

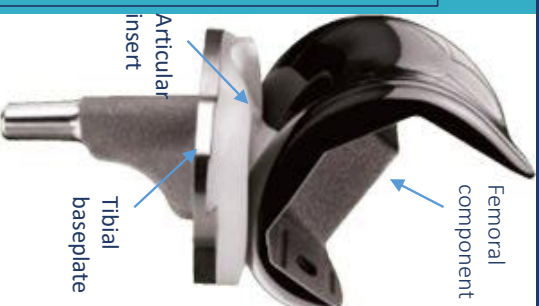
# A review of Oxidized Zirconium in Total Knee Arthroplasty (Greta Safonik)

## Background

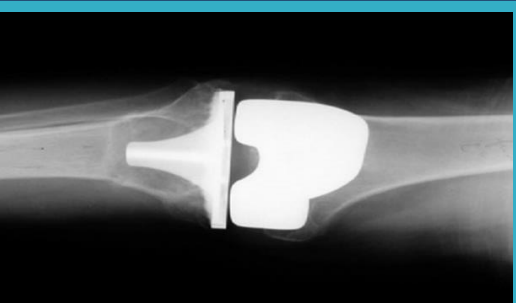
- Total knee arthroplasty (TKA) is one of the most popular procedures in modern orthopaedics.
- An increasing number of TKAs has been performed in younger and more active individuals, who are at increased risk of revision due to aseptic loosening
- Relatively new material Oxidized Zirconium (OxZr) has been introduced for the use in femoral component of TKAs in an effort to increase the longevity beyond the standard Cobalt Chromium (CoCr)

## Aim:

- To review the most recent evidence of using OxZr in TKA in clinical practice.
- Achieved through assessing literature for:
  - a) clinical outcome
  - b) survivorship



COMPONENTS OF TKA



TIBIAL OSTEOLYSIS

## Methods

Unique articles identified through databases (Medline, Pubmed, Embase)  
n = 50

Articles screened  
n = 33

Articles included in the final review  
n = 7

- Exclusion criteria:
- Studies with  $\leq 5$  follow up
  - Studies published before 2014
  - In vitro studies
  - Case reports, Retrieval studies
  - Meta-analyses, systematic reviews

## Results

Noncomparative studies OxZr (n = 4) with 5 - 15 year follow-up:

- Post-operative improvement in clinical outcome
- Survivorship from 97.8 % to 100 %
- 6 TKA revisions due to aseptic loosening

Comparative studies OxZr vs CoCr (n = 3) with 5 – 12 year follow-up:

- No significant difference in - clinical outcome
- survivorship or risk of revision

## Conclusions

- This review does not provide evidence for superior characteristics of the more expensive OxZr over standard CoCr in TKAs
- Superiority of OxZr might become apparent after a longer follow-up assessed in experimental studies
- Subsequent cost-benefit analyses should be performed, as revision surgeries currently impose a financial strain on the healthcare system