

Physiological Changes During Pregnancy and Descriptions of the Correct Bodily Postures

Frequent pains in the backbone area are a consequence of an irregular posture of the body in all positions, which is even more intensely emphasized during pregnancy.

During pregnancy we encounter increased elasticity of the ligaments, change in biomechanics of the body due to the enlarged belly, but also the increased pressure on all the joints as a result of the growing body weight.

Therefore, beginning with the first months of the pregnancy it is important to acquire the appropriate habits of sitting, standing, walking and lifting the body from the lying position, so that the changes that follow do not cause difficulties pertaining to the muscle-bone structure.

Before describing the Physioball pregnancy exercises, here is the description of the proper bodily postures in the sitting and standing position during pregnancy.

..... *Description of the correct standing posture*

When standing try to keep your knees straight or slightly bent, and your belly slightly pulled in the whole time (your abdominal muscles should always be a little contracted). Additionally, contract the gluteal muscles a bit. Your chin should be pulled in, raising the whole spine and the chest. Your shoulders should be relaxed.

.... *Description of the correct posture while rising from the lying position into the sitting position*

Due to the anatomical changes in the rectus abdominis muscle, it is necessary to pay attention to the activities of that muscle from the very beginning of your pregnancy.

As your baby and your belly grow, you might encounter the expansion of the rectus abdominis muscle. Caused by the inappropriate positions of the body and irregular strain, there might occur a condition in which the rectus abdominis muscle separates in the area of the navel (diastasis). If indeed the muscle separates, its functionality decreases both during pregnancy and the delivery, and more importantly later on in a woman's life. The weakness of the rectus abdominis muscle later on disturbs the biomechanics of the body, causes bad bodily posture, and subsequently pains in the lower part of the backbone.

How to avoid the separation of the abdominal muscle

The most important is the application of the protective positions while lifting the body from the lying into the sitting position, retaining the proper posture during all the activities, and strengthening of the transverse abdominal muscle.

How to properly rise from the lying position

Turn to your side and contract the abdominal muscle. While lifting yourself with the support of your arms, simultaneously take your legs off the bed. Sit on the edge of the bed. Get up. If you are on a mat, it is necessary to go from the side position into the on all fours position. From the on all fours position step forward into the standing position.

.....Description of the correct sitting posture on the ball

The choice of the fitting ball size depends on your height. Thus the person of average height of 1,65 m to 1,75 m is best off with a ball with the radius of 55 - 65 cm.

The quality of the ball used for pregnancy workout is of great importance. A ball made of stronger material is better protected against rupture, and if that nevertheless happens, there is a light air release system.



Picture 1. The illustration of the correct sitting posture on the ball

How to correctly (*Picture 1*) sit on the ball:

- Sit in the middle of the ball
- Pull your thighs apart a bit more than your hip width
- Thighs and knees should be at 90° angle

- Your feet should be aligned with your knees
- Keep your upper body straight
- Try to straighten the arch of your lower back as much as possible, avoid the backwards arched pelvis (*Picture 2*)

..... *Errors when sitting on the ball*

Common mistakes when sitting on the ball are usually related to the position of the pelvis, including the lower back and the position of the head.

The most common mistakes are connected to the arch created in the area of the lumbar spine (*Picture 2*), as well as the hunched posture when sitting on the ball (*Picture 3*).



Picture 2. Illustration of the backwards arched pelvis



Picture 3. Illustration of the hunched posture on the ball

It is of great importance to keep the position of the head centered. The chin should not be protruded forward or directed upwards (*Picture 4*).

The chin should be parallel with the basis, the neck slightly arched upward, which puts the head into the optimal position (*Picture 5*).



Picture 4. Illustration of the incorrect positions of the head



Picture 5. The correct position of the head when sitting on the ball

By doing the exercises in front of the mirror and continuously controlling the starting position, you can successfully avoid the described errors.

General Instructions for the Exercises

Breathing should be coordinated with exercising. The pace of breathing follows the pace at which exercises are done. Inhaling is done through the nose and exhaling through the mouth. All exercises are subjected to this rule, in other words holding air in during pregnancy workout is not allowed.

During the third trimester do not stay in the back-lying position for very long. If you experience dizziness while in that position, turn to your side and take a break. Normally the reason for this is the baby putting pressure on your blood vessels (in the back-lying position) and in this way decreasing the oxygen flow through your body.

If you feel fatigue while exercising, slow down or take a break.
If you feel unusual symptoms (stinging, pain), stop exercising.

..... *What to avoid during training*

- Training in overheated rooms because it can lead to overheating of the body
- Sudden changes of body positions - if you change the position and you experience a blackout (giddiness), immediately lie on the floor and lift your legs onto an elevated surface
- Lying on your back without the support of the pillow during advanced pregnancy - if you choose to do so, in case of fatigue or dizziness immediately turn to your side

..... *Preparation for the exercises*

Your training clothes should be light and allow for easy execution of physical movement.

You should empty your bladder before exercising, and during workout you should have a water bottle handy to make up for lost liquid.

Warm up for 2-3 minutes by means of fast walking, step or riding the training bike.

..... *Equipment you will need for the exercises*

- exercise mat or part of the apartment with a carpet and easily movable furniture;
- elastic band (the professional elastic band can be replaced by an elastic ribbon or a scarf);
- ball intended for pregnancy workout (better quality and reduced possibility of rupture).

If possible, it would be best to perform the exercises in front of the mirror because in that way errors and mistakes are corrected in the best way, and you can monitor the correct posture during exercises.

THE PHYSIOBALL PROGRAM

The PhysioBall program is implemented in the following positions:

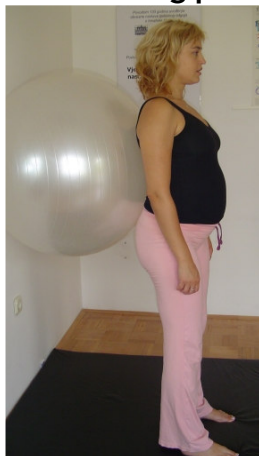
1. The sitting position on the ball



2. The sitting position with elastic band



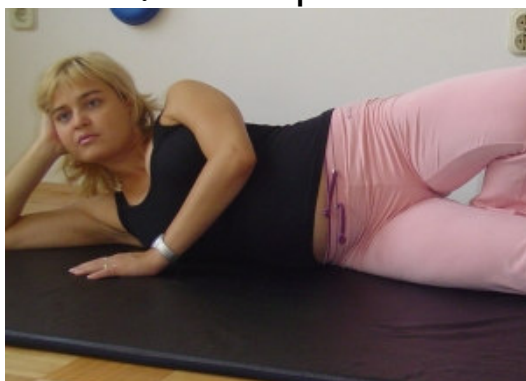
3. The standing position



4. The on all fours position



5. The side position



6. The back-lying position



❖ THE SITTING POSITION ON THE BALL

exercises for upper extremities

Description of the starting position - the feet are placed firmly on the basis, the thighs are apart.

The transverse abdominal muscle is contracted the whole time (keep your belly «tucked in»).

The pelvis is centered. The chin is slightly pulled in.

Before every new exercise it is necessary to repeat the starting position.

The exercises should be repeated 6 - 10 times at your own pace (if not specified otherwise).

