MOXIMED

The KineSpring® Knee Implant System
Surgeon Handout

Patient Selection Criteria

Medial compartment degeneration must be confirmed radiographically or arthroscopically prior to prescribing the KineSpring System. Typical KineSpring System patients have early-to-moderate disease and may also be candidates for valgus unloading braces, cartilage stimulation procedures (microfracture), cartilage repair treatments (Osteochondral Autograft Transplantation or Autologous Cartilage Implantation), High Tibial Osteotomy, or Unicompartmental Knee Arthroplasty.

Radiographic Presentation: X-Ray

Patients suffering from pain and medial joint space narrowing (JSN) are potential candidates for the KineSpring System. JSN should be evident on a standing AP or PA X-Ray, which indicates wear of the articular cartilage during the stance phase of gait (0–30° of flexion). While fixed flexion views (such as the Rosenberg view) are useful for characterizing the maximum JSN, if JSN is not evident on a standing X-Ray (i.e. in knee extension), then further diagnosis is suggested to ensure the disease pattern matches the unloading range of the KineSpring System.

Radiographic Presentation: Magnetic Resonance Imaging (MRI)

Cartilage thinning, subchondral bone edema, and cysts are considered markers for early OA and may be assessed using MRI. As a diagnostic tool, MRI can confirm the presence and location of painful chondral lesions that may be relieved by treatment with the KineSpring System.

Arthroscopic Presentation

Cartilage softening on palpation, thinning, local defects, and loss represent different stages of the OA disease process. Whether used solely as a diagnostic tool or in combination with other procedures, arthroscopy can be used to confirm painful cartilage wear corresponding to the unloading range of the KineSpring System.

Indications and Contraindications for the KineSpring System

Overview

The KineSpring System is designed to treat pain and loss of function secondary to medial knee OA by absorbing joint overload. The system is an extra-articular and extra-capsular device implanted subcutaneously on the medial side of the knee. It consists of 3 parts: a Femoral Base, a Tibial Base, and a spring-like Absorber that connects the two bases through ball and socket articulations, thus enabling normal knee motion. The implant absorbs joint overload during the stance phase of gait (during 0–30° of knee flexion), and patients should benefit from unloading in this range.

Indications

The Kine Spring System is intended to treat the symptoms of pain and loss of knee function secondary to osteoarthritis of the medial compartment of the knee.

Contraindications

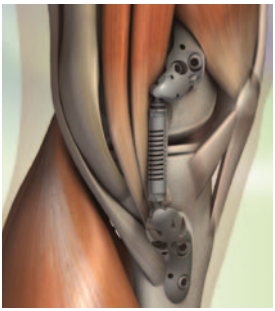
The implant should not be used in a patient who currently has or who has a history of:

- Active, local infection or previous intra-articular infection
- Neuropathic (Charcot) joint
- Rheumatoid arthritis of the knee
- Marked osteoporosis
- Symptomatic lateral or patello-femoral compartment OA in the affected knee
- Joint instability in the affected knee
- Varus alignment >10° in the affected knee
- Hyperextension of >10°
- Severe deformities leading to impaired fixation or improper positioning of the implant
- Suspected or documented metal allergy or hypersensitivity

KineSpring System Post-Operative Protocol

Post-Operative Protocol

The following are general recommendations for post-operative activities, but each surgeon may customize the protocol depending on the patient's disease severity and desired activity level. During the first weeks after surgery, the focus should be on wound healing, and activities are therefore limited to range of motion. This precaution, and a subsequent gradual return to activity, may increase the probability of a successful outcome following surgery.



After Surgery:

- Routine joint procedure closure

Phase I (Weeks 0–2): Focus on Wound Healing

- Regular wound control to ensure good wound healing
- Elevate leg and apply cold packs as needed to minimize swelling
- Lymph drainage to reduce edema
- Pain medication as necessary using multiple modalities
- Encourage early movement for ROM
- Full weight bearing possible immediately
- Straight leg raises to initiate quadriceps strengthening
- Prescribe crutches to limit activity for good wound healing
- Hospital discharge between 1–5 days

Phase II (Weeks 3–6): Return to Daily Activity

- Discontinue use of crutches after 2 weeks, if tolerable
- Return to full ROM & normal daily activities
- Cycling on stationary bike with adapted resistance for full ROM
- Begin balance/strengthening exercises (i.e. heel-toe walking, assisted single leg balance, slow to normal walking)
- Incorporate functional exercises as able (i.e. seated/standing marching and core stabilization exercises)

Phase III (6+ Weeks): Increase Strength, Return to Sports

- Increase intensity of strengthening and functional exercises
- Begin with easy sport-specific training as tolerted
- Return to intensive physical activity after several months based on physician's recommendation

Manage Patient Expectations

After the KineSpring System Procedure, many patients are encouraged by the relief of their osteoarthritic pain and are enthusiastic about returning to activity. It is important to manage patient expectations to ensure a successful outcome.

Return to Activities of Daily Living

Patients should expect to return to moderate daily activities (housework) within the first three weeks following surgery, and driving is allowed once crutches are weaned off.

Return to Work

Patients should only return to work after complete wound healing: within 2–4 weeks with a sedentary job and 6–8 weeks with a manual job.

Pain Relief after Surgery

Osteoarthritic pain should be relieved soon after surgery, but wound pain and soft tissue discomfort or irritation may persist for several months after surgery. Some patients may experience uncertainty of the extent of osteoarthritis pain relief provided during this time and it is important to reassure the patient that the soft tissue discomfort will resolve as the tissue heals.

Notes

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