RASKAL: Robotic-assisted surgery and kinematic alignment in total knee arthroplasty

ACTRN12621000205831

Status RECRUITING
Sponsor Australian Orthopaedic Association National Joint Replacement Registry
Enrollment 300 participants

Plain Language Summary

This study, called RASKAL, is looking at two important questions in knee replacement surgery: does using a robot to assist the surgeon lead to better outcomes than using a computer, and does aligning the new knee joint to match your body's natural movement (kinematic alignment) work better than the traditional straight-line approach (mechanical alignment)? Knee replacements are one of the most common major surgeries in Australia, and there is growing interest in both robotic assistance and kinematic alignment, but solid evidence comparing them is still limited.

If you are aged 40 to 80, have been diagnosed with osteoarthritis in one knee, and your surgeon recommends a knee replacement using the Stryker Triathlon implant, you may be eligible. Surgeons across around 10 sites in NSW and WA are taking part. You would be randomly assigned to one of four groups combining the two types of assistance and alignment techniques.

After your surgery, you will be asked to complete questionnaires about your pain, function, and quality of life over two years. This research will help surgeons and patients make more informed decisions about which approach gives the best results for people having a knee replacement.

Key Eligibility Criteria

Inclusion (2)

- All patients suitable for TKA age 40-80 years with a primary diagnosis of osteoarthritis.
- Patients who meet the indications for primary unilateral TKA using the Stryker Triathlon cruciate-retaining TKA system.

Exclusion (11)

- Knee flexion < 90 degrees and knee flexion contracture > 15 degrees at preoperative assessment
- Coronal deformity with hip-knee-ankle (HKA) angle > 15 degrees varus and > 10 degrees valgus on standing long-leg radiographs
- Prior grade 3 injury to posterior cruciate ligament, posterolateral corner, lateral collateral ligament or medial collateral ligament
- TKA requiring increased prosthetic stability (posterior-stabilised, constrained condylar, or rotating hinge designs), diaphyseal stems or metal augments
- TKA for causes other than osteoarthritis (inflammatory arthritis, post-traumatic arthritis, tumour or acute fracture)

... and 6 more (see full listing online)

Locations (9 total)

St George Private Hospital - Kogarah, NSW,WA, Australia
Royal Prince Alfred Hospital - Camperdown, NSW,WA, Australia
North Shore Private Hospital - St Leonards, NSW,WA, Australia
... and 6 more locations