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Current Fields of Research

The Medical Research Council Lifecourse Epidemiology Unit (LEU) and Southampton Musculoskeletal Research Unit (MSKRU) function as a closely integrated team with research themes addressing both the determinants of musculoskeletal disease throughout the lifecourse and the development of new therapeutic approaches. This has included;

**Epidemiology theme**
- Delineating the environmental influences throughout the lifecourse on chronic musculoskeletal diseases (osteoarthritis, osteoporosis, sarcopenia, inflammatory rheumatic diseases such as rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, and lupus), and developing population-based and high-risk preventive strategies against these disorders.
- Maintaining and developing long-term cohort studies assembled in Southampton as international resources to explore the mechanisms underlying the developmental origins of musculoskeletal health and disease.
- Linking genetic, epigenetic, metabolomic and proteomic techniques to understand developmental influences on musculoskeletal disease susceptibility, and their transmission across generations.
- Study of musculoskeletal health literacy approach to encourage young people to engage in understanding their MSK health.
- Arthritis Research-UK/MRC Centre for Musculoskeletal Health and Work.

**Inflammation theme**
- Identifying and developing new targets for immunotherapies in inflammatory rheumatic diseases such as SLE, ankylosing spondylitis, psoriatic arthritis, rheumatoid arthritis, and juvenile idiopathic arthritis.
- Developing stratified medicine approaches for the treatment of inflammatory arthritis.
- Using ultrasound and MRI to define disease activity in inflammatory arthritis to stratify treatment (including tapering of biological therapies) and assessment of inflammatory foot disease.

**Musculoskeletal tissue regeneration theme**
- Programmes for the development of stem-cell based, acellular based (scaffold) and nanotechnology based approaches to harness the therapeutic benefit of stem cells, particularly using the patients’ own bone stem cells.
Physical exercise, sport and osteoarthritis theme

- Member of The Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis.
- Using study of sport and exercise to understand mechanisms of movement dysfunction and joint damage.
- Developing innovative technologies and interventions for OA management and extensive screening tools as biomarkers to predict risk of developing osteoarthritis.
- Targeted prevention strategies to minimise risk of injury or joint damage & deterioration.
- Improved treatments for osteoarthritis resulting from sport and exercise injuries.

Selected Publications


Current Major Funding
Medical Research Council
Arthritis Research UK
National Institute for Health Research

Training of Fellows in Research
Rheumatology training in Southampton is part of a national programme with rotation of trainees around the region. There are also opportunities for education in a wide range of research related activities.

WebPages
http://www.mrc.soton.ac.uk
http://www.uhs.nhs.uk/msru