### Dr Edward Graham

## Update on Knee Replacement

# Knee replacement continues to be a common operation in Australia.

Last year approximately 57 000 total knee replacements were performed throughout Australia. Of these 97% were for patients with Osteoarthritis.

We will look at the patella, the use of cement, the metallurgy of the components and the longevity of the implant.

#### Patella

In replacing the knee the patella is usually resurfaced.

This involves inverting the patella and removing 7-8 mm of cartilage and bone from the articular surface.

Approximately 60 % of the time the patella is resurfaced.

Some patients are more likely to need the patella resurfaced such as those with an inflammatory condition such as rheumatoid arthritis.

Some patients should retain the patella such as when the risk of fracture is high for instance when the patella is thin (less than 19 mm).

#### Cement

Use of cement has increased to over 60% of cases of knee replacement.

The cementless option involves using a press-fit component and can be a concern in those patients with osteoporosis where the risk of fracture would be increased.



Results in terms of longevity and function are similar for both cemented and cementless replacements.



#### **Component composition**

The femoral component is an alloy of metals. The implant I use is mainly chromium and cobalt with other trace elements.

The plastic insert is a polyethylene. This is highly cross linked to improve wear characteristics. The plastic component I use also in enriched with vitamin E an antioxidant.

The tibial tray is an alloy of titanium and other trace metals.

There are many other options for component composition which have great results in terms of wear and longevity.

#### Longevity

Knee replacements like all synthetic materials have a finite lifespan.

Initially we would predict the implants would last 10 years. This has increased over the last 15 years and most recent results have knee replacement revision rates in the order of 8% at 20 years.

Hopefully as technique and materials and design improve the implants will last in excess of 20 years.



#### **Dr Edward Graham**

Dr Edward Graham is an Australian trained Orthopaedic surgeon. He specialises in hip and knee surgery including the treatment of sports injuries and arthritis. He was born in Newcastle and grew up in Sydney, completing his medical degree at Sydney University. He undertook Orthopaedic training in Sydney and obtained a fellowship of the Royal Australasian College of Surgeons in 2006. He has special interests in:

- Hip and knee joint replacement (including revision)
- Arthroscopic surgery of the knee including ligament reconstruction

Trauma

- Sports Orthopaedics
- Reconstruction of the injured athlete's knee

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