

Sutures or staples? The best choice for closing a C-section

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In the largest study to date comparing sutures (stitches) versus surgical staples for closing a C-section, researchers found a 57 percent decrease in wound complications in women who were sutured versus those who received staples. By carefully addressing the concerns that previous studies had raised, the research shows a clear benefit of suture for women.

"There has been ongoing debate in the field about the use of sutures versus staples," says senior author Vincenzo Berghella, M.D., director of Maternal Fetal Medicine in the Department of Obstetrics and Gynecology at Thomas Jefferson University. He added, "C-sections are a common procedure in the United States, and yet we still haven't established the best way to close these incisions."

"This study was designed to examine whether the evidence supports a specific closure method to decrease [wound complications](#)," says first author, Dhanya Mackeen, MD, MPH, who was a Jefferson fellow at the time the study was conducted. "This study clearly shows that [women](#) who undergo C-section have fewer wound complications after suture closure than after staple closure," she adds.

Cesarean sections account for about a third of all deliveries in the United States (in China that number is as high as 46 percent). A 2013 study showed that over 50 percent of doctors prefer to use staples over sutures, for ease of use, speed of the procedure, and for closing deeper incisions such as those in overweight women.

The current randomized study was conducted in three hospitals: Thomas Jefferson University Hospital, Lankenau Medical Center, and Yale-New Haven Hospital. A total of 746 pregnant women who received cesarean sections (most of whom were recruited at Jefferson) were divided into two groups, one whose incisions were sewn, and another whose incisions were stapled. In addition, the researchers ensured that both groups had roughly equal numbers of overweight or obese women, women who were having their first C-section, as well as those who were having their second or third C-section to ensure that any differences in complications weren't due to one of these factors. The researchers looked at a number of wound complications including infection, wounds that re-opened, and those that developed a build-up of fluid – either blood or lymphatic fluid – around the scar.

Drs. Mackeen, Berghella and colleagues observed that complications were 57 percent less likely to occur in patients whose incisions were closed with suture. In absolute numbers, 40 women out of 376 in the staples group had wound complications while only 18 out of the 370 patients in the suture group had wound complications. Women whose incisions were closed with stitches were 80 percent less likely to have their wound re-open to a size of 1cm or greater, than those whose C-sections were closed with staples.

Some doctors prefer the ease of stapling, and argue that the procedure is faster, which can be important in a busy labor floor. The researchers found, however, that on average suturing takes 9 minutes longer to complete than stapling.

"Based on these results, we recommend that C-section incisions be closed with stitches rather than [staples](#)," says Dr. Berghella, who has written a number of evidence-based guidelines for *Obstetrics and Gynecology* and is also the current president of the Society for Maternal-Fetal Medicine.

More information: A.D. Mackeen et al., "Suture Compared With Staple Skin Closure After Cesarean Delivery, A Randomized Controlled Trial," *Obstet Gynecol*, 123:1169, 2014. [DOI: 10.1097/AOG.0000000000000227](#)

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