SBRI HEALTHCARE

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Krysia Dziedzic (Arthritis Research UK Professor of Musculoskeletal Therapies, Keele University)

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Improving Outcomes in Musculoskeletal Disorders

The AHSN Network

NHS England


west midlands
ACADEMIC HEALTH SCIENCE NETWORK
ARTHRITIS
RESEARCH UK
Keele
UNIVERSITY
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Introduction

- Self-Care and Preventative Interventions
- Efficiencies in Delivering Care
- Scaling Up the use of Regenerative Medicine

Background

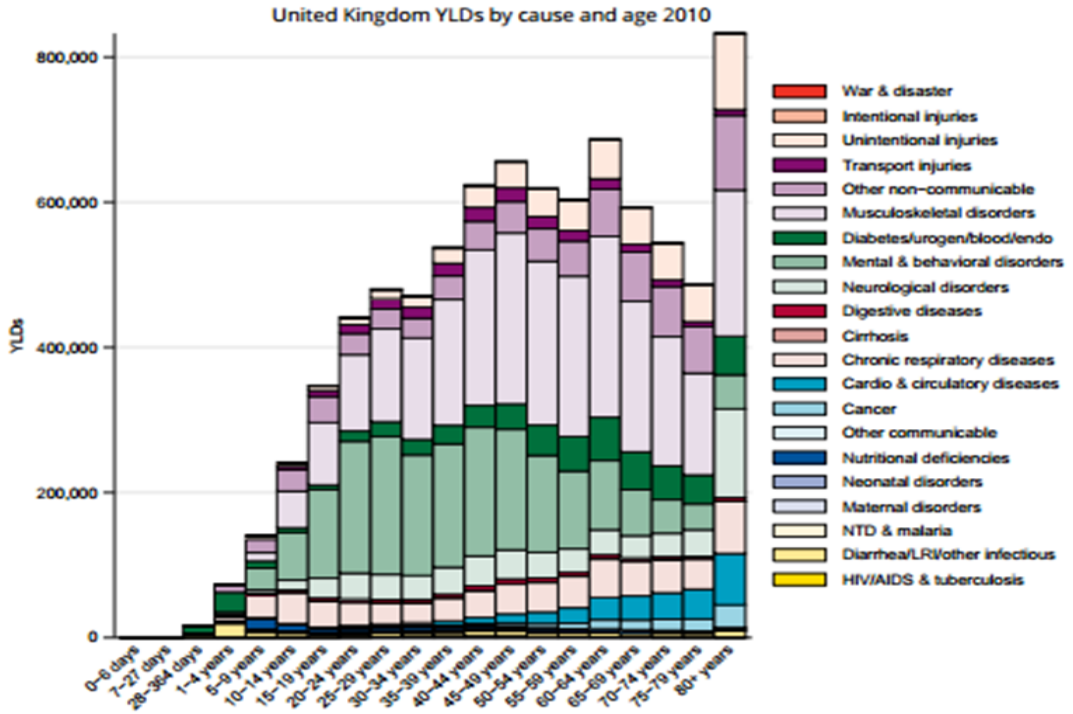
- 200+ musculoskeletal conditions
- 25% the adult population in the UK
- 9.6 million adults & 12,000 children UK
- MSK accounts for 10.8m working days lost/year
  https://www.england.nhs.uk/ourwork/ltc-op-eolc/ltc-eolc/our-work-on-long-term-conditions/si-areas/musculoskeletal/

Global Burden of MSK

YEARS LIVED WITH DISABILITY (YLDs)

Years lived with disability (YLDs) are estimated by weighting the prevalence of different conditions based on severity. The top five leading causes of YLDs in the United Kingdom are low back pain, falls, major depressive disorder, neck pain, and other musculoskeletal disorders.

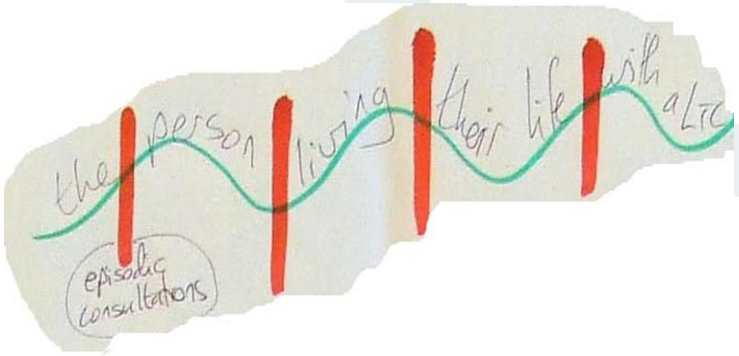
The size of the colored portion in each bar represents the number of YLDs attributable to each cause. The height of each bar shows which age groups had the most YLDs in 2010. The causes are aggregated. For example, musculoskeletal disorders include low back pain and neck pain.



***Source:** Global Burden of Disease Project

Self-Care and Preventative Interventions

- Gaps in knowledge are recognized, and yet closing the gap is complex



NICE National Institute for Health and Care Excellence

What if technology could help prevent or help those with MSK disorders manage their physical function and mental health?

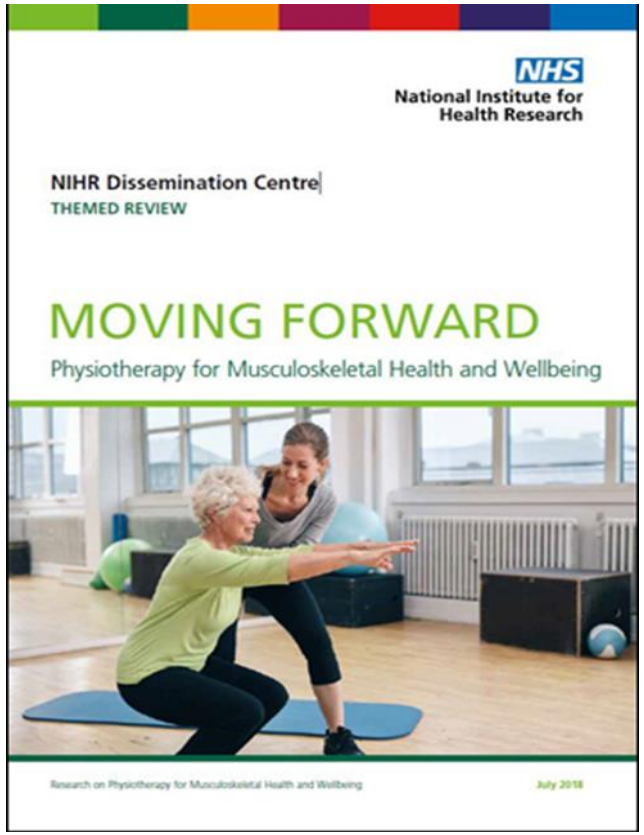
What if we could deliver optimum care by focussing more on prevention rather than treatment?

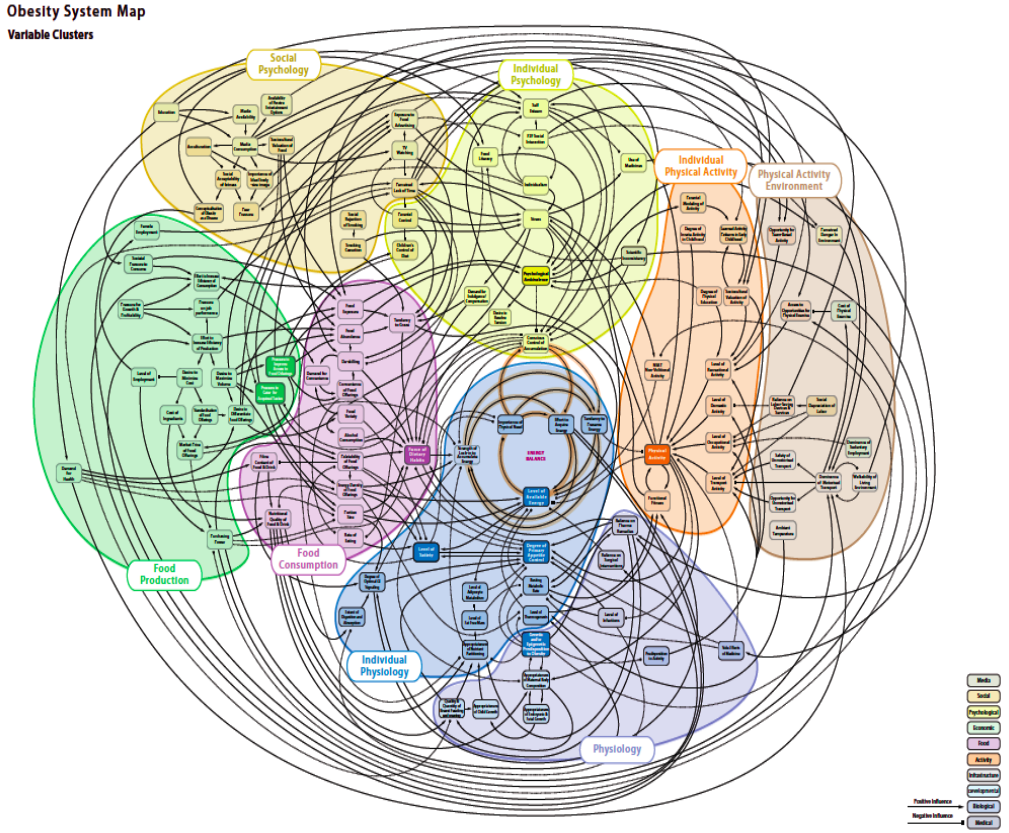
- What if we could use technology to help inform patients and healthcare professionals of current pathways for prevention and treatment?
- What if there were better ways of meeting patients' needs and improving outcomes?
- What if technology could make physio services more accessible for those with reduced access (e.g. through interactive and virtual services)?

What if technology could help those with MSK disorders to self manage their condition more effectively?

- What if digital platforms could enhance the adherence with self care advice on MSK conditions?
- What if we could better target technology based self care solutions to employers and their staff and therefore reduce the number of lost working days?
- What if technology could help those with Osteoarthritis to manage their condition and therefore reduce the number of lost working days?

Efficiencies in Delivering Care





Government Office for Science

Keele UNIVERSITY

What if technology could improve efficiencies in the delivery of care for patients with MSK?

What if new techniques could reduce the length of stay for patients in hospital?

What if technology could improve outcomes for MSK patients?

What if technology could alleviate the shortfall in the number of physiotherapists?

What if we could use technology to improve post-surgery recovery?

What if technology could assist therapists in acute care to deliver rehab to post-op patients?

What if technology could reduce the number of surgical revisions needed?

Scaling Up the use of Regenerative Medicine

https://totalcare-la.com/

http://www.riskheads.org

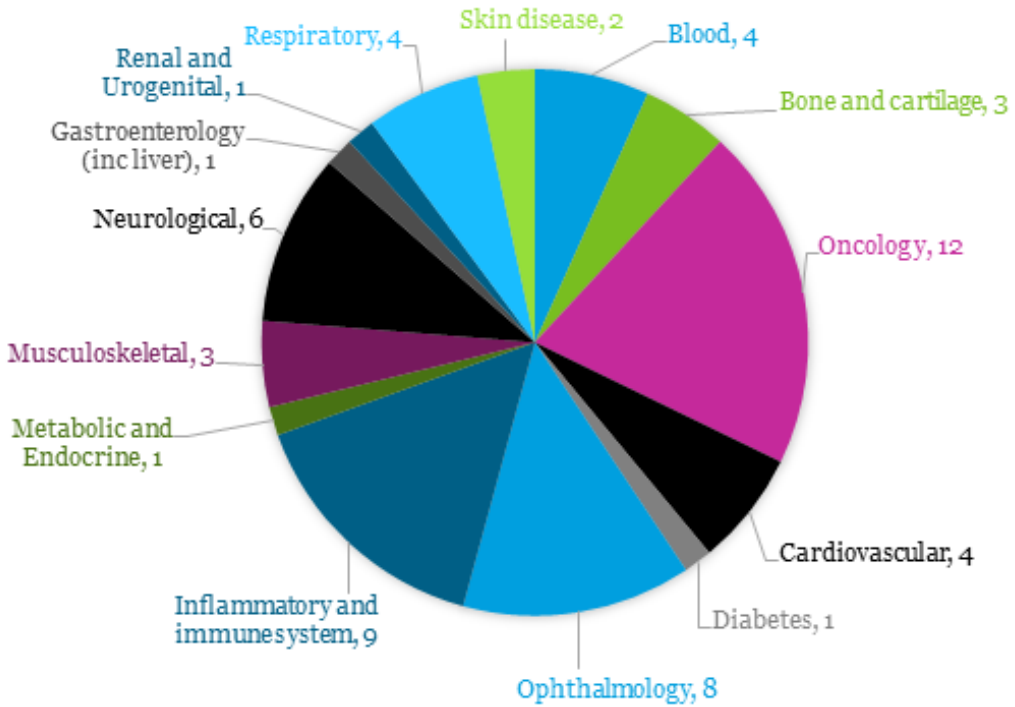
Regenerative medicine – what it is?

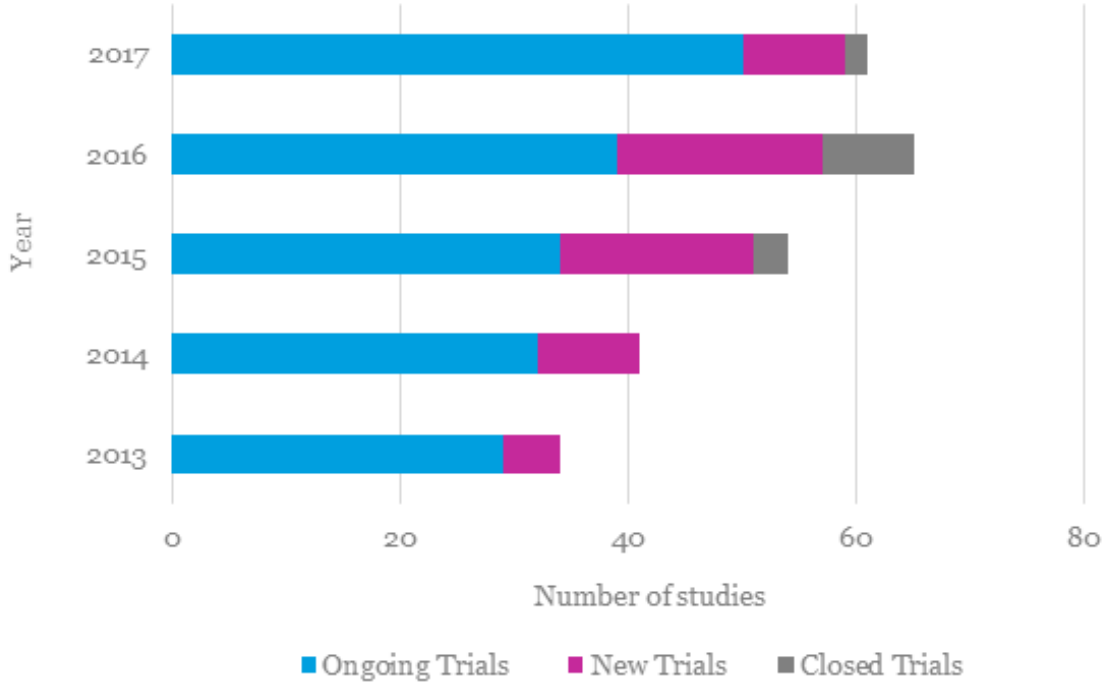
- Using the body's own cells to heal, repair or regenerate
- Can be the patient's own cells (Autologous)
- Can be someone else's cells (Allogeneic)
- Can be cultured outside the body
- Can be genetically modified

UK Government supporting UK being a world leader in cell and gene therapy

Regenerative Medicine in the UK

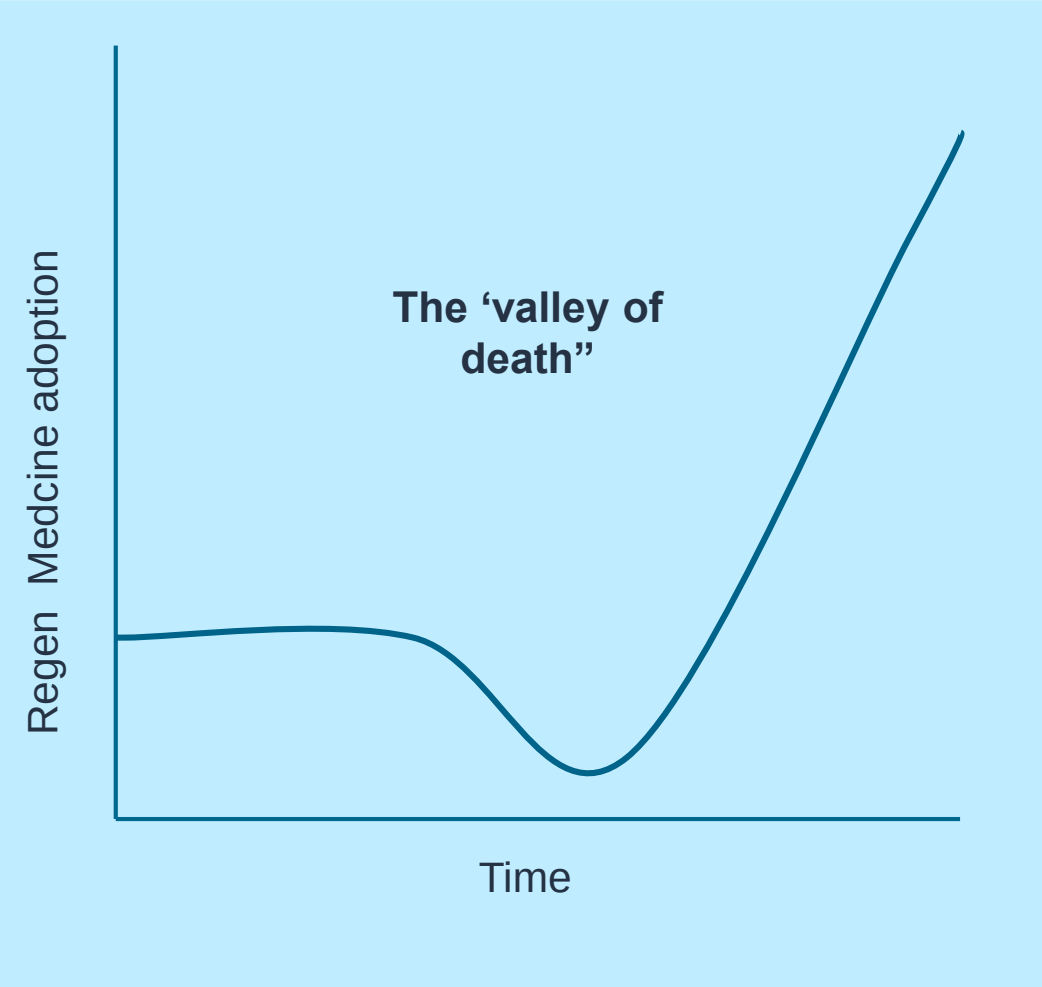
- 64 developers of ATMPs (Advanced Therapeutic Medicinal Products)
- 59 clinical trials in the UK (2017)





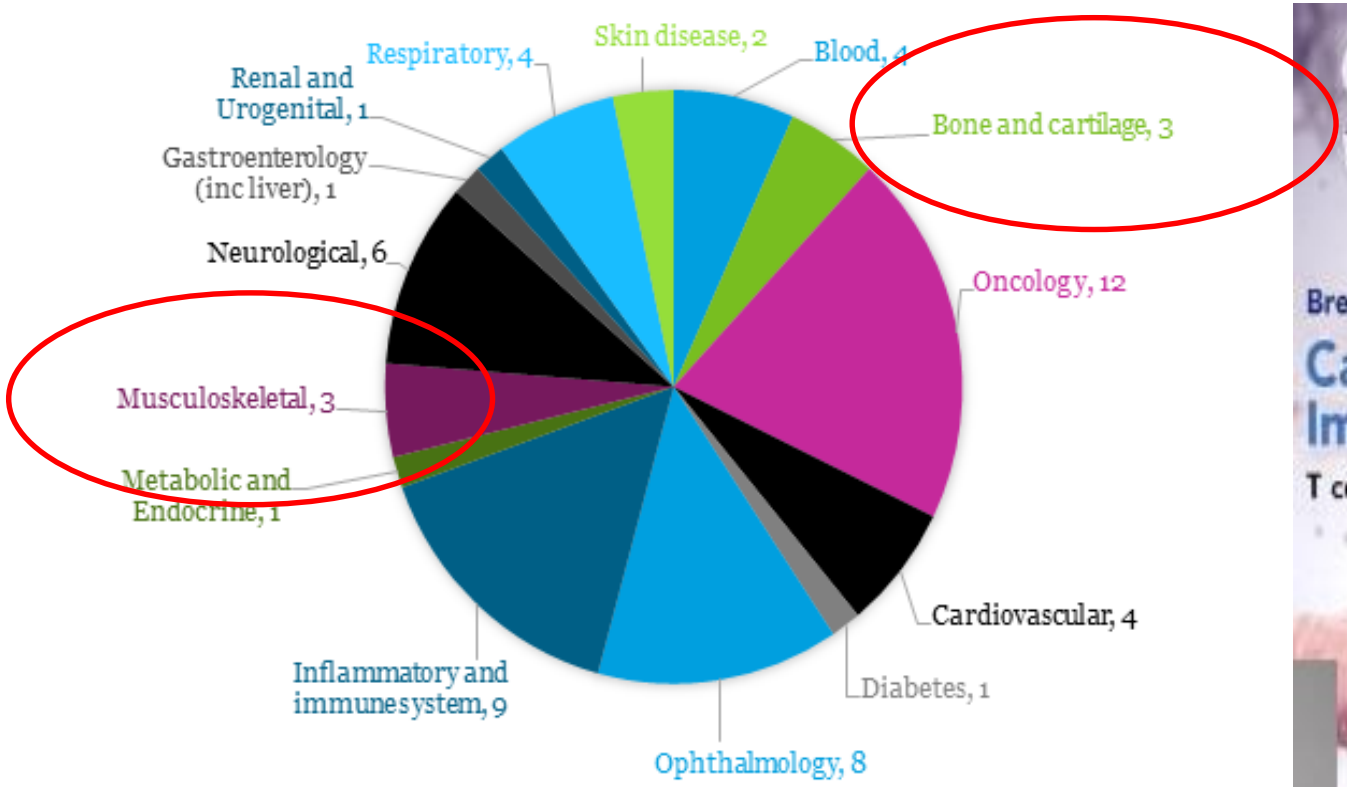
Cell & Gene Therapy Catapult Annual Review 2017 & Clinical Trials Database Commentary

Getting to the clinic…the challenge



Gardner et al, 2015

Translational challenges
Accessibility of tissues & cells
Lack of standardisation (protocols, safety criteria)
Uncertainty over translational pathway
Inflexible clinical trials framework
Scale-up and logistical difficulties
Inadequate health technology appraisal methods
Potentially reluctant clinical environment
Securing IP
Insufficient investment from venture capital & large industry

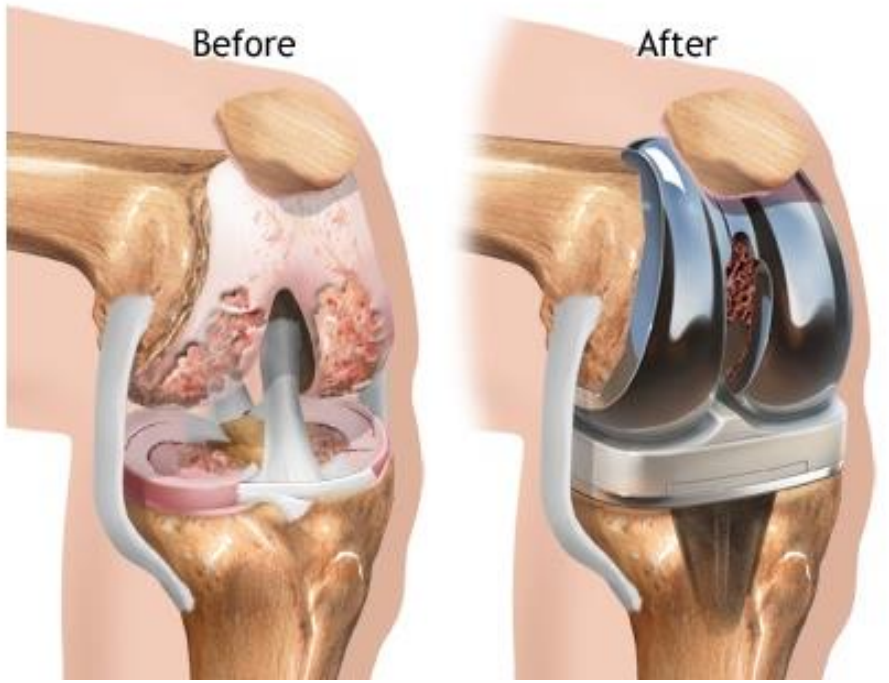


Ongoing Clinical trials in UK

Catapult 2017

Osteoarthritis

Total Knee Replacement



http://www.webenzed.com/knee-replacement/

- OA is most common disorder of joints
- 1 million severely affected in UK
- Uncommon under 50 years
- But in 64% of 75 year olds

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