

Skin Closure After Joint Replacement

By Valerie Moses

Because the skin is the body's first line of defense against infection, it is important for physicians to utilize adequate skin closure techniques after total joint replacement surgeries. Not only does skin closure serve a cosmetic purpose, but it also lends itself to the patient's overall rehabilitation following his or her procedure.

"The surgical incision is usually closed in layers, such that the deeper layers are closed, followed by the skin," says Eric G. Bonenberger, M.D., board certified orthopaedic surgeon specializing in joint replacement; knee, hip and shoulder surgery; sports medicine and arthroscopy at Orlando Orthopaedic Center. "It's very important that deep layers are closed water-tight to avoid drainage with regards to the wound."

Throughout Dr. Bonenberger's medical career, skin closure has served a valuable purpose in his patients' recoveries. From his days serving as Section Head of Adult Hip and Knee Arthroplasty at the Naval Hospital in Jacksonville and also teaching as an Associate Professor at the University of Florida and Shands, he has always paid close attention to various skin closure techniques.

"Wounds that break down or chronically drain are a risk factor for infection," he says. "Prevention of infection is key to having a favorable outcome after joint replacement surgery."

In order to achieve this, physicians can use a number of skin closure techniques that will allow their patients to heal properly. Until recently, most doctors used sutures and staples ("clips"), to close the skin. However, although these "time-tested forms of skin closure" are effective, they do have their drawbacks.

"Staples and sutures can leave the incision with small hash marks, or a railroad track appearance," says Dr. Bonenberger. "To some people, this can be undesirable. I feel that if function is not sacrificed, then a cosmetic closure might as well be performed."

For nearly all of his total joint replacements, Dr. Bonenberger employs the DERMABOND® technique. DERMABOND®, which is chemically similar to superglue, is applied to the skin to provide a sealant.

"I use this technique in anterior approach total hip arthroplasty, minimally invasive total knee arthroplasty, custom total knee arthroplasty, partial knee replacement and total shoulder replacement," he says. The DERMABOND® method does not leave hash marks and tends to yield much better cosmetic results. Unlike staples and sutures, skin closures performed with this method allow the patient to shower within two to three days after surgery. Also, DERMABOND® dissolves gradually over time so, unlike sutures or staples, it does not need to be removed in the office after surgery.

"The ability to return to basic activity has a large bearing on a person's mental well-being," says Dr. Bonenberger. "The simple act of bathing and/or showering soon after joint replacement surgery seems trivial. However, once a person has had joint replacement surgery, they have a deep desire to return to usual activity. Bathing often leaves one in a better state of mind, so it seems logical that being able to take a shower soon after surgery with-

out covering the incision would have a positive impact on their mind."

Because of the nature of the DERMABOND® skin closure, this technique also may have a positive effect on pain control in the patient's recovery. Also, DERMABOND® is used in many other fields including OBGYN, general surgery and plastic surgery.

"Surgical staples work by crimping the skin. This is very favorable with regards to functional result, as they typically do heal nicely," says Dr. Bonenberger. "However, if the patient has a knee replacement, they are asked to flex the knee as much as they can as early as they can. This causes stretching of the incision, which may cause a pulling sensation by the staples. Therefore, if we use a technique without staples, such as the DERMABOND® skin closure, this feeling of tension with terminal flexion may not be present."

No matter which skin closure option a physician chooses, he or she should aim for function before appearance, Dr. Bonenberger stresses.

"As long as the skin is re-approximated and heals with flat, smooth borders, the infection rate is usually low," he says. "Underlying conditions such as diabetes or poor nutritional status can impact skin healing... The main goal with skin closure is to obtain a water-tight sealed smooth border at the edge of the incision that does not drain."

Ultimately, skin closure plays a significant role in the patient's overall healing process from total joint surgery. By employing the different techniques available, physicians can help their patients recover from their procedures, avoid the risk of infection and get back to their regular, daily lives.



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For additional information please call (407) 254-2500 or visit www.orlandoortho.com.

A left total knee arthroplasty post-op photo taken 13 days after surgery using the DERMABOND® skin closure technique.



The same patient seven months after total knee arthroplasty.

