

## Professor Nigel K Arden, MBBS, FRCP, MSc, MD

**Research specialisation:** My research interests focus on the Epidemiology of Osteoarthritis and Osteoporosis, and the role of sport and physical activity in health, particularly musculoskeletal health.

**Experience:** I have significant experience in clinical practice and research within osteoarthritis and osteoporosis, the two most important musculoskeletal diseases affecting adult populations. I lead the Musculoskeletal Epidemiology theme at the University of Oxford, which is a leading unit both in terms of research funding and publication. I am the Epidemiology Theme Lead of the Oxford NIHR Musculoskeletal Biomedical Research Unit, which seeks to predict osteoarthritis and its response to treatment. I am based in the Botnar Research Centre, University of Oxford with additional sessions at the MRC Lifecourse Epidemiology Unit at the University of Southampton.



My research started in the aetiology of diseases, particularly genetics, but has now moved into the field of treatments and prevention of disease at a population based level. I have worked with a number of European and International organisations, producing guidelines for disease management, and also looking at implementation policies. The award of the Arthritis Research UK Sports, Exercise and Osteoarthritis Centre has dramatically increased the public involvement and engagement component of my research agenda, as I am now researching the effects of sport and exercise in new groups including adolescents, recreational and professional sports-players, both current and retired.

I have also been a Scientific Ambassador for the International Osteoporosis Foundation for a number of years and have worked with most international osteoarthritis and rheumatology societies. I strongly believe in international collaborative research and I am currently leading an International Group to define the safe level of physical activity for the prevention of osteoarthritis. The same group is also looking at the effect of osteoarthritis on mortality and in the near future of morbidity. Having set up this international collaborative group I am very keen to learn more about implementing our findings in order to change policy.

I am increasingly interested in personalised medicine and personalised disease prevention at population levels and how to implement this across different political and health care systems. I am also setting up an international cohort to use routinely collected health data to further identify disease risk factors and also assess the effectiveness of treatments in the real world.

**Research overview:** My research aims include describing the epidemiology of sport, exercise and injury with osteoarthritis, with emphasis on risk factors for developing symptomatic osteoarthritis. I am keen to explore whether risk factors for symptomatic osteoarthritis differ between individual sports and/or level of athletes (i.e. elite, youth academy, recreational, general population) and to build a clinical predictive tool to identify high-risk individuals using existent and novel groups of sports people, and identify high risk groups for clinical intervention studies.

**Postgraduate supervision:** 9 PhD research and 2 masters research students to completion. Currently supervising 7 PhD students.

**Research publications:** My research career spans over twenty-five years in which time I have published over 280 papers and published five books, including books on osteoarthritis aimed at the general public and patients; as research dissemination to a wide and inclusive audience is a core personal and professional ambition.

**Example publications:** Arden, N. K. *et al.* The effect of vitamin D supplementation on knee osteoarthritis, the VIDEO study: a randomised controlled trial. *Osteoarthr. Cartil.* **24**, 1858–1866 (2016).



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<http://www.ndorms.ox.ac.uk/research/Epidemiology-of-Musculoskeletal-Diseases>

[www.sportsarthritisresearchuk.org](http://www.sportsarthritisresearchuk.org)

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- Arden, N. *et al.* Can We Identify Patients with High Risk of Osteoarthritis Progression Who Will Respond to Treatment? A Focus on Biomarkers and Frailty. *Drugs Aging* **32**, 525–535 (2015).
- Pinedo-Villanueva, R., Judge, A., Prieto-Alhambra, D., Cooper, C. & Arden, N. Worse off after knee replacements: How likely is it and what role does the pre-operative oxford knee score play? evidence from the english NHS. *Osteoarthr. Cartil.* **24**, S35–S36 (2016).
- Davies, M. *et al.* Is rugby playing load predictive of lower limb osteoarthritis in former international rugby players? *Oarsi* **24**, S533–S534 (2016).
- Jones, M. E. *et al.* Patellar cartilage volume of the back leg versus the higher loaded front leg in current elite male english cricket fast bowlers. *Osteoarthr. Cartil.* **24**, S320 (2016).
- Kluzek, S., Arden, N. K. & Newton, J. Adipokines as potential prognostic biomarkers in patients with acute knee injury. *Biomarkers* **20**, 519–25 (2015).
- Edwards, K. *et al.* Interaction between race and sex in measures of hip morphology: A population-based comparative study. *Osteoarthr. Cartil.* **24**, S243 (2016).
- Nelson, A. E. *et al.* Variations in hip morphology are associated with functional status: Preliminary results from the Johnston County Osteoarthritis project. *Osteoarthr. Cartil.* **24**, S240–S241 (2016).
- Gates, L. S., Bowen, C. J., Sanchez-Santos, M. T., Delmestri, A. & Arden, N. K. Do foot and ankle assessments assist the explanation of 1 year knee arthroplasty outcomes? *Osteoarthr. Cartil.* (2016).