Gender bender: Do gender knee implants provide better outcomes?

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A gender-specific total knee prosthesis was developed to more closely match the anatomy of the female knee, aiming to be a better fit resulting in better outcomes for women. However, a recent study in the *Journal of Bone and Joint Surgery* (JBJS) found that 85 women who received a gender-specific implant in one knee and a standard prosthesis in the other knee found no clinical benefits of the gender-specific knee.

"We conducted this study to investigate whether women derive less benefit, or perhaps less predictable benefit, from total knee replacement using a standard conventional total knee implant," said Young-Hoo Kim, M.D., orthopaedic surgeon and lead author of the study.

After receiving knee implants - one gender-specific and one standard prosthesis - the women were assessed for at least two years after surgery. The knees with the gender-specific implant and the knees with the standard implant had similar knee scores and similar range of motion while lying down (125° for the knees with standard implants and 126° for the knees with gender-specific implants). All patients except three were able to bend their knees at least 90°.

Additionally, patient satisfaction with the implants was similar (8.3 points for the standard implants and 8.1 points for the gender-specific implants). A rating of 6 to 8 meant "satisfied," and a rating of 9 to 10 meant "fully satisfied."

Important findings included:

- The majority of women in the study (71 females or 84 percent) had no preference between the two implants,
- eight women (9 percent) preferred the standard prosthesis, and
- six (7 percent) preferred the gender-specific prosthesis.

Implantation prostheses of either design resulted in improved quality of life in terms of pain, walking distance, deformity, and function after surgery.

Although the gender-specific implants were specially designed to fit women, Dr. Kim's study showed that the standard prostheses fit women's knees better than the gender-specific implants.

"Our data demonstrated that the standard prosthesis fit the distal part of the femur (where the thigh and knee connect) better than the gender-specific prosthesis did," said Dr. Kim, who is from The Joint Replacement Center of Korea, Ewha Women's University School of Medicine in South Korea. The gender-specific prosthesis was so small that it exposed more bone, which resulted in increased bleeding immediately after surgery.

Dr. Kim and his colleagues were surprised by the study results. "We indeed expected the gender-specific prostheses to outperform the standard prostheses," he said.

Because the women in the study did not have any clinical benefit from the gender-specific knee implants, Dr. Kim now recommends that women receive a properly sized standard total knee prosthesis. "We have learned that gender-specific total knee prostheses fail to show any

clinical benefits. So, we feel that proper size standard total knee prostheses are needed for both men and women," he added.

Although patients were only followed for approximately two years, studies have shown that results after two years are similar to those seen five to ten years after total knee replacement. "Because the duration of follow-up was short, and we can draw no conclusions about the advantage of the gender-specific prosthesis with regard to long-term function," Dr. Kim concluded.

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