

W. Lorenz Total TMJ Replacement System

Patient Information

This Patient Information is for informational purposes to help explain issues regarding TMJ surgery. Always consult your physician for an explanation of your specific problem and for their recommendations and instructions.

What is the Temporomandibular Joint (TMJ)?

It is the joint in your jaw, which allows you to open and close your mouth. It is similar to a ball and socket but it can also slide. The ball portion is the mandibular condyle (jaw) and the socket portion is the fossa. There is a disc between the two bone segments, which allows the condyle to slide smoothly during a range of motion or while opening your mouth. Muscles keep the joint together and provide the force required to move your jaw.

What is Temporomandibular Joint Disease (TMD)?

Any jaw joint problems are commonly referred to as TMJ but this is simply the joint itself. TMD is the joint that is diseased and needs repair. Various factors can cause TMD which result in restricted jaw movement and pain. Some symptoms include pain in your jaw, headaches, earaches, popping of your jaw, difficulty opening and locking of the jaw (closed or open), or dizziness.

What is the W. Lorenz TMJ Implant?

The W. Lorenz TMJ implant is a “ball and socket” type prosthetic joint similar to a knee or hip implant. The following implants, which make up the Total TMJ Replacement System, are made of common materials with over 30 years of successful use in orthopedic joint replacement.

1. *Condyle (also called mandibular) implant*
The condyle implant is made of metal Cobalt-Chromium-Molybdenum (Co-Cr-Mo) alloy with roughened titanium porous coating on the implant surface that contacts bone. Co-Cr-Mo alloy contains nickel.
2. *Fossa Implant*
The Fossa implant is made of a hard, plastic polyethylene. The fossa is made of molded polyethylene that has shown excellent wear resistance during mechanical testing.
3. *Screws*
Both the condyle and fossa implants are attached to bone using titanium alloy screws.

Line drawing of implants (mandibular & fossa)

When is the W. Lorenz TMJ Implant NOT Indicated?

The vast majority of patients with TMD do not require surgery. They can be treated conservatively with one or a combination of the following:

- ?? soft diet
- ?? hot/cold pack applications
- ?? mouth splints
- ?? physical therapy
- ?? anti-inflammatory medications
- ?? muscle relaxants
- ?? analgesics (pain medications)
- ?? dental treatment including:
 - ?? bite adjustments
 - ?? restorations
 - ?? orthodontics

Only those patients who have a “mechanical” problem inside the joint itself (a dislocated disc) that does not respond to conservative care, may be candidates for surgery.

What types of surgery are performed in the TMJ?

Oral and maxillofacial surgeons basically have these surgical options:

- ?? Arthroscopy
- ?? Arthroplasty (open joint surgery)
- ?? Total joint replacement
- ?? Partial joint replacement

Arthroscopy is a procedure where a small endoscope is placed inside the joint for diagnostic purposes and to treat inflammation and discs that are “stuck” in position or displaced. For more serious disorders where the disc is badly displaced an open arthroplasty can be performed to repair,

reposition or remove the disc. Only in cases where there is severe late-stage degeneration of the disc and condyle is total joint replacement considered.

Who is a candidate for the W. Lorenz Total TMJ Replacement System?

Candidates are patients who have finished growing and have TMJ problems along with one of the following indications:

- ?? Arthritic conditions: e.g. osteoarthritis, rheumatoid arthritis, or traumatic arthritis
- ?? Malignancy
- ?? Benign neoplasms (non-malignant abnormal new growth of tissue)
- ?? Functional deformity
- ?? Revision of total TMJ arthroplasty or failed TMJ systems
- ?? Avascular necrosis (death of tissue due to poor blood supply)
- ?? Ankylosis (an abnormal fusion of the joint)
- ?? Fracture
- ?? Multiple operated joints
- ?? Developmental abnormality (birth defect)

What are the contra-indications for the W. Lorenz Total TMJ Replacement System?

- ?? Patients with an active infection
- ?? Patients who do not have enough bone or good quality bone to support the device
- ?? Patients requiring partial TMJ joint reconstruction only
- ?? Known allergic reaction to any of the materials used in the implants including nickel.
- ?? Patients with mental or neurologic conditions who are unwilling or unable to follow postoperative care instructions
- ?? Patients who are still growing
- ?? Patients with severe hyper-functional habits (e.g. clenching, grinding etc.)

What are the possible complications?

The following risks are associated with the use of a total TMJ system.

1. Implant loosening or displacement can occur.
2. The screws used to anchor the implant may loosen causing changes in bite, difficulty in chewing, limited joint function and unpredictable wear on implant components.
3. Implant breakdown may result in the wearing away or dissolving of the fossa bone, which may result in intense pain.
4. A foreign body reaction may occur resulting in implant breakdown and movement of materials.
5. Infection can depend on the technique and judgement of the surgeon or improper sterilization by the manufacturer.
6. If the implant materials are unable to withstand the forces or pressure placed on the implant, the implant can be torn, worn, fragmented, fatigued, or fractured resulting in failure of the device to function properly.

7. Bony changes within the joint surfaces and components of the TMJ due to implant breakdown may result in chronic pain.
8. Changes in the joint cartilage and/or bone from disease or previous implants may lead to failure of this device.
9. If the implant materials are subject to the production of particles or corrosion, toxic elements may migrate to various parts of the body.
10. Placement of the implant in one joint only may result in harmful effects to the joint on the opposite side.
11. Placement of the implant may produce an improper relationship between the teeth surfaces that should contact during biting.
12. Implant breakdown may cause wearing away of bone or bone found in an abnormal place within the joint.
13. Use of implants may result in “ringing of the ears” or other ear problems.
14. Limited range of motion and chronic pain may continue after total TMJ surgery.
15. Infection which may result in implant removal.
16. Damage to facial nerves with temporary or permanent paralysis of the facial muscle and/or loss of feeling in the chin, teeth, tongue, or lower jaw may occur.

What have been the results with the use of the W. Lorenz Total TMJ Replacement System?

Clinical Study Summary

A clinical study began in the United States in 1995 and was designed to document patient outcome after implantation of the Total TMJ Replacement System. Ninety-two unilateral (one side) and 88 bilateral (both sides) cases were included only after appropriate non-surgical treatment and/or previous implant failure. The average patient follow-up was 19.6 months (range: 0.9-65.7 months) with 45 patients having follow-up data at the 3 years study endpoint.

A total of 180 cases received 268 total joints. Overall, patients improved by having a decrease in pain, increase of function, increase in maximal incisal opening (MIO), and satisfaction with their outcome.

The Total TMJ Replacement System has not been studied in pregnant women or children, therefore, the safety and effectiveness for these patients is not known. The safety and effectiveness of revision surgery using a second set of Total TMJ Replacement System implants is not known.

What should I expect after surgery?

“Reasonable expectations” after TMJ implant surgery as stated can include:

- ?? An increased mouth opening
- ?? Pain reduction
- ?? Improved chewing ability

Outcomes are dependent upon the severity of the disease, the number and type of previous treatments, the condition of the patient, and patient compliance with postoperative instructions.

What precautions should I take after TMJ surgery?

1. Follow your surgeon's postoperative instructions, especially those related to physical therapy, diet, and medication. See your surgeon for scheduled follow-up visits including annual visits after the first year.
2. Avoid the following:
 - ?? hard, crunchy, or tacky food
 - ?? contact sports
 - ?? activities that may damage your implants
3. If you have to have other surgeries, not related to your TMJ surgery, please tell your doctor that you had a TMJ surgery. Your doctor will need to know this to prescribe an antibiotic to prevent infection from the new surgery. An infection can cause a problem with your TMJ implants.

What rehabilitation do I need after surgery?

Rehabilitation regimens can vary among physicians and generally include a home-based regimen of jaw stretching with a plastic, hand-held device within 48 hours of surgery. You may require more or less rehabilitation, depending on the seriousness of your TMJ disease. The length of time for your rehabilitation will depend on how much jaw movement you had before surgery. Rehabilitation may last from about 6 weeks to 6 months following implant surgery.

Call your doctor if you experience any of the following:

1. Excessive swelling
2. Sudden pain
3. Sudden less opening of your mouth and/or locking
4. Impact to your face and/or head such as from an automobile accident

Patient and manufacturer responsibilities

1. Request that your implants be returned to Walter Lorenz Surgical, Inc. at the following address, if all or part of the implants are removed for any reason.
2. Notify Walter Lorenz Surgical, Inc. and your surgeon if you change your mailing address so that you can be contacted if necessary with information regarding your implants. The FDA requires Walter Lorenz Surgical, Inc. to have your current address on file to be able to contact you at any time after your surgery.

For more information contact:
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