

Techniques of Arthrodesis: Complications, Risk factors and Challenges

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DESCRIPTION

Arthrodesis, a surgical procedure involving the fusion of joints plays a crucial role in orthopedics. This study discusses about the arthrodesis techniques, indications for surgery, the rehabilitation process, and the impact on patients' lives. Arthrodesis is a surgical procedure that involves joining two or more bones within a joint to eliminate motion. The goal is to provide stability, relieve pain, and correct deformities. Arthrodesis is employed when conservative treatments fail to address joint problems adequately. Arthrodesis has a long history dating back to ancient civilizations. Early techniques involved external fixation with braces and splints. Modern surgical approaches, including internal fixation with screws, plates, and rods, have improved outcomes and recovery.

Arthrodesis techniques

Spinal arthrodesis: Spinal arthrodesis is used to stabilize the spine, commonly for conditions like degenerative disc disease, scoliosis, or spinal fractures. Techniques range from traditional open surgery to minimally invasive approaches, including posterior and anterior fusion methods.

Ankle arthrodesis: Ankle arthrodesis addresses ankle joint pain and instability caused by conditions like arthritis or severe ankle fractures. Various surgical techniques, such as screws, plates, or external fixation devices, can be used to achieve fusion.

Wrist arthrodesis: Wrist arthrodesis is performed to treat chronic wrist pain, instability, or deformities resulting from conditions like rheumatoid arthritis or severe wrist fractures. Surgical methods include plate fixation and circular external fixation.

Hand and finger arthrodesis: Arthrodesis of the hand and fingers is essential for managing deformities, post-traumatic arthritis, or joint instability. This study discusses about the techniques like Kirschner wire fixation and interphalangeal joint fusion.

Hip arthrodesis: Hip arthrodesis is utilized in cases of severe hip pain and dysfunction, often as an alternative to hip replacement

surgery. Techniques encompass the use of screws, plates, and intramedullary nails.

Knee arthrodesis: Knee arthrodesis is a procedure used for end-stage knee arthritis, failed knee replacements or severe infections. Techniques include intramedullary nailing and external fixation.

Complications

Surgical outcomes provides an overview of expected outcomes following arthrodesis surgery, including pain relief, joint stability, and improved function. Arthrodesis, like any surgery, carries risks. We discuss potential complications, such as non-union, infection, and hardware-related issues, and strategies to manage them. Advancements in minimally invasive arthrodesis techniques are discussed, emphasizing their benefits and potential for shorter recovery times. The use of biologic agents and bone grafting materials in arthrodesis procedures is explored, including their role in promoting fusion.

This comprehensive guide concludes by summarizing key points about arthrodesis in orthopedics, emphasizing its importance in improving the lives of individuals with joint-related issues. We also highlight ongoing research and advancements in this field.

Risk factors and challenges

Arthrodesis, like any surgical procedure, carries certain risks factors that patients and healthcare providers should consider. Surgical site infections can occur after arthrodesis, especially if proper sterile techniques are not followed. Risk factors for infection include pre-existing infections, diabetes, and compromised immune function. Arthrodesis relies on the bones fusing together. However, in some cases, the bones may not unite properly, leading to a condition called non-union. Factors that can increase the risk of non-union include smoking, poor blood supply to the area, and excessive motion at the surgical site. The use of screws, plates, or other fixation devices can sometimes lead to complications such as loosening, breakage, or irritation of surrounding tissues. During surgery, there is a risk of injuring nearby nerves or blood vessels, which can lead to sensory or motor deficits, or vascular problems. Arthrodesis

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eliminates joint motion, which may limit functional abilities. Patients should be prepared for potential adjustments in daily activities. Surgery and the resulting lifestyle changes can have a psychological impact on patients, including anxiety and depression. It's important for patients to discuss these risks with their healthcare provider before undergoing arthrodesis.

Surgeons will evaluate individual risk factors and take steps to minimize complications, such as optimizing overall health providing thorough pre-operative counseling, and using advanced surgical techniques when appropriate. Rehabilitation and follow-up care are also essential to monitor and address any potential issues.