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Rheumatology: Current Research

Perspective

Rehabilitation and Prevention of Osteotomy of the Knee

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ABOUT THE STUDY

Knee osteotomy is commonly used to realign arthritic damage on one side of the knee. The idea is to move the patient's weight to the side of the knee with healthy cartilage, away from the injured portion. A wedge-shaped piece of the tibia is cut out from beneath the healthy side of the knee by the surgeon, allowing the tibia and femur to bend away from the worn-out cartilage.

The hinges on a door can be used as an example. The hinges of the door are flush with the wall when it is closed. One side of the door is pushed up against the wall as the other side of the door swings open. In order to prevent the arthritic surfaces from rubbing against one another, removing a small wedge of bone might "swing" the knee open, compressing the healthy tissue as room develops between the femur and tibia on the injured side.

In younger, more active individuals, osteotomy is also utilized as an alternative to total knee replacement. An osteotomy operation can allow younger, active osteoarthritis patients to continue utilizing the healthy section of their knee because prosthetic knees may wear out over time. Up to ten years may pass before a total knee replacement is required as a result of the treatment.

Surgery

Where the knee cartilage has been affected by osteoarthritis determines where the bone wedge will be removed. A high tibial osteotomy, which treats cartilage degeneration on the inside (medial) region of the knee, is the most common type of osteotomy done on arthritic knees. The average time to complete the treatment is 60 to 90 minutes. A high tibial osteotomy involves the removal of a wedge of bone from the outside of the knee, which results in a little inward bend in the leg. This is comparable to realigning a knock-knee from a bowlegged stance. The outside (lateral) part of the patient's knee, where the cartilage is still healthy, is put under weight.

The surgical team sterilizes the limb with an antibiotic solution after administering regional or general anesthesia. Through the use of an X-ray, CT scan, or 3D computer modelling, surgeons determine the precise dimensions of the bone wedge they will remove. Starting below the kneecap and extending to just below the top of the shinbone, a four- to five-inch incision is made down the front and outside of the knee. From the outside (lateral side) of the knee, guide wires are drilled into the tibia plateau, the top of the shinbone. In the shinbone, the wires typically create a triangle shape.

The majority of the bone wedge from beneath the outside of the knee, below the healthy cartilage, is removed by using a normal oscillating saw while being guided by the guide wires. On the top of the outer (lateral) side of the shinbone, the cartilage surface is preserved. Depending on the size of the wedge that was removed, the top of the shinbone is subsequently lowered on the outside and fastened with surgical staples or screws. The knee's tissue layers are sewn together, typically with absorbable sutures.

Rehabilitation and prevention

During the first two months following surgery, a fall or leg torsion could compromise healing. Until full healing has occurred, patients must proceed with extreme caution when doing anything, including walking. Osteoarthritis prevention entails reducing the disease's onset and spread after therapy. Osteoarthritis development has been successfully halted by maintaining aerobic cardiovascular fitness. An arthritic knee responds considerably better to regular, light exercise than to vigorous exercise just sometimes. Due to the difficulty in treating knee injuries due to arthritis, it is especially vital to prevent any severe knee injuries, such as bone fractures or torn ligaments. Distance running and other activities with high impacts or repetitive stress should be avoided.

There is no one-size-fits-all method of prevention for osteoarthritis because it has a variety of genetic and other contributing reasons.

Some general suggestions are:

- Remaining slightly bent at the knees when standing will relieve pressure.
- Steer clear of activities that are painful for more than an hour.
- Engage in controlled range-of-motion exercises that don't place too much strain on the joint.

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- Avert high knee impact during daily and athletic activity.
- To help safeguard the knee's bones and cartilage, gradually strengthen your thigh and lower leg muscles.
- Non-contact exercises help bones and joints stay strong over time and maintain fitness.
- Additionally, exercise encourages weight loss, which lessens the strain on the knees.