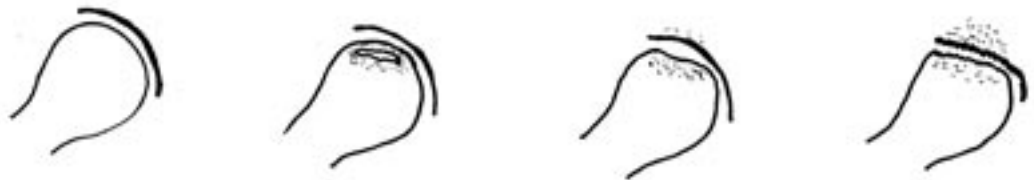


## Rejuvenation of the Dying Hip: The Fibular Transfer Procedure

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Arthritis of the hip is a common problem that can lead to pain with every step taken. It involves degeneration of the smooth cartilage lining that makes



**Figure #1: The smooth ball and socket contact seen in the normal hip on the left progresses to bone death, fracture then on to flattening, and finally to joint collapse and arthritis.**

up the joint surface. The joint gradually deteriorates until the normally smooth gliding surface is replaced with painful spurs and “bone on bone” contact. The hip joint itself is similar to a ball and socket with the thigh bone, or femoral head, making up the ball, and the pelvis the socket. Injuries to either of these structures can lead to the development and progression of arthritis. There can be many causes of arthritis of the hip. These include fractures, birth defects, and avascular necrosis.

Avascular necrosis is the cause of about 10% of the cases of severe hip arthritis seen in this country. It is caused by a disruption of the blood supply into the femoral head. It is this lack of blood supply that eventually leads to dead bone within the ball of the hip joint. This then progresses to flattening of the head from its normal round shape (see figure 1). The uneven joint surface, or incongruity, then leads to progressive degeneration until the hip is fully arthritic. There are cases where the body spontaneously recovers and the blood supply is restored without progression of this disease. However, unfortunately, in the majority of cases the condition does progress when left untreated.

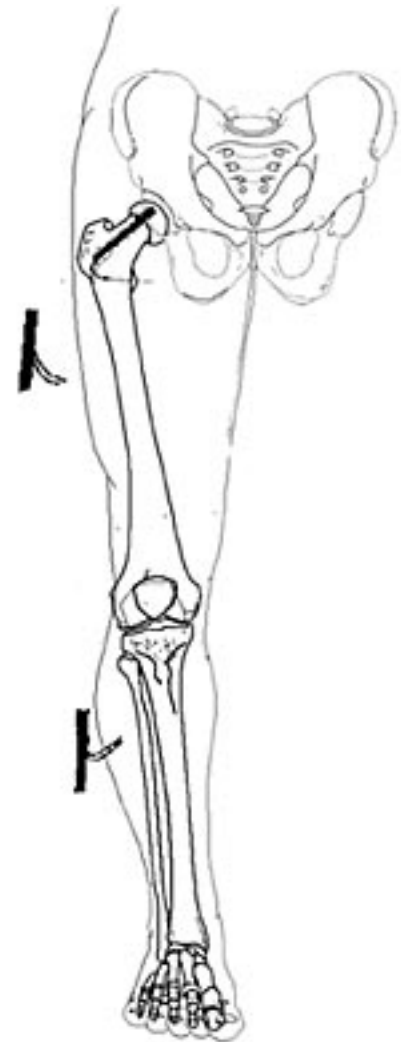
Avascular necrosis is of particular interest, as it tends to occur in younger patients and is a more frequent cause of hip arthritis below the age of 50. Its causes are not always clear, but in the majority of cases there is a history of either heavy steroid or alcohol use. The condition is diagnosed by examination with radiologic studies including X-rays and an MRI scan. The X-rays reveal the architecture of the hip joint and can divide the process into the pre-collapse and post-collapse stages.

The treatment options for the femoral head which has lost its blood supply and is essentially

“dying” are multiple. Observation can be selected, however this is a difficult choice for the patient who has hip pain, as he/she needs to be aware that the condition will likely progress and result in a painful arthritic hip joint. Studies have shown that drilling a hole into the femoral head, or decompression, can be effective in certain cases to diminish hip pain. Total hip arthroplasty, or replacement of the native hip joint with materials such as metal and plastic, is frequently the choice selected in more advanced disease stages.

Another choice in the treatment of avascular necrosis of the hip is to try to reverse the “avascular process”. A more recent development in orthopaedic and microsurgery has been the introduction (about 20 years ago) of an operation that attempts to bring a new source of blood to the once bloodless and dying portion of the hip. This procedure, called free vascularized fibular grafting, involves removing a portion of the fibular bone from the same leg as the involved hip and transferring it into the diseased hip bone. The fibula is the smaller bone in the lower leg, and a portion of it can be transferred usually without any loss of function. Its blood vessels are then connected to non-essential blood vessels around the hip, hence restoring blood supply to the diseased region of the hip joint. The entire process then involves decompression of the abnormal bone by drilling a hole into the ball of the hip, removal of much of the dead bone from within this region, placement of the normal fibular bone which acts as a structural support, and then reestablishing blood supply to provide nutrients once again to the ball of the hip.

Of all available choices today, the fibular transfer procedure offers the best chance of arresting and even reversing the process of bone death in the hip joint, thus avoiding a hip replacement. The advantage of this is that usually the patient’s native hip joint is preserved, offering a lifetime of near restriction free and normal use. In contrast, hip replacement surgery, particularly in the younger patient, can wear out over time, necessitating further operations to revise or replace the artificial joint of the original hip replacement. However, the free fibular transfer procedure does not lead to uniformly successful results. There are those where the arthritic process continues and eventually a hip replacement is the only remaining option.



**Figure #2: This represents the transfer of the fibula bone from the leg and into the diseased portion of the hip.**

The success of the operation depends on the age of the patient as well as the stage where the avascular necrosis disease process is found. Basically, the earlier the stage and the younger the patient, the more attractive the fibular transfer procedure is. Candidates are generally under the age of fifty years old and the ball of the hip is in the pre-collapse stage. In these circumstances, hip replacement can usually be avoided. Patients who upon diagnosis are already in the post-collapse stage of the disease process, with flattening of the ball of the hip joint, are generally considered candidates for the free fibula transfer when they are less than forty years of age.

The decision on whether to proceed with fibula transfer surgery must be made in a relatively short period of time as the disease process tends to progress within twenty months and, at times, even within a thirty day period. Following surgery the patient is hospitalized usually for four to six days. Crutch walking without bearing any weight on the involved leg continues for six weeks, whereupon a very gradual increase in the weight placed on the operated leg occurs. It takes a full six months to return to full activities, and even then sports involving jarring or stop/start activities are to be avoided. However, sports such as swimming can be started even six weeks following the operation. A return to sedentary work can also occur about six weeks following completion of the procedure. Most patients feel a significant decrease in their hip pain about two weeks following their operation, and it is not unusual to be pain free about two months following the procedure.