women. This device has attracted the attention of medical professionals and pregnant women because of its potential to increase the effectiveness of the first stage of labor. The first stage of labor, which involves opening the cervix to about 10 centimeters, is the initial stage in the labor process that allows the baby to descend into the mother's pelvis. The progress of opening the cervix at

this stage is very important to ensure the labor process goes smoothly.<sup>1-3</sup>

The birthing ball works in various ways to increase the effectiveness of the first stage of labor. First, light movements and swinging on this ball can help reduce pressure on the lower part of the mother's spine and pelvis, thereby helping to relax tense muscles and making the process of opening the cervix easier. Second, the position of the mother sitting or leaning on the birthing ball allows gravity to help the baby descend into the pelvis, which can speed up the opening of the cervix. Apart from that, the Birthing Ball also provides extra comfort and support to pregnant women, which can reduce pain and anxiety during the birthing process.<sup>4-6</sup> This study aimed to determine the effectiveness of the birthing ball (gym

ball) on the progress of the opening the first stage of labor in the Muka Health Center Working Area, Purwakarta District, Purwakarta Regency, Indonesia.

## 2. Methods

This study is experimental research with a post-test approach with a control group and uses primary data, namely measuring the length of the first stage of labor. A total of 30 research subjects participated in this study, where the research subjects met the inclusion criteria. The inclusion criteria in this study were mothers who experienced the first stage of labor in the Muka Health Center Working Area, Purwakarta District, Purwakarta Regency, Indonesia. Research subjects were then grouped into intervention and control groups. Assessment of the length of the first stage of labor is done by measuring the length of the first stage of labor in minutes. Data analysis was

carried out using SPSS version 25 software. Univariate and bivariate analyses were carried out in this study. Univariate analysis was carried out to present the frequency distribution of each test variable, and bivariate analysis was carried out to determine the relationship between the test variables, with a p-value <0.05.

## 3. Results and Discussion

Table 1 presents a comparison of the duration of the first stage of labor between groups. The birth ball showed the potential to increase the speed of duration of the first stage of labor statistically significantly,  $p < 0.05$ . The duration of the first stage of labor in the intervention group was around  $195.83 \pm 16.76$  minutes, while the duration of labor in the control group was  $345.83 \pm 26.76$  minutes.

Table 1. Comparison of duration of the first stage of labor between groups.

Variable	Pre-test	Post-test	P-value*
Duration of the first stage of labor (minutes)	195,83±16,76	345,83±26,76	0,000

\*\*Independent t-test,  $p < 0,05$ .

The birthing ball provides a soft, elastic surface to sit or lean against. When pregnant women sit on this ball, their body weight is distributed more evenly than when sitting on a chair or hard bed. This reduces pressure on the lower spine, which is often a source of discomfort during labor. Apart from relieving pressure on the spine, using a birthing ball also helps reduce pressure on the pelvis. A more relaxed and open pelvis can make it easier for the baby to move downward towards the birth canal. Sitting or leaning on the birthing ball also triggers natural swinging and swaying movements. This movement helps to gradually relax the pelvic and surrounding muscles. Relaxed muscles will be more cooperative in the labor process, and this can help the cervix to open more smoothly. One important factor during labor is the comfort of the pregnant woman. The Birthing Ball provides a more comfortable sitting or reclining

position than some traditional positions, such as sleeping on your back. Discomfort during labor can result in increased muscle tension and even fear, which can slow the progress of cervical dilation. The birthing ball helps create a sense of comfort, which can reduce stress and anxiety. One of the great advantages of the birthing ball is the flexibility to change body positions easily. This allows pregnant women to find the most comfortable and effective position during labor. Regularly changing positions can also stimulate the cervix in various ways.<sup>7-10</sup>

When a pregnant woman sits or leans on the birthing ball, her body is in a vertical or semi-vertical position. This allows gravity to play a role in helping the baby descend further down into the pelvis. Gravity is a natural force that works to pull objects towards the center of gravity (in this case, the baby towards the pelvis). Thus, the use of a birthing ball allows gravity

to provide additional impetus to the birthing process. As the baby descends closer to the pelvis, pressure on the cervix increases. This pressure can stimulate the cervix to open more quickly. The cervix is the part that must open during labor so that the baby can pass through the birth canal. As this pressure increases, the cervix usually responds by opening progressively. Using the birthing ball in a vertical or semi-vertical position also allows the baby to travel down the birth canal more efficiently. This can speed up the progress of the cervix opening because the baby is closer to the exit site. One of the great advantages of the birthing ball is the ability of pregnant women to easily change body positions. This allows them to find the most comfortable and effective position to optimize the use of gravity in assisting the birthing process.<sup>11-15</sup>

#### 4. Conclusion

There is the effectiveness of the birthing ball (gym ball) in the progress of the opening the first stage of labor in the Muka Health Center Working Area, Purwakarta District, Purwakarta Regency, Indonesia.

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