

1. What is the purpose of the Subchondroplasty® Knee Randomized Controlled Trial (RCT)?

The purpose of this study is to measure if there is an advantage of the Subchondroplasty® Procedure (SCP®) with arthroscopy compared to arthroscopy alone in subjects with a bone marrow lesion (BML) in the knee. BML is a term for a finding on an MRI that represents a healing response to a defect, such as a microtrabecular fracture, found inside of the subchondral bone, a region beneath the cortical bone near a joint.

2. What is the Subchondroplasty Procedure and is it currently available?

The SCP Procedure targets and fills subchondral bone defects associated with chronic BML with AccuFill® Bone Substitute Material (BSM) utilizing an arthroscopic / percutaneous approach as follows. Using intraoperative fluoroscopy to identify radiographic landmarks, the bone defect is localized relative to MRI findings. The appropriate AccuPort® Delivery Cannula is drilled to the area of the bone defect. AccuFill BSM is then injected into the subchondral bone defect. The AccuFill BSM then sets hard to match the properties of the surrounding bone.

The SCP procedure is performed along with arthroscopy of the affected knee, to assess the extent of the injury, assist in targeting the underlying bone defect, and visualize and treat other structures inside the joint. In every case, it is recommended that the scope be used after AccuFill BSM injection is complete, to look for evidence of extravasation of the BSM into the joint space.

The SCP procedure will be performed using two commercially available products. The regulatory status of each component of the system is described below:

1. AccuFill BSM Injectable Calcium Phosphate – Class II device; 510(k) Number K093447 - Calcium Salt Bone Void Filler Device, cleared by FDA. The package insert provides product description, indications, and usage information.
2. SCP Procedure Surgical Instrumentation – These are Class I manual surgical instruments, and are premarket exempt.

3. What is AccuFill BSM and how does it work?

AccuFill BSM is an injectable, self-setting, macroporous, osteoconductive, calcium phosphate bone graft substitute material that is intended for use to fill bony voids or gaps of the skeletal system of the extremities, spine (i.e. posterolateral spine), and the pelvis that are not intrinsic to the stability of the bony structure. These defects may be surgically created osseous defects or osseous defects created from traumatic injury to the bone. AccuFill BSM is a bone graft substitute that resorbs and is replaced with new bone during the healing process.

4. What is the clinical trial design of the Subchondroplasty Knee RCT?

This is a multicenter, prospective, single-blinded, two-arm, randomized study. Enrolled subjects will have a single BML in the tibia, single BML in the femur, or bipolar (“kissing”) BML in the tibia and femur. Subjects will also be surgical candidates for knee arthroscopy due to mechanical symptoms, meniscus tear, loose body and/or synovitis.

A stratified blocked randomization will be used to assign subjects to either the Subchondroplasty procedure with arthroscopy or to arthroscopy alone in a 2:1 ratio. Individual sets of blocks will be determined within study site and BML polarity status (unipolar vs bipolar). Target enrollment is 201 subjects, to include 134 subjects in the treatment group (SCP + arthroscopy) and 67 subjects in the control group (arthroscopy alone).

5. What are the study objectives for this trial?

The primary objective of this study is to determine whether the Subchondroplasty procedure with arthroscopy is superior to arthroscopy alone for treatment of BML in the knee.

- Superiority will be evaluated by freedom from secondary surgical intervention (SSI) and among those free from SSSI, a clinically meaningful reduction in self-reported pain based on a validated measure of subject-reported pain.

Secondary objectives include:

- Evaluate other subject-reported outcomes measures
- Establish the safety profile by determining the incidence and time to resolution of post-operative complications and adverse events
- Compare the incidence and time to secondary surgical intervention including re-operation and revision
- Evaluate the use of healthcare resources and impact on productivity

6. Who is sponsoring the Subchondroplasty Knee RCT?

Zimmer Biomet is sponsoring the Subchondroplasty Knee RCT. Founded in 1927 and headquartered in Warsaw, Indiana, USA, Zimmer Biomet is a global leader in musculoskeletal healthcare. Zimmer Biomet designs, manufactures and markets orthopaedic reconstructive products; sports medicine, biologics, extremities and trauma products; spine, bone healing, craniomaxillofacial and thoracic products; dental implants; and related surgical products.

7. Where are the clinical trial sites? Who are the primary investigators?

The clinical trial sites for the Subchondroplasty Knee RCT include some of the most highly respected medical institutions in the country, experienced in performing the SCP procedure. The leading investigator is Dr. Jason Dragoo, MD, Stanford University. Visit www.clinicaltrials.gov for a full list of clinical trial sites.

8. Which patients qualify for the Subchondroplasty Knee RCT?

Patients may be candidates if they meet the following eligibility criteria:

- Male or female between the ages of 30 to 75 years
- Body mass index ≤ 40 kg/m²
- Has experienced pain in study knee for at least 3 months
- Kellgren-Lawrence grade of 1 to 3 Osteoarthritis
 - An absence of Kellgren-Lawrence Grade 4 osteoarthritis with complete loss of joint space (bone-on-bone) or subchondral bone collapse
- Has undergone and failed at least two prior conservative non-surgical management therapies without satisfactory pain relief and is ≥ 3 months from the start of treatment
- Not a current smoker or is ≥ 3 months from smoking cessation
- No history of secondary arthropathies (i.e., sickle cell disease, hemochromatosis, or autoimmune disease)

9. What is the time commitment for my patient to participate?

Subjects will be enrolled within 60 days prior to surgery and take part in follow-up visits for two years following surgery. A preoperative visit will occur at the time of enrollment. Follow-up visits will occur at the study site at 6 weeks, 3 months, 6 months, 12 months, and 24 months post-surgery. Telephone follow-up interviews will be done at 18 months post-surgery.

10. What are the options if my patient receives the controlled procedure?

Subjects that do not demonstrate improvement in their baseline KOOS pain score for at least two consecutive follow-up intervals, starting with the 3 and 6 month visits, or for any two consecutive visits thereafter, may elect to be unblinded from the study. For those subjects originally in the arthroscopy alone group, they may cross-over and be treated with the Subchondroplasty procedure. These subjects will continue to be followed in the study per protocol through the 2 year endpoint.

11. Will my patient be charged for the procedure?

The subject's arthroscopy surgery and medical care provided by their physician will be billed to them or to their insurance company, regardless of which treatment group they are assigned to. However, if patients are enrolled in the Subchondroplasty procedure with arthroscopy group they will not be billed for the SCP procedure portion of the surgery. There will be no cost to patients for any study related procedures outside of standard practice of care; this includes post-operative X-rays and MRIs done for study purposes only.

12. Will my patient be compensated for their time and travel?

Patients may incur costs associated with travel to their doctor's office. A Subject Stipend may be offered to the subject at the completion of each follow-up visit, if in accordance with the institution's policies, and if the subject has completed the full visit. The stipend is provided to defray costs of travel, parking and missed time from work. You may contact the trial site for details.