

## “Pelvic Scoring for Elective Induction” (1964), by Edward Bishop

In the 1964 article “Pelvic Scoring for Elective Induction,” obstetrician Edward Bishop describes his method to determine whether a doctor should induce labor, or artificially start the birthing process, in a pregnant woman. Aside from medical emergencies, a woman can elect to induce labor to choose when she gives birth and have a shorter than normal labor. The 1964 publication followed an earlier article by Bishop on the topic of elective induction. In both articles, Bishop used data gathered from the obstetrics department of Pennsylvania Hospital in Philadelphia, Pennsylvania, where he worked. In “Pelvic Scoring for Elective Induction,” Bishop introduces a scoring system later known as the Bishop Score, used into the twenty-first century, to determine if a pregnant woman fits the criteria for a safe and successful induction.

Prior to the publication of “Pelvic Scoring for Elective Induction,” Bishop described in 1955 a set of criteria for safely inducing labor in pregnant women. The process of labor induction requires an obstetrician to puncture the fluid-filled sac surrounding the fetus and administer a drug that stimulates uterine contractions. In his 1955 publication, Bishop argued that elective induction of labor is most appropriate for women who have previously given birth, with a cervical dilation of at least three centimeters, and fetuses that have descended low in the womb. According to Bishop, departing from his concluded criteria could result in successful deliveries, but longer labor periods.

In “Pelvic Scoring for Elective Induction,” Bishop built upon his previous work by introducing a scoring system for physicians to evaluate the suitability of inducing labor in a pregnant woman. He prefaces the article by noting the debate about the safety of inductive labor. Bishop argues that opposing medical viewpoints towards labor induction developed because the pregnant women who elected to induce their labor were not suitable for the procedure, not because of improper technique. Inducing labor in those pregnant women unsuitable for elective induction, Bishop argues, led to injuries and deaths. According to Bishop, a scoring system would provide the standardization to reduce the risks of deaths and injuries. Bishop thus introduces the pelvic score, or Bishop Score, which he states had been successfully used for several years.

Prior to explaining the Bishop Score, Bishop presents five requirements that physicians should consider in a pregnant woman who wants to induce labor. According to Bishop, the women should have previously given birth, and be at least thirty-six weeks pregnant with infants that can be delivered head-first. They should not have prior abnormal pregnancies and must have given consent for any operative procedure. First pregnancies, premature births, breech deliveries, and prior birthing complications each present risk factors. The purpose of these requirements is to promote the safety of the pregnant woman and the fetus.

Bishop spends the last part of “Pelvic Scoring for Elective Induction” explaining his Bishop Score, the pelvic scoring system he devised to judge whether or not a pregnant woman and her fetus are biologically ready to enter into labor. The scoring system consists of five pelvic measurements, and the total of all five scores determines whether or not a pregnant woman can be safely induced. The first three measurements have scores ranging from zero to three, while the last two measurements have scores ranging from zero to two. In total, the highest score is thirteen, with higher scores indicating that the woman can be safely induced.

The score, which ranges from zero to thirteen, normally increases toward the end of a woman's pregnancy. Based on his own use of the scoring system, Bishop stated that elective inductions could be safely performed when a woman's total score was nine or greater. When inducing labor

in women with scores of nine or greater, Bishop found that those women successfully entered labor and that the average labor took less than four hours to complete.

The first measurement in the scoring system is of the dilation of the pregnant woman's cervix, which is the opening at the bottom of the uterus. If the woman's cervix is zero centimeters dilated, she receives the lowest score of zero. If the woman's cervix is five to six centimeters dilated, she receives the highest score of three, and her cervix is wide enough to deliver the fetus.

The second measurement is of the effacement, or thinning, of the cervix. As the birth of the infant nears, the pregnant woman's cervix stretches thinner and thinner across the opening of the uterus. The thinner the membrane, the easier it is for the woman to push the infant out of the uterus and into the birth canal. A physician scores the pregnant woman's effacement, awarding the lowest score to zero percent effacement and the highest score to eighty percent or greater. If the pregnant woman is eighty percent effaced or more, she is able to push the fetus out of the uterus and into the birth canal.

The third measurement is of the distance between the fetus's head and the woman's pelvis. In order to reach the birth canal, the fetus must pass between the woman's pelvic bones, which usually occurs head-first. For the Bishop Score, a physician judges how close the fetus's head is to the woman's pelvis and awards a score. The closer the fetus's head is to sliding between the woman's pelvic bones, the closer it is to being born, and the higher the score. If the fetus's head has begun to slide down the birth canal, the physician awards the highest score, and the woman is ready to give birth.

The fourth measurement is of the consistency of the cervix. The physician feels the pregnant woman's cervix and awards the lowest score of zero to a firm cervix and the highest score of two to a soft cervix. If the woman's cervix is soft, she is close to giving birth and ready to be induced.

The final measurement of the Bishop Score is of the alignment between the cervix and the birth canal. Upon examination, a physician judges the cervix to be more toward the back of the body (the least aligned), in the middle, or more toward the front of the body (the most aligned). If a woman's cervix is aligned with her birth canal, she is ready to give birth and receives a score of two, according to the position category of the Bishop Score.

After introducing the scoring system, Bishop explains how he determined its reliability for most pregnancies. Bishop applied the Bishop Score to five hundred pregnant women who later had natural, spontaneous births without being induced. He found that the average duration of pregnancy, meaning the period of time between the scoring examination and natural delivery of an infant, was directly related to the Bishop Score. That meant that women with higher scores had spontaneous onset of labor more quickly than women with lower scores. Thus, Bishop concludes that the closer a woman is to giving birth, the higher her Bishop Score is likely to be. Bishop Scores, which predict the success of an induced labor, also aligned with the safe labors of women who were not induced. Therefore, using a Bishop Score to induce labor ensures that pregnant women give birth as close to their spontaneous due date as possible, and ensures that the fetus has enough time to grow and develop in the uterus.

Bishop concludes his article by noting that a high pelvic score well before a fetus's due date could indicate that a premature birth might occur. Likewise, a low pelvic score near the fetus's anticipated due date could indicate that the due date was incorrectly calculated or the fetus might be born past that date. In addition to predicting the best time for an inductive labor, Bishop adds that his scoring system also predicts the best time for a woman to have a cesarean section, or a surgical procedure to deliver the infant. Bishop states that physicians can use his scoring system to determine when to begin the procedure if the woman has had a cesarean section before.

"Pelvic Scoring for Elective Induction" was cited by thousands of other scholarly articles, and the Bishop Score system became used worldwide. Other researchers modified the Bishop Score, removing the categories of consistency and position of the cervix, but the rest of the Bishop Score was widely used into the twenty-first century.

## Sources

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