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Valsalva's Maneuver

Expectant mothers read about the second stage of labor and how to push. They attend childbirth education classes and learn how to push. Then, they arrive in labor and are told yet another method of pushing. Who is right?

Regular and rhythmical breathing during pushing allows a mother to push longer while maintaining good oxygen flow to the baby and reducing fatigue. Breathing/bearing down techniques may include spontaneous pushing, slow exhalation pushing or directed pushing. They may even include "purple pushing."

Spontaneous Pushing

The urge to push is a relentless urge to push ~ it is nearly involuntary. To push spontaneously, many women find that holding their breath during pushing increases the intensity and strength of the push. Remember, it is important to come up for air! Spontaneous pushing is most often used during early as it is probably the least effective of the three. It is good however, for expectant mothers to learn from and to begin listening to how their body will be pushing out their baby.

Slow Exhalation Pushing

Working with the urge to push and producing a push that is slow and easy, Slow Exhalation Pushing is similar to blowing up a new balloon. During a contraction, a mother inhales and exhales slowly through pursed lips in much the same way as if she were blowing up a balloon. This is often preferred to breath-holding when the baby indicates (via an electronic fetal heart monitor) that he/she may not be tolerating the second stage well. This may also be preferred when the mother and care giver are trying to avoid an episiotomy, since the push from Slow Exhalation Pushing is so gentle.

Directed Pushing

Directed Pushing is the most commonly used type of pushing in the United States. Again during a contraction, a mother inhales and then holds her breath while a support person counts a quick count of 10. This is not 10 actual seconds (it is actually about 6 clock seconds)! However for clarity, at a time when mothers do not process information well, a count of 10 is helpful to her. At the end of the count of 10, she exhales and inhales rapidly again, holding for another count of 10. This cycle is repeated until the contraction goes away.

Purple pushing refers to holding the breath so long and with such force that the small capillaries in the cheeks and face burst. Purple pushing produces **Valsalva's Maneuver**. Valsalva's Maneuver occurs with prolonged breath-holding ~ longer than 6 clock seconds. With prolonged breath-holding, there is an increase of the maternal intrathoracic pressure by forcible exhalation against the closed glottis. The maneuver causes a trapping of blood in veins, preventing it from entering the heart. When the breath is released, the intrathoracic pressure drops and the trapped blood is quickly propelled through the heart, producing an increase in the heart rate (tachycardia) and the blood pressure. Immediately, a reflex bradycardia ensues. All of this disrupts the blood flow to the uterus and ultimately to the baby. This disruption in blood flow indicates a disruption in oxygen flow, which ultimately shows up on the fetal heart monitor as fetal distress.

There is no clear evidence that closed glottis pushing (Valsalva's Maneuver) shortens second stage, decreases fatigue or minimizes pain. It has otherwise been suggested that bearing down for a prolonged period with a closed glottis alters the contractile pattern of uterine smooth muscle, leading to inefficient contractions and failure to progress. Studies suggest that encouraging women to believe in their ability to push the baby out may be as important as the type of breathing. A variety of studies published between 1992 and 1996 show that physiological effects of Valsalva's Maneuver can include: impeded venous return; decreased cardiac filling and output; increased intrathoracic pressure; affected flow velocity in middle cerebral artery; raised intraocular pressure; changed heart action potential/repolarization; increased arterial pressure; increased peripheral venous pressure; altered body fluid pH, which contributes to inefficient uterine contractions; decreased fetal cerebral oxygenation. (*Nursing Times* 95:15, April 15, 1999)

Because there is much to learn about proper pushing techniques, it is imperative that the expectant mother spends adequate time practicing for the second stage of labor. This practice time should definitely include the partner as he/she will likely take an active role in assisting the mom during this stage of labor. Likewise, the expectant mother should take some time to discuss with her care giver any concerns with breathing techniques with regards to pushing. Learning how to push effectively, allowing optimal oxygen flow to the uterus, mom and baby, can lead to a beautiful, healthy birth.

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