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BASEM TODAY

COLLABORATION IS KEY

Examples of clinical and sporting collaborations to lay the ground for impactful research

This edition is guest edited by members of the University of Nottingham's Academic Orthopaedics, Trauma and Sports Medicine

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PLUS

IMMUNOTHERAPY- A SUITABLE TREATMENT FOR SPORTS PLAYERS WITH ALLERGIC RHINITIS?

BASEM'S FIRST EXERCISE MEDICINE COURSE - REPORT

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BAsem British Association of Sport & Exercise Medicine

BASEM NOTICE BOARD - FORTHCOMING MEETINGS 2014

Full details of application for SEM Meetings are available on the BASEM Website www.basem.co.uk

BASEM Education

BASEM/FSEM Annual Conference 2014
Date(s): 1st to 3rd Oct 2014
Venue: The Assembly Rooms, Edinburgh
W: www.ba-sem.co.uk

Diploma Revision Course Part 1
Date(s): Saturday 6th Dec 2014
Venue: Thistle Hotel, East Midlands Airport
W: www.basem.co.uk

Save the Date:

Spring Conference 2015
Date(s): 20th March 2015
Venue: London
Theme: The Female Athlete
W: www.basem.co.uk

National and International Events

2nd ECOSEP – EFOST – ISMuLT Summer Course – SEM Summer Camp
Date(s): 25th to 30th Aug 2014
Venue: Elite City Hotel, Kalamata, Greece
W: www.kalamatasummercamp.com

16th Annual Scientific Conference in Sport and Exercise Medicine
Date(s): 4th Sept 2014
Venue: Clark Kennedy Lecture Theatre, Innovation Building, Walden St, London E1 1BB
E: s.tracey@qmul.ac.uk or s.hemmings@qmul.ac.uk

International Scientific Tendinopathy Symposium
Date(s): 5th and 6th Sept 2014
Venue: St. Hilda's College, University of Oxford
W: www.ibme.ox.ac.uk/ists2014/Home

FSEM/WFATT Conference 2014 – The Sporting Hip, Groin and Hamstring: A complete picture
Date(s): 4th to 6th September 2014
Venue: The Helix, Dublin
W: www.rcsi.ie/FSEMASC2014 or www.wfatt-fsem2014.com or www.arti.info/news/

ACPSEM Clinical Reasoning in Exercise and Performance Rehabilitation Part 1 (Discount available for BASEM members)
Date(s): 20th and 21st Sept 2014
Venue: Bisham Abbey, Marlow
W: www.physiosinsport.org

BIMM Foundation Course
Date(s): 27th Sept 2014
Venue: LCOM, Boston Place, London
W: www.bimm.org.uk

ACPSEM Autumn Study Day – All About the Knee
Date(s): 4th Oct 2014
Venue: Manchester
W: www.physiosinsport.org

Advanced Musculoskeletal Ultrasound Course
Date(s): 4th and 5th Oct 2014
Venue: ISEH, London
W: www.iseh.co.uk/eventdetails.spx?eventid=11&ref=sec&page=79

BIR Annual Congress
Date(s): 22nd and 23rd Oct 2014
Venue: London
W: https://membersarea.bir.org.uk/multievents/displayEvent.asp?Type=Full&Code=5212

Women's Football Masterclass
Date(s): 6th Nov 2014
Venue: St. George's Park, Burton Upon Trent
W: http://eventspace.thefa.com/FALearning/participant/arrangement.aspx?id=95271

ACPSEM Clinical Reasoning in Exercise and Performance Rehabilitation Part 2 (Discount available for BASEM members)
Date(s): 8th and 9th Nov 2014
Venue: Bisham Abbey, Marlow
W: www.physiosinsport.org

Surgical Approaches to Upper and Lower Limb
Date(s): 13th and 14th Nov 2014
Venue: Royal College of Surgeons, London
W: www.rcseng.ac.uk/courses/course-search/surgical-approaches-upper-and-lower-limb

BASEM TODAY

THE NEWSLETTER OF THE BRITISH ASSOCIATION OF SPORT AND EXERCISE MEDICINE

BAsem
British Association of Sport & Exercise Medicine

Collaboration: the 'man of the match' for research success

Kimberley Edwards, W Angus Wallace and Mark Batt

"In the long history of humankind … those who have learned to collaborate and improvise most effectively have prevailed" Charles Darwin

Research is all about seeking to fill the knowledge gaps; what nobody else has thought to investigate. Importantly though, particularly in the field of sport and exercise medicine, is to undertake useful, practical research. The researcher can be helped to understand what these issues are by working closely with clinical and sporting colleagues. No one person can be an expert across such inter-disciplinary field. Collaboration is all about appreciating the abilities of others and knowing that you couldn't have done it, as well, on your own. 1+1=5.

We bring you examples of such collaborations. We look at the cricket research that is ongoing across the University of Nottingham, Nottingham University Hospitals Trust, Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis, and the England and Wales Cricket Board – spanning academics in different fields, clinicians and sporting experts. We address various clinician/academic partnerships, working together to produce a useful physical activity measurement tool for clinical practice (CPAQ) and at our recent training event for practitioners about the Sporting Upper Limb. Further we demonstrate how we collaborate with our education colleagues, from University to NHS, to train our future doctors, physiotherapists and other healthcare professionals, all of whom have a vital role in maintaining the (good) health of the nation. Finally we look at the different paths a career in sports medicine may take and address how we help our students to start building their network of contacts, important for their future collaborations.

In this day and age of tightening research and medical budgets, it is ever more important that we make research impactful. Academics cannot remain in their fabled ivory towers if they want to influence practice and make a difference to patients and the public. We need to brush up on Belbin's model of different team roles for an optimally efficient team and look around, at the expertise that surrounds us, and seek out appropriate alliances.

This will help us to undertake impactful research, which we can translate to our athletes and patients.

Kim, Angus and Mark, Centre for Sports Medicine

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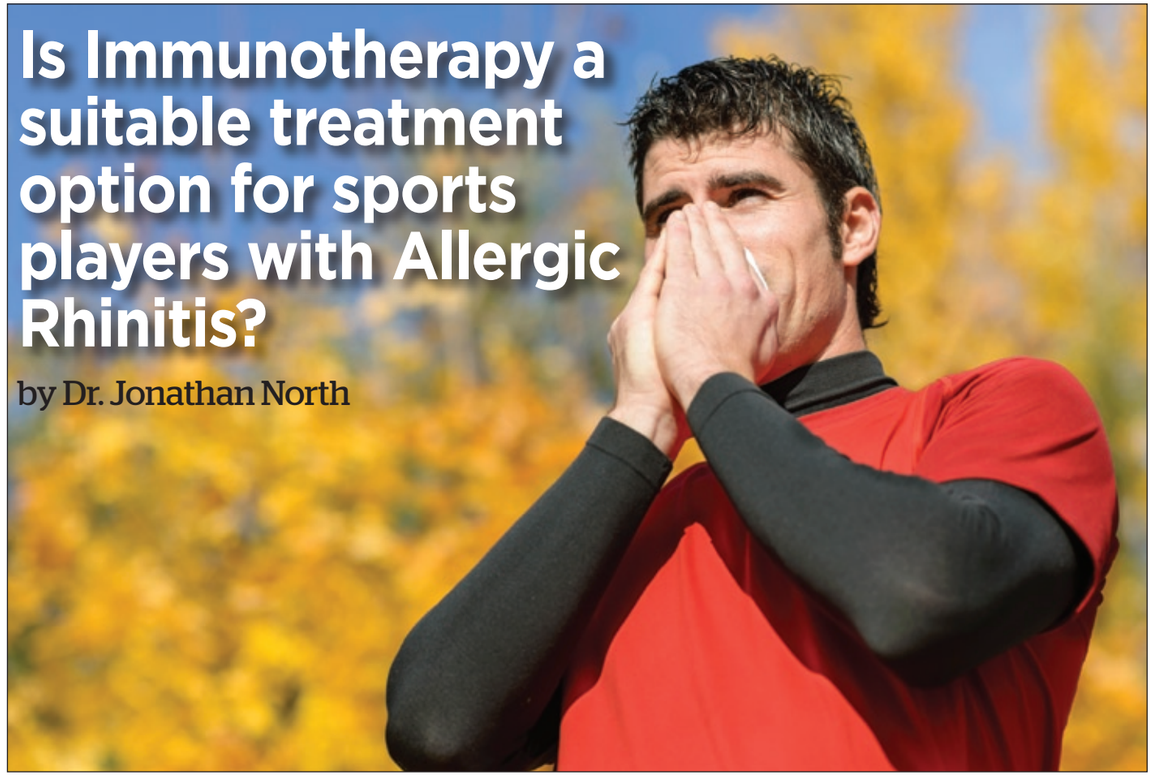
Is Immunotherapy a suitable treatment option for sports players with Allergic Rhinitis?



by Dr. Jonathan North

Hay fever affects up to 40% of the UK population and athletes as a group appear to be affected to a higher degree than others[1]. Hay fever is, of course, the term used to describe allergic rhinitis that is triggered predominantly by seasonal pollen released from trees, grass and weeds. Allergic rhinitis in the UK has a pattern e.g. grass pollen appears in early May and is present at varying levels until the end of August. Often the diagnosis seems easy to make and the symptoms trivial yet the effect of allergic rhinitis on general quality of life can be as severe as Type I diabetes or cardiac failure[2,3]. This article briefly describes allergic rhinitis and its treatment, both conventional and otherwise.

Mechanism

Allergic rhinitis is a simple condition to understand. Foreign protein enters the nose, large particles become trapped in the lower nasal cavity by mucous whilst smaller ones penetrate further down the airway and into the lungs. IgE is produced by individuals with an allergic tendency and is the only type of antibody that anchors itself to Mast cells that line mucosa in the nasal cavity, sinuses and lungs. These cells contain histamine, leucotrienes and other substances that cause misery when released when they are not needed for immune defense.

In the nose this results in swelling of the mucosa (congestion), excess watery mucous (clear nasal discharge) itching and sneezing and bronchospasm if the lungs are also affected. Eye symptoms are often present with itching, tearing and sometimes swelling of the conjunctiva and eye lids with peri-occular irritation.

Effect on performance

In the general population allergic rhinitis can have a significant impact on quality of life[3] and this also applies to athletes, potentially affecting performance and recovery[1]. Apart from the obvious nasal symptoms and concomitant allergic component of asthma that may be present, there are significant effects on sleep, work performance and learning ability.

Allergic rhinitis and it's Impact on Asthma (ARIA[6],) report on increasing figures of allergic rhinitis in athletes in their position paper on allergic rhinitis and asthma in athletes[4] and suggest screening using the AQUA questionnaire and skin prick or specific IgE testing where appropriate[5].

Treatment

Although it might be possible to reduce exposure to some allergens, such as house dust mite and moulds in the home, exposure to pollens outdoors is unavoidable especially with the majority of outdoor sports played and usually some form of treatment is required. ARIA produce guidance on treatment and their recommendations align with that of the World Anti-Doping agency (WADA).

Older, first generation antihistamines such as chlorphenamine should be avoided as they cause a significant sedative effect that has been shown to reduce academic performance, reaction times and impair judgement[7]. There is little to choose between second generation antihistamines such as cetirizine, loraditine, fexofenadine or rupatidine. All have an effect for 24 hours, cause minimal sedation and have a good safety profile. Antihistamines help the rhinorrhoea, itching and sneezing but have little effect on nasal congestion. Topical nasal antihistamines such as azelastine have a rapid onset of action as do olopatidine eye drops.

Nasal decongestants may cause absportion of significant amounts of ephedrine or methylephedrine and urine concentrations may fall foul of WADA limits so they are best avoided in athletes[1].

Disodium cromoglycate and sodium nedocromil used intra-nasally and as eye drops have a role in prophylaxis but need to be used up to 4-times a day and are less efficacious on average than antihistamines.

Topical nasal steroids decrease all the main symptoms of allergic rhinitis including congestion and are not normally absorbed into the systemic circulation[8]. Sniffing with application can take the drug straight to the back of the throat where it is swallowed, leaving the turbinates largely untreated. They are all best applied by aiming the applicator towards the centre of the skull, using the left hand to apply to the right nostril and vice versa to avoid spraying onto the side of the nostril. Systemic steroids can only be used with an exemption by WADA but if symptoms have not been controlled by the above treatments, Immunotherapy should be considered.

Immunotherapy

The term "Immunotherapy" used in this article refers to the induction of specific tolerance to an allergen i.e. blocking and then switching off the IgE to the trigger for allergic rhinitis. The first paper describing such treatment for Hay Fever appeared in 1911; Leonard Noon and John Freeman found that by starting with very small doses of boiled pollen and gradually increasing the amount, patients could tolerate the treatment and eventually symptoms became much improved.

It is now possible to offer either Sub-cutaneous Immunotherapy (SCIT) or Sub-lingual Immunotherapy (SLIT) to patients with severe allergic rhinitis triggered by grass pollen who are not responsive to the "conventional" medical treatment detailed above. Some patients may prefer to attend weekly for a few weeks for updosing injections of SCIT but the majority prefer to take the drops or sub-lingual tablet at home each morning following an initial dose in a specialist centre.

For pollen the treatment starts once the pollen season is over and at least 2 months before the start of the next season. The clinical effect is seen in the first year with improved quality of life and decreased medication use[9]. Treatment is recommended to continue for 3 years as less than this is associated with a higher risk of relapse. For most, the benefit lasts at least 2 years after treatment has stopped but the full duration of treatment effect is yet to be established[10]. Oral tingling for the first few days of treatment is fairly common with SLIT and a few patients find this never resolves and is unacceptable, despite taking an antihistamine prior to their immunotherapy.

Not all patients with severe allergic rhinitis will be suitable for treatment but it is unlikely sporting professionals will have many of the contra-indications. A past history of myocardial infarction or current cardiac conditions reduce the chance of resuscitation should a severe allergic reaction occur, as do beta blockers and ACE inhibitors. Unstable asthma is also a contraindication as it increases the risk of a severe reaction occurring.

Summary

The impact of allergic rhinitis on performance should be considered for all athletes and if present, WADA approved medications will be of benefit. Some athletes will have allergic rhinitis that is unresponsive to antihistamines and nasal steroids. Systemic steroids can only be used with an exemption by WADA. Immunotherapy in this patient group offers the potential for disease modifying treatment that is well tolerated and offers improved symptom control and decreased anti-histamine and nasal steroid requirements.

ALK, one of the manu - facturers of Immunotherapy products, paid the author for writing this article.

BIOGRAPHY

Dr.Jonathan North

Dr.Jonathan North has been a Consultant Immunologist at City Hospital in Birmingham and honorary lecturer at Birmingham Medical School since 1997. He trained in the Immunology departments at Oxford, Birmingham and Leicester with 3 years spent in Southampton undertaking an MD. Clinically he has been involved with Paediatric and Adult Allergy for over 25 years and has co-edited a short guide to Anaphylaxis. Dr.North is also a Fellow of the Royal College of Pathologists, a member of the European Academy of Allergy and Clinical Immunology and the British Society of Allergy and Clinical Immunology.

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Are You Keeping Up?

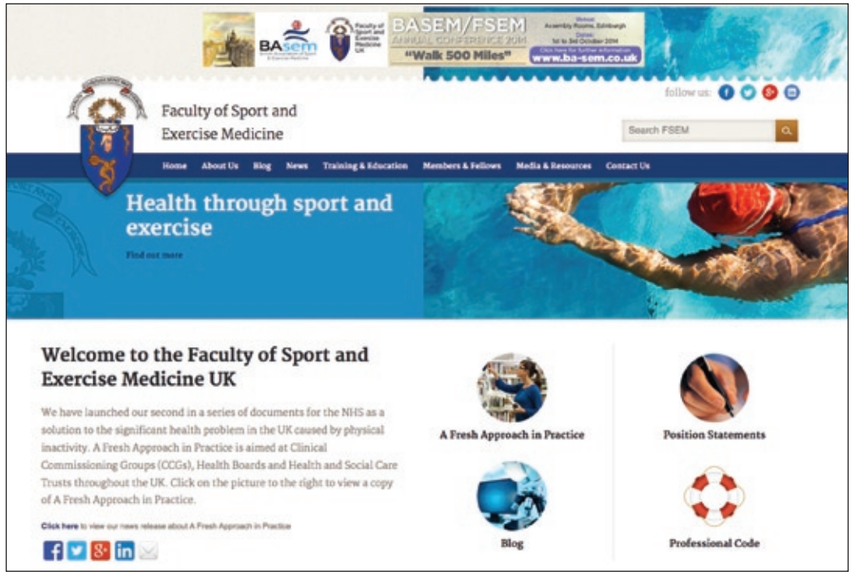
Professor Karim Khan to Talk Social Media at Walk 500 Miles

The Faculty of Sport and Exercise Medicine (FSEM) UK are proud to host this year's annual Sport and Exercise Medicine conference alongside BASEM at one of the oldest and grandest venues in Edinburgh, The Assembly Rooms, 1-3 October. However both organisations are keen to ensure their Members, Fellows and Students are up to date with the latest techniques in new media as well as Sport and Exercise Medicine.

Both BASEM and the FSEM are providing a packed timetable of challenging and informing topics and included in this is the FSEM sponsored undergraduate session, on Thursday 2 October:

Professor Karim Khan, Editor of the British Journal of Sports Medicine (BJSM), will be addressing students during the undergraduate session on social media, technology and electronic media **#areyoukeepingup**. Once you have picked up a few tips from Professor Khan you can follow and join the conversation on Twitter at the conference using **#walk500miles**.

Dr Mike Loosemore from the Institute of Sport Exercise and Health (ISEH) will be focused on Exercise Medicine for under-graduates, with a talk about Seven Investments for Health – a message students can spread. Other undergraduate topics worthy of a tweet will include;



Orthopaedics – what it can add to SEM, Lessons from the Commonwealth Games, Sports Physiotherapy and Extreme Sports.

There will be a chance to interact with the conference on electronic media throughout the three days when both the FSEM and BASEM include live Twitter updates from the conference on topics such as: Exercise The Way Forward - how to change societies attitude to inactivity,

Getting to the Pointe – a talk with demonstrations from members of the Royal Ballet School, New Therapies in Sports Medicine – the ethics and Careers in Sports Medicine – challenges and solutions. You can view the full conference programme at **http://www.ba-sem.co.uk/content/conference**

There is also a special one-day fee of £40 for students wishing to attend the undergraduate sessions at the conference this year. Students, Members and Fellows and those interested in attending can book online at **http://www.ba-sem.co.uk/bookings**

Follow our conference **tweets @FSEM_UK** and **@basem_uk using #walk500miles**

Keep up with conference news at **www.fsem.ac.uk** and **www.basem.co.uk**

Chairman's Address

Welcome to another issue of BASEM Today produced this time by Dr Kim Edwards, Nottingham University.

I hope you enjoy the issue and find it stimulating. Any ideas for future issues would be gratefully received – we have at least 2 more issues planned for Academic Institutions but we are always looking for new thoughts.

Planning is well advanced for our Annual Conference in Edinburgh. This is the first time we have jointly run a conference with our Faculty and this is at least partly in response to pressure from our members – there is not enough room in the calendar for 2 conferences and it is to be hoped that this will be a great success. Then with your backing we will talk to Faculty about repeating this venture. Without your attendance however it will be difficult to make the case. The programme is innovative and original while at the same time addressing the needs of many groups within the membership and Jane Dunbar and Nigel Jones and his team are to be congratulated. We are addressing exercise medicine as well as sports injury, and we have a significant MSK content again this year and this is a vital part of our remit. As always we need your feedback to ensure everyone is happy.

Our membership is steadily increasing but if we are to reach everyone involved in some way in SEM then we need you to point anyone not yet a member but offering a service related to SEM in our direction. We are approaching 700 members but there are I feel many perhaps on the periphery of SEM who might benefit from our support and who can contribute to our education programme in some way.

I hope your summer has gone better than it did for our national teams and I very much look forward to chatting with all of you in Edinburgh maybe over a small glass of Uisge Beatha.

Dr Tom Crisp
TD FRCP FFSEM
BASEM Chair

BASEM Exercise Medicine Course

Delivering exercise prescription in primary care

Delegates enjoy a Nordic Walking taster session

Special Report by: Dr Kate Hutchings
Photographs by: Graham Holloway

BASEM is delighted to report on its first exercise medicine course, which was held in May at Stratford Upon Avon. As most BASEM members are aware we have run our foundation and clinical skills courses for many years and the feedback from members was a growing need to provide an overview into the physical inactivity epidemic. Primary care physicians have particularly highlighted the need to expand their knowledge base in delivering exercise prescription in primary care.

BASEM therefore set about developing a brand new exciting one day course to provide an overview into the obesity epidemic and public health agenda, exercise prescription in specific populations and the evidence for physical activity interventions for both primary and secondary chronic disease prevention. The day was attended by a wide variety of delegates with backgrounds in primary and secondary care, public health, physiotherapy, physiology and sports therapists.

Mr Graham Holloway, BASEM treasurer, introduced the day with footage of a BASEM Staff Member skiing with four generations from her family, ranging from 101 to 4 years old- no better way to start with demonstrating that exercise is not age dependent! We then went on to hear from SEM and Public Health Consultants about the evolving physical inactivity epidemic and how important it is that we continue to influence change at every level of care.

The background to exercise physiology was covered in depth by colleagues from Brunel University and the day progressed with fascinating talks from our specialist

Delegates hard at work

Course Chairs and Tutors. From left to right Dr John Buckley, Dr Brian Johnson, Dr Catherine Hughes, Dr Michael Burdon, Dr Pascale Kippelen, Dr Kate Hutchings, Mr Douglas Gould and Ms Ann Gates

Networking during a refreshment break

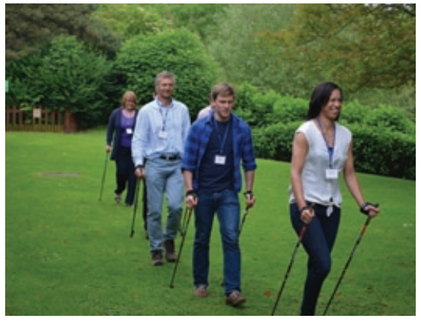
speakers discussing the high level of research that is currently taking place around the country. This included lectures from the Renal Physicians in Leicester, the Oxford team with Generation Games and Professor John Buckley from the British Association for Cardiovascular Prevention and Rehabilitation.

But it was not just a sedentary day for the delegates in a lecture theatre! - We all achieved our exercise quota taking part in a Nordic walking session during lunch. This was instructed by the British Nordic Walking Association who managed a great job of diverting everyone away from the puddings!

The day was a huge success and BASEM would like to thank all of our expert speakers in supporting our new venture. We aim to develop the course next year and collaborate with existing groups around the country to bring together a leading and informative educational resource for all health professionals. We hope to see many of our members join us again next year!

This image and below, right: Delegates enjoy a Nordic Walking taster session

Delegate Dr John Sykes with Ms Ann Gates, Course Tutor



Increasing physical inactivity levels

First step – Educate the Health Professional!

As everyone knows in BASEM, members have been working hard trying to increase the general knowledge of exercise medicine amongst fellow health professionals. There has been much written on the benefits of exercise medicine in the BJSM and lectures given in SEM conferences but how well does this filter through to the 'ordinary' GP or secondary care?

In general practice we know there is a disparity amongst doctors regarding the importance of exercise[1] and the reality of delivering advice to the patient. Back in 2008, for example, one in four patients said they would be more active if they were advised by a GP or nurse[2], whilst 54% of patients said their GP gave no advice on either diet or exercise[3]. Moving forward to 2012, Bird[4] went into 67 London practices to find not a single GP or nurse knew the current physical activity guidelines! There are better rates in many practices, but again a survey by the Macmillan Society found that 72% of GP's do not speak to patients about the benefits of physical activity[5]. In confirmed heart disease, regular adapted exercise is required to reduce mortality, and habitual physical activity has been shown to reduce all-cause mortality by 25-30%. [6] Despite this, in 2013, 57% of adults having had a cardiac event do not attend cardiac rehabilitation exercise programmes. [7] So the fact remains that the exercise message still isn't getting through.

Back in 2006, Douglas[1] cited lack of time and resources as barriers for general practitioners to routinely advise about physical activity whilst in a more recent review[8] lack of training and lack of knowledge as a primary barrier to counselling efforts were cited as prohibiting factors.

Can we in BASEM improve the training and knowledge of practitioners and provide resources for them?

In response to these needs the website **Motivate2Move.co.uk** (M2M) has been developed and been endorsed by the RCGP Wales and British Association of Sport and Exercise Medicine, as a comprehensive educational package designed to tackle the barriers identified above. It aims to increase the health professional's ability to incorporate exercise advice routinely within patient consultations.

With downloadable resources for both professionals and patients, short instructional videos and case studies, the website covers all aspects of exercise and health from general recommendations to disease specific information.

Designed as brief bites of information but with links to more detailed material for those who need it, UK physical activity guidelines

- Health benefits - for 33 different medical conditions
- Motivation – using two different methods
- Starting to exercise
- Resource section of further information and practical tools.

Caution, be careful! It sits on a shared site of a variety of CPD learning modules produced by the Welsh Deanery. They are accessible via the top tool bar and are also free. But to continue to stay and navigate around M2M use the left hand menu bar that appears after the welcome page.

Does this site have the relevent information or knowledge base? Following the recent BASEM conference on Exercise in Health and Disease, M2M was noted to contain all the key points of the lectures present.

Hot Topics recognised its value featuring it in their spring conferences as have cardiology, public health and now BASEM conferences. Why not encourage your secondary care colleagues to help use the information and promote it in lectures? I have found many consultants keen to disseminate the knowledge further.

More sections, resources and handouts are being prepared over the next few months and constuctive feedback is welcomed from members... please contact myself via BASEM here:

nbirkinshawbasem@gmail.com

Brian Johnson MBCHB, RCGP, DpSM, MFSEM

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HOWZAT?

Report by Solange Serna, Bronek Boszczyk, Nick Peirce and Robert Kerslake

Photo: Matthew Jones
www.matthewjonesphotography.co.uk

Doctor, Doctor... *'My wrong foot, sometimes my front foot, doesn't support my square leg and my underarm is weakened by a bottom hand which offsets my bodyline producing a devilish tickle that just might deliver a lucky break on a sticky wicket'* ... any chance of a cure?

Above and opposite: Nottingham University Cricket Club 2014 Varsity match at Trent University Clifton Campus

Of course, we're talking somewhat prosaically of that classically English Summer pastime, cricket. The game is thought to have originated in Saxon or Norman times when it was likely to have been played by children, whilst the first documented reference came in 1598 during a court case over the disputed ownership of a piece of land. A coroner, John Derrick, testified that he and his friends played 'creckett' on the same site over 50 years earlier when they attended the Free School. Although the early games were played according to a set of basic rules, it wasn't until 1744, that the Laws of Cricket were codified for the first time. Subsequent amendment in 1774 added the now familiar terminology of leg before wicket and middle stump and also included a maximum bat width. These laws also included provision for 'two umpires who shall absolutely decide all disputes'.

The codes were drawn up by the so-called "Star and Garter Club" whose members ultimately founded the MCC at Lord's in 1787. The MCC immediately became the custodian of the Laws and has since made periodic revisions and re-codifications. During the 18th and 19th Centuries the game continued to evolve and gain popularity, becoming known as the "Golden Age of Cricket", assisted greatly by the development of the railways and another first came in 1864 with the publication of Wisden Cricketers' Almanack. The following year the legendary W G Grace made his first class debut.

The beginning of the 20th Century saw the creation of the Imperial Cricket Conference as it was originally known, later to become the International Cricket Council or ICC. The ICC oversaw the growth of the game globally and cricket is now a hugely popular international sport played in more than sixty countries.

Although cricket is a non-contact sport, injuries are nevertheless commonplace and have been documented as far back as the late 18th century when Frederick, the then Crown Prince of Wales, received a blow to the head from a stray ball. Despite once being regarded as a moderate risk sport, the development of the game particularly in bowling means that cricketers are now more susceptible to higher risk injuries. Cricketers train for long periods of time and the sport is repetitive in nature which leads to a wide range of overuse injuries. There are varied demands on the player depending on the phase of the game; bowling, batting or fielding. Bowling injuries are usually as a result of repetitive motion and high force, leading to stress fractures and lumbar spine problems. Fielders can also suffer overuse injuries of the shoulder or elbow, whilst batsmen and the wicket keeper are more likely to receive impact injuries and muscle strains. The injury profiles also reflect the type of cricket being played, producing variations between Test Match cricket and One Day or limited over games. However, the three broad categories of injury: direct, indirect and overuse can result from all types of play, differentiated by the mechanism of injury.

A direct injury occurs as result of a player being struck by the ball, colliding with a fellow player or occasionally crashing into the sight screen; injuries are usually to the head and upper limbs. An indirect injury refers to muscle, ligament or tendon damage. This type of injury usually occurs when the player is performing a specific activity and is more prevalent at the start of the season when players are warming up. Overuse produces a range of injuries throughout the body the most common being to the lumbar spine is associated with fast bowling. The action of bowling in cricket is unique involving a running delivery of the ball: for a fast bowler this requires a repeated severe extension rotation and then flexion of the spine. In order for the ball to be released at speeds in excess of 90mph a fast bowler must deliver six key components. The resultant forces produce a ground reaction force that is between five and eight times body weight: this force is translated through the spine with additional rotation and extension. The speed of the delivery combined with the force of this repetitive action thickens the spine of a fast bowler as a consequence of increased strain leading to functional bone adaptation. This is beyond the range of elastic transformation of bone causing microfractures to begin to develop, which progresses to incomplete and complete stress fractures. Bowlers are particularly susceptible to injury as the provoking strains caused by play are constant. Fast bowlers develop a unique pattern of bony abnormalities and stress fractures. Injuries usually occur in the lumbar spine, typically at L4/L5 and on the contralateral side to the bowling arm.

The University of Nottingham is a pre-eminent centre for sports and exercise medicine, delivering one of the most established Sports Medicine MSc in the Country. The MSc programme enjoys national and international recognition as one of the top sports medicine courses, producing specialists with the key skills and knowledge to manage the full range of injuries and illness. The University is also a key member of the Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis. This provides the Centre with a unique opportunity to study joint damage as a consequence of sport; benefiting not only elite athletes, but all who take part in recreational sports and everyday exercise. Nottingham also has strong ties with the world of cricket and four graduates of the MSc in Sports and Exercise Medicine have gone on to work at a senior level in this particular sport. One of the graduates, Dr Nick Peirce, is currently the Chief Medical Officer for the England and Wales Cricket Board, (ECB). This relationship has facilitated research that aims to improve the understanding of the biomechanics of fast bowlers and the injuries to which they are predisposed.

Nottingham University's research programme will continue to focus on a detailed investigation into the pathomechanism of spondylolysis and contralateral pedicle fatigue fractures. The investigation will be subdivided into two discrete projects; the first will concentrate on working with the ECB to assess the correlation between fracture patterns and loading factors during bowling. The second project will update previous studies at the Centre that have developed a finite element model on spondylolysis to validate the proposed pedicle fatigue fractures mechanism proposed in the first project. This will lead to more targeted surgical repair strategies, which will ultimately improve outcomes.

Cricket is a physically demanding game that predisposes players to high risk injuries as a consequence of the repetitive nature of training and a combination of the long duration and frequency of matches. The work at the University of Nottingham in partnership with the team at the England and Wales Cricket Board aims to improve our knowledge of the sport and the injuries suffered by participants. The results of our continued research will provide evidence-based advice and information focusing on prevention and improved treatment of injuries; enabling cricketers to more safely reach their full potential.

'Cricket is a physically demanding game that predisposes players to high risk injuries as a consequence of the repetitive nature of training and a combination of the long duration and frequency of matches.'

BIOGRAPHIES

Dr Solange Serna
Dr Solange Serna completed her medical training at the University of Nottingham in 2014. Whilst she was an undergraduate student she developed a keen interest in research after working under the mentorship of Professor W A Wallace and Dr K Edwards. To further pursue this interest Dr Serna is currently undertaking an internship with Arthritis Research UK, before starting her Academic Foundation Programme Placement within the East Midlands Deanery at the beginning of August. Dr Serna has career interests within the field of Orthopaedics and would also like to maintain an active research component to her work.

PD. Dr. Med. Bronek Boszczyk
He completed his medical training in Germany with electives spent in South Africa and USA. He became involved in anatomical research of the spine in his first years of medical school under the mentorship of Professor R Putz of the renowned Anatomical Institute of the Ludwig-Maximilians University of Munich. This led to a dedicated interest in the field of spinal disorders which influenced his subsequent postgraduate surgical training which was divided between Orthopaedic surgery and Neurosurgery in centres with a focus on spinal surgery. He was appointed as Consultant Spinal Surgeon at the Centre for Spinal Studies and Surgery of Nottingham University Hospitals in 2007 and was elected Head of Service in 2010. Research has been a strong area of interest throughout his training and career with over 40 articles published as primary or senior author in international journals. His clinical activity has been exclusively focused on spinal surgery since 2003. While he deals with all areas of acute and elective spinal surgery of the adult and paediatric spine, his focus is on complex reconstructive and revision procedures in adult deformity and tumours of the spine. Within paediatric spinal conditions his focus is on tumours, cervical disorders and congenital abnormalities.

Dr Nicholas Peirce B Med Sci BMBS DRCOG MRCGP FRSIM FRACGP FFSEM
Dr Nick Peirce works both as a Consultant in Sport and Exercise Medicine at QMC, with an NHS Musculoskeletal / Sports Injury clinic, and in elite sport as Chief Medical Officer for the England and Wales Cricket Board and local teams including Nottingham Forest Football. Originally trained in Family Medicine, Dr Peirce moved into Sport and Exercise Medicine in 1995. Training included: an MSc in Sports Medicine in 1996, a 2 year Lectureship at Nottingham University and a subsequent Overseas Sports Medicine Fellowship at the Australian Institute of Sport. Since 1997 he has worked as CMO for GB World Class Canoeing Program and for LTA Great Britain Davis Cup team 2001-2007. In 2003 Dr Peirce became the Lead Physician at the English Institute of Sport at Loughborough University until moving to cricket full time. Dr Peirce has attended the Sydney and Athens Olympics and Commonwealth Games and has continued to be the lead Sports Physician for Nottingham Forest Football Club, since 2001. Currently he is Training Program director for SEM in East Midlands. Dr Peirce's clinical interests include all musculoskeletal conditions and he has particular expertise in ultrasound guided and interventional procedures.

Dr Robert Kerslake MBBS MRCP FRCR
Dr Robert Kerslake trained in medicine and radiology in London. After a travelling scholarship to the USA, he took up a research post at the newly formed Magnetic Resonance Research Centre in Hull prior to commencing as a consultant musculoskeletal radiologist in Nottingham. His professional interests include all aspects of musculoskeletal radiology and sports medicine imaging. His research interests have included spinal trauma, lumbar stress injuries and currently encompass various aspects of osteoarthritis imaging, working with the Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis and the Arthritis Research UK Pain Centre in Nottingham.

Are our patients exercising enough?

The development and validation of a new physical activity questionnaire for use in a clinical setting

Report By Dr Guy Evans, Dr Kimberley Edwards and Professor Mark Batt

Below: Exercise for health and well-being

Opposite: The CPAQ questionnaire

It is well known that physical inactivity is an independent risk factor for a multitude of chronic conditions such as Type II diabetes, heart disease, stroke, breast and colon cancer. It is also well documented that physical activity is an effective tool for improving health, having a positive impact on so many different health problems from depression to dementia. Knowing this, it seems slightly unusual that we as clinicians often fail to routinely measure the physical activity (PA) levels of our patients. If we do measure, we often get results such as 'moderately active' or 'inactive' as outcomes from the assessment tool. This does not help us to directly correlate the patient's physical activity level objectively with the Government Guidelines for PA of 150 minutes of moderate PA or 70 minutes of vigorous activity per week.

Trying to identify a short, one-page, user-friendly, self-administered questionnaire for measuring physical activity proves harder than one would think with many questionnaires being long, complicated or ambiguous. Many are not designed for the clinical setting such as the International Physical Activity Questionnaire (IPAQ), whose 'short form' still consists of multiple pages and gives results in MET-minutes per week rather than minutes per week as per the Government Guidelines for PA. As a result we set about looking to create a short (one page or less), user friendly physical activity questionnaire that could be completed by the patient in the clinical setting to give a level of physical activity in minutes per week. This value could then be directly compared to the government guidance to see whether the patient was suitably active to benefit their health.

We went about creating the new questionnaire by identifying 'domains' of physical activity to ensure all daily PA was accounted for (occupational, domestic, transportation, leisure-time). These were grouped under the headings 'work/occupation' and 'leisure-time activity' for simplicity. We then set a time period for recall of PA as the preceding week. The outcome measure was chosen to be 'minutes per week' of PA to allow direct comparison with the UK Government guidelines as previously mentioned. As the Government guidelines use the terms 'moderate' and 'vigorous' activity in the recommendations, these terms were included in the new questionnaire design. The definitions of 'moderate' and 'vigorous' PA was constructed using terminology and phrasing from previously validated questionnaires such as the IPAQ, Global Physical Activity Questionnaire (GPAQ) and the General Practice Physical Activity Questionnaire (GPPAQ). Examples were given on the questionnaire for tasks or activities that may give rise to the corresponding level of PA in question. These were chosen with careful consideration to include a wide variety of examples for both moderate and vigorous PA that can be related to by different age groups, cultures and sexes. SMOG analysis of the new questionnaire was completed to assess readability, giving a score of 12·1. This value is identical to the score for IPAQ and thus was deemed an acceptable level of readability.

The questionnaire was designed to enable day-by-day recording of PA levels throughout the week to aid memory recall. The questionnaire uses a simplistic layout and incorporates a section for completion by the clinician on the back to calculate the PA level of the respondent. This allows the clinician to quickly and easily identify immediately whether the respondent is meeting the current UK guidelines of PA.

We named the new questionnaire the Clinical-use Physical Activity Questionnaire (CPAQ) to reflect its purpose for use in the clinical setting.

Once the questionnaire had been designed and trialled in the clinical setting, we set about completing a pilot validation comparing the new PA questionnaire (CPAQ) to an already established and validated PA questionnaire (IPAQ). Participants were recruited over two weeks from the Sport and Exercise Medicine, Rheumatology and Orthopaedic clinics at a large teaching hospital. Participants were asked to complete both CPAQ and IPAQ before their consultation. Any incomplete questionnaires were excluded as per the IPAQ scoring protocol. 150 responses were received and the questionnaires were compared for correlation and agreement.

Rather promisingly the new PA showed good agreement when compared with IPAQ for combined moderate and physical activity when assessed using Bland-Altman plots. This suggests that the new questionnaire may be a suitably accurate tool to be using in the clinical setting.

Reassuringly, feedback from participants regarding CPAQ was very positive. The majority of participants cited the CPAQ as easier to complete and more user friendly despite being unaware of which questionnaire was which. During data collection we had to answer significantly more queries related to how to complete of IPAQ compared to CPAQ. In addition, it was also noted that many more IPAQ questionnaires were left incomplete or completed with impossible figures, for example recording 40 hours of vigorous activity in a 24-hour period. Generally it was noted that CPAQ was completed faster than IPAQ.

Although the initial pilot validation was promising, clearly further evaluation of the questionnaire is required. As such we have just embarked on criterion validation of the new questionnaire against accelerometry. This should give a good objective measure of the questionnaire's ability to accurately report physical activity levels. We hope to report the result of the validation study in a peer reviewed journal in the near future.

Conclusion

The newly developed 'Clinical Use Physical Activity Questionnaire (CPAQ)' has shown promise as a short, one page, self-administered, user-friendly questionnaire for assessing physical activity levels in the clinical setting allowing the clinician to directly compare the respondents levels of activity with the government recommendations for PA. Although the validation against accelerometry is currently pending, we are optimistic that this is a questionnaire that will prove beneficial to all clinicians who wish to better understand their patient's physical activity levels.

Hopefully in return this will enable them to inform their inactive patients of the plethora of benefits that being physically active can have on their health!

'Reassuringly, feedback from participants regarding CPAQ was very positive. The majority of participants cited the CPAQ as easier to complete and more user friendly despite being unaware of which questionnaire was which.'

Clinical Physical Activity Questionnaire (CPAQ)

Patient Number:

Date:

Please think of the **last 7 days** when answering the questions.

We are interested in any physical activity that you have undertaken in the last seven days, that lasted at least ten minutes at a time and was 'moderate' or 'vigorous' in nature (see definitions below):

- **MODERATE** physical activity: any activity that gets you mildly sweaty and out of breath, (e.g. brisk walking, carrying loads, digging, climbing ladders)
- **VIGOROUS** physical activity: any activity that involves hard physical effort and makes you breathe much harder than normal (e.g. heavy lifting, aerobics, or fast bicycling)

Please tick here if you **DID NOT** undertake **ANY** moderate or vigorous physical activity in the last seven days ☐

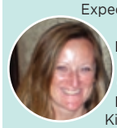
Part A: AT WORK/COLLEGE:		**MODERATE**	**VIGOROUS**
1. How much time do you spend doing physical activity **at work/college** every week?	Monday	Minutes____	Minutes____
	Tuesday	Minutes____	Minutes____
The activity must be done for at least **10** minutes at a time.	Wednesday	Minutes____	Minutes____
	Thursday	Minutes____	Minutes____
Please include time spent travelling to/from work or college (if **moderate or vigorous** in nature)	Friday	Minutes____	Minutes____
	Saturday	Minutes____	Minutes____
If you do not work or are not at college, please go straight to Part B (leave Part A blank)	Sunday	Minutes____	Minutes____
Part B: AT HOME/LEISURE TIME		**MODERATE**	**VIGOROUS**
2. How much time do you spend doing **sport/exercise when not at work or college?**	Monday	Minutes____	Minutes____
	Tuesday	Minutes____	Minutes____
The activity must be done for at least **10** minutes at a time.	Wednesday	Minutes____	Minutes____
	Thursday	Minutes____	Minutes____
Please include time spent travelling to/from events (if **moderate or vigorous** in nature)	Friday	Minutes____	Minutes____
	Saturday	Minutes____	Minutes____
	Sunday	Minutes____	Minutes____

Thank you for your time

BIOGRAPHIES

Dr Guy M Evans MBChB MRCGP MSc SEM(Hons)

Guy is a qualified GP and Sport and Exercise Medicine (SEM) Registrar in the West Midlands. He has a particular interest in exercise medicine and physical activity measurement. He completed his SEM Masters dissertation at the University of Nottingham in this area in 2011 and now guest lectures on the SEM MSc course on the topic of obesity and physical inactivity. His love of sports is fairly all encompassing but he has a particular passion for both endurance events (Ironman triathlon!) and rugby. He is currently the Great Britain rowing U23 doctor and has provided medical cover for Dorset and Wilts RFU, the Amateur and Professional Boxing Association, various ultra-marathon and cycling events and is also involved in Expedition Medicine.



Dr Kimberley L Edwards BSc (Hons) MMedSci PhD PGCAP FHEA
Course Director Sports and Exercise Medicine

Kim has a mathematical first degree, a Human Nutrition MMedSci and an obesity spatial epidemiology PhD, with a twelve year career in the City inbetween. Following her PhD she worked as a Lecturer in Epidemiology in Leeds until 2011 when she took over as Course Director in Nottingham. She is the Senior PGT Tutor for the School of Medicine, Division PGT Lead and a Fellow of the Higher Education Academy. She sits on the Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis Steering and Research Strategy groups and co-chairs their Education and Networking Committee. She is also a member of the Education Committee for the National Centre for Sport and Exercise Medicine (East Midlands). She is an enthusiastic long distance runner and multi-day adventure racer.
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Professor Mark Batt
Director - Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis (OA)

Mark graduated from Cambridge University Medical School in 1984, obtained a Diploma in Sports Medicine from the University of London in 1991 and completed a fellowship in Sports Medicine at the University of California, Davis (UCD) in 1993. Since 1995, he has been a Consultant in Sport and Exercise Medicine at Nottingham University Hospitals NHS Trust. He sits on The East Midlands Clinical Senate Council. He serves as a physician for The Wimbledon Tennis Championships. He is Director of the Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis, a national & international research collaboration investigating the link between physical activity, sport, injury and osteoarthritis.
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A career in Sports and Exercise Medicine: it's not all blood and guts

Report by Dr Lisa Hodgson and Dr Kimberley Edwards

After watching the recent Football World Cup you would be forgiven for thinking that Sports and Exercise Medicine was all blood and guts. Football is a contact sport involving lots of running, jumping and diving (!); and the players' long socks do not qualify as protective clothing. Injuries abound. I lost count of the facial injuries notably including Clint Dempsey (USA) and Steve von Bergen (Swiss) both taking high kicks to the face against Ghana and France, breaking noses and facial bones. Netherlands defender Bruno Martins Indi experienced a concussion after a foul playing Australia, plus several other players had head injuries (including Noboa, Feghouli, Jones and Bedoya) and fractures (Neymar; Babatunde). In addition there were hamstring and adductor injuries (Altidore; Coentrao) and, of course, bites (as Giorgio Chiellini's shoulder will testify). Surely the prize goes to the England trainer, Gary Lewin, who dislocated his ankle when celebrating a goal (water bottles should have hazard warnings on them!).

SEM is now a discipline in its own right and there are many paths that a SEM clinician can take. We highlight a few such avenues in this article; some quite unique. We begin with Professor Batt recently returned from his week of SEM delivery at Wimbledon, followed by the experiences of two of our MSc SEM students who provided medical care at the 5th and 6th Tri Campus Games in Malaysia and Ningbo – our two sister campuses. A third student relates his experience of SEM delivery at the Street Child World Cup in Rio, finishing with a Venue Medical Manager role that has commenced at Glasgow 2014 in preparation for the XXth Commonwealth Games. Combined, these experiences help to influence the teaching and delivery of the SEM programme and shape the future of what Nottingham can offer to future graduates and hopefully go some way to describe what a career in SEM may bring you.

Above: 6th Tri Campus Games Ningbo China

Nottingham and Tennis Medicine

Prof Mark E Batt

Nottingham has a long tradition of tennis – enhanced by the National Tennis Centre. Prior to starting at Wimbledon in 2000, I covered the ATP event in Nottingham for several years. From 2015 the UK and European grass court season will be lengthened by a week as Wimbledon falls back one week to facilitate additional precursor tournaments to be played before the Grand Slam. This will provide for greater acclimatization to grass as the players move from the clay of Europe. For Nottingham this is good news, as the current ATP-WTA event will be replaced by separate higher-ranking WTA then ATP events, separated by a week prior to Wimbledon.

It is hoped that the greater exposure to grass prior to play at Wimbledon may reduce injuries and provide an enhanced playing experience before leaving grass for the hard courts of North America. Dependent on growing conditions and weather we anticipate some falls on grass as players adjust from sliding on clay to a different shoes/surface interface on grass, with their pimpled soled shoes. Furthermore the lower bounce requires greater use of buttock and thigh muscles with resultant strains. A decade of injury data from Wimbledon will be submitted for publication later this year – this shows an impressive spread of injuries with some different characteristics to other surfaces.

5th Tri Campus Games – Malaysia 2013

Peter Walker ACCS CT1 MBChB BSc MSc

The Malaysia Tri Campus Games was the first time any medical team had been sent as part of the supporting faculty to assist in the welfare of 180 students. As part of my role I assisted in the planning and preparation of any equipment and medication that we would require in Malaysia to assist in my responsibility as a doctor. Once in Malaysia we were given a team of first aiders with various levels of experience, thus necessitating educating them, for example to ensure that if a log roll was required it could be done safely and efficiently. The biggest learning experience however was that of being able to respond and adapt my practice to working within the very intense heat and humidity. It quickly became evident that these factors were going to be a large obstacle to performance, and as such, management strategies for exertional heat illness and fluid management were quickly set up with good effect.

To be afforded this opportunity as a student is not something that I had expected before starting my Masters at the University of Nottingham, but as a Doctor wanting to get into the field of sports medicine, this has given me some fantastic experience in planning and preparation for an event of this nature in a foreign country.

6th Tri Campus Games – Ningbo, China 2014

Hollie Taylor

180 students, 8 sports, 3 campuses, 1-tournament Ningbo China Tri Campus Games was a great experience. Having worked at European single sport tournaments before I was keen to build my experience at a multi sports games. When I received the briefing on the first day I appreciated the enormity of the event. All sports took place on one campus; sports included table tennis, tennis, badminton, squash, ultimate Frisbee, football, basketball and volleyball. The games began with an opening ceremony and ended with a closing ceremony.

As part of the medical team there were many challenges to the games. Although heat and humidity was not an issue for the Chinese and Malaysian athletes the UK students required constant monitoring and hydration advice. Some students spoke limited English, which caused basic examination and assessment to be challenging. Throughout the games we were responsible for 180 athletes, offering clinics and also to be prime responders for any injuries that happened on the pitch or court. The experience allowed me to enhance my knowledge of the organization of medical cover for a multi sport event, travelling aboard and to be involved with different sports. A wide variety of illness and injuries were seen from ankle sprains to food poisoning. These experiences allowed me to broaden my skill set and understand the different demands of multiple sports.

This page, clockwise: Glasgow 2014 XXth Commonwealth Games, The Wimbledon Sports Medicine Doctors: Drs McCurdie, Batt and Bell, Street Child World Cup Rio 2014.

Street Child World Cup Rio 2014

Eric Bandoo

I was fortunate enough to go to Rio as a physiotherapy volunteer for the Street Child World Cup in March 2014. The charity Street Child United flew 250 street kids from 19 different countries to take part in a football tournament. It was actually more than a game! The street kids were involved in doing and making things and formulating a declaration on the rights of street children. I was part of a brilliant medical team comprising a GP, practice nurse and A&E nurse. We had responsibility for 250 street kids and 200 adult staff. Our modest medical room was the size of 3 physiotherapy cubicles with minimal equipment. During the day I provided pitch-side first aid cover for the majority of football games treating mainly lower limb injuries. We were blessed to have an ambulance crew for match days. As the only physiotherapist on site, evenings were spent 'patching' the kids up ready for tomorrow's match. 54 games were played in total including the last four games at Fluminese Football Club, which looked up at the imposing Christ Redeemer. It was an incredibly enriching experience.

Glasgow 2014 XXth Commonwealth Games - The Role of the Venue Medical Manager (VMM)

Dr Lisa Hodgson PhD MSc SEM MCSP

The Glasgow 2014 Vision is to "stage an outstanding, athlete centred and sport focused Games of world class competition; a Games that will be celebrated across the Commonwealth, generate enormous pride in Glasgow and Scotland, and leave a lasting legacy." 17 sports will be delivered across 14 venues from 23rd July to 3rd August 2014. The role of the VMM is to set up the medical services at the venue prior to the start of the games, lead, coordinate, direct and support the medical services ensuring that the medical care provided is in the safest and most efficient manner in line with the Commonwealth Games Federation and International Federation requirements during the games and close down the services once the games are over.

I have the privilege once again to manage team sports, being this time responsible for Hockey at the new facility at Glasgow Green and assisting with Rugby Sevens at the Rangers Ibrox stadium.

Medical provision will consist of a collection of paid, contractor and volunteer medical staff consisting of doctors, nurses, first aiders, physiotherapists, paramedics, sports massage practitioners and dentists. The medical services will provide seamless quality medical care for athletes, officials and games family as well as first aid for spectators in the venues. As always the medical provision is closely aligned to sport as the key department within the Games time delivery division responsible for planning and delivering the sport component and providing the framework on which all other operational delivery will be based.

If my experiences from London are anything to go by, I am looking forward to an excellent learning experience, working with medical staff who dedicate their time, outstanding knowledge and experiences to games time delivery. Bring it on!

BIOGRAPHY

Dr Lisa Hodgson
Assistant Professor in Sports and Exercise Medicine

Lisa is the Coordinator for Sports Injuries module of the MSc Sports and Exercise Medicine at the University of Nottingham. She is a physiotherapist by profession. She is the Managing Director of Corobeus Sports Consultancy Ltd, providing sports medicine support, and works as a Consultant to the RFL. She is Course Director for the RCSEd approved course Immediate Medical Management on the Field of Play for the RFL and Emergency Medical Management in Individual and Team Sports. She was Venue Medical Manager for the London 2012 Olympic games and similarly at the Glasgow 2014 XXth Commonwealth Games.

Can Health Care Professionals 'Make Every Contact Count' for physical activity?

Report by Dr Kimberley Edwards and Dr Michael Dunlop

The Wanless report was seen by many to be a landmark paper in which the necessity for preventative healthcare of non-communicable diseases was recognised. 'Make every contact count' could be seen as one of the DOH/NHS England's response to the Wanless report. It recognises the essential role all health care professionals must play in promoting healthy behavioural change in every patient contact.

Physical inactivity accounts for 3.2 million deaths worldwide per annum (WHO, 2013) and is correspondingly an important modifiable risk factor for non-communicable disease. Yet we know that the majority of the UK population are still insufficiently active for good health (HSCIC, 2013). Addressing physical inactivity must therefore be seen as a priority generally within the NHS and specifically in relation to 'making every contact count'. One might question what would the response of the Government, the NHS, medical education bodies and indeed drug companies be if the evidence suggested the majority of the UK population were hypertensive and indeed that a drug could be sold as a solution.

Stepping back, this means that we need to equip our healthcare graduates with knowledge about the health risks associated with physical inactivity and train them to be able to give accurate advice to patients. To be clear, this is not about doctors training in Sport and Exercise Medicine as a specialty. This is about all our medical and health care professionals being able to give advice to patients about an important modifiable risk factor for disease and ill health.

It was over thirty years ago when the need to teach trainee doctors of the importance of physical activity to prevent illness in their patients was first recognised. Notwithstanding, there still appears to be a gap in undergraduate curricula in this regard. Weiler et al (2012) found highly variable, but largely sparse or non-existent, delivery of physical activity education across UK medical schools, with widespread omission of fundamental features, such as the CMO's physical activity guidelines. Similar curricula gaps were identified for physiotherapists in Irish institutions (O'Donoghue et al, 2011) and in US medical schools (Garry et al, 2002). Only 56% of medical schools taught students about physical activity guidelines (Cullen et al, 2000) corresponding to a mean of 4 hours teaching about physical activity promotion compared with 109 hours teaching about pharmacology (O'Shaughnessy et al, 2009). Unsurprisingly perhaps, given this scant teaching, it has also been recently objectively shown that students' knowledge in this area is inadequate. A minority of UK final year medical students were able to identify the latest CMO physical activity guidelines, only 9% were able to adequately define 'moderate/vigorous exercise intensity', key aspects of the guidelines, and most felt inadequately trained to advise their patients about physical activity (Dunlop & Murray, 2013; Dunlop, 2014).

As no work (to the authors' knowledge) had been undertaken across different groups of healthcare students, recent work in the Centre for Sports Medicine at the University of Nottingham used a questionnaire to gather cross-sectional data on final year students' understanding regarding the UK physical activity guidelines and their confidence to promote physical activity to their future patients in four groups – medical, nursing, midwives and physiotherapists. 233 final year students completed the questionnaire (96% response rate).

- 20% were able to correctly identify the physical activity guidelines,
- 2% were able to define 'moderate' and 'vigorous' physical activity
- 31% of students felt adequately prepared for giving general physical activity advice to their future patients
- 24% adequately prepared for such advice to patients with chronic disease.

The current, albeit limited, literature shows that, final year students across different healthcare disciplines have insufficient knowledge and confidence to be able to advise their forthcoming patients. Clearly this is not desirable for imminent graduates. Confident and appropriate physical activity promotion is core to the NHS agenda for prevention of chronic diseases yet the current learning and teaching is not adequately equipping students for their future vocation. More work is needed to understand the current physical activity education syllabus across the range of healthcare disciplines and also to investigate how to implement/improve undergraduate learning and teaching in this area.

As you read this article the participating students will over the past few weeks have crossed the line from student to NHS workforce, and with that move the responsibility for their education has become the remit of Health Education England (HEE) and responsibility for their standard of care they give their NHS patients the remit of NHS England. We look forward in updating the reader not only on the Undergraduate Education bodies' response to these study findings, but also the HEE and NHS England's response to the evidence that their current workforce lacks the knowledge and skill necessary to address a significant health risk factor. 'Duty of care' and 'neglect' are words that the main stream press have associated with the NHS in recent times; is their use appropriate here in the context of physical activity!!??

Above: Keeping fit in the gym with a personal trainer

Above: A bike ride in the countryside is relaxing and good for your health

BIOGRAPHY

Dr Michael Dunlop BSc, M.Phil, MBChB, MRCGP

After completing a degree in Sports Science and an MPhil in Human Applied Physiology, Mike studied Medicine at Glasgow University graduating in 2006. He remained in Scotland for post graduate training and completed GP training in 2012, prior to commencing SEM Higher Speciality Training in the East Midlands. Additionally he works sessions as a GP, for the MOD, and has been a member of Northampton Saints RFC pitchside medical team from 2013 and will lead this team on the forthcoming season. His research interest over the last few years has centred on increasing physical activity health education in undergraduate medical schools. Mike had enjoyed an early rugby career prior to crossing paths with an orthopaedic surgeon; currently he can be found regularly in a number of his local parks trying to keep up with his three and one year old children.

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The Sporting Upper Limb

Report by Clodagh Dugdale

Above:
Prof Wallace giving a talk on "The challenges of treating and advising high level sports men and women"

Inset:
Dr Kerslake demonstrating the ultrasound examination of the shoulder

The Centre for Sports Medicine at Nottingham University held a conference on 27th June 2014 directed at medical professionals with an interest in the sporting patient and the upper limb. The aim of the day was to provide insight into functional assessment of the upper limb including the shoulder, particularly in the sporting population, and the decisions around the treatment options for this group.

The day started with practical sessions, with small groups focussing on examination of the shoulder and the hand. The shoulder session was led by **Mr John Wilson**, Head of Sports Medicine at Notts County Football Club, assisted by **Mr Tom Hallam** and **Mr Lee Fearn**. This session stressed the importance of functional assessment as well as structural assessment of the shoulder. It is easily forgotten that we should treat the patient, not the signs and MRI results.

Mr Ed Stephens ran the hand session. He is an experienced physiotherapist for the Ministry of Defence and his day job focuses heavily on functional assessment to get front line soldiers back after injury. He gave us an insight into how he conducts his history and examination. One of the most important questions being: "what is your role?", as that determines treatment plans.

We were delighted to welcome **Dr Rob Kerslake**- Consultant MSK Radiologist and the team from Siemens who kindly provided the ultrasound machine for the sessions. On this very high quality machine Rob was able to demonstrate the ultrasound examination of the shoulder- a mystery to a lot of us. We all left somewhat enlightened with an enthusiasm to try and improve our own technique and practice.

The afternoon was a more traditional seminar format and started with a great session from **Professor Angus Wallace** - one of the most eminent shoulder surgeons. Prof Wallace is Professor of Orthopaedic and Accident Surgery at the University of Nottingham and was one of the founders of the MSc in Sports Medicine at Nottingham University. He has been involved in the treatment of many high profile sports men and women - both for the shoulder and interestingly for other body parts. He provided great insight into the trials and tribulations of treating very high profile international athletes.

We were very honoured to have another prominent surgeon with us - **Prof Lennard Funk**, Professor of Orthopaedic and Sports Medicine at Salford University and the author of shoulderdoc.com. He gave an excellent session, talking through cases and scenarios, discussing the decisions around surgical intervention for the sportsman with a chronic shoulder problem. The decisions around acute injuries are relatively clear cut - but many of us struggle with the decision making process around timing and appropriateness of surgery for chronic shoulder conditions. The timing of surgery was discussed at length, with no right answer per se. It is often a difficult decision and, importantly, one that must be taken with the patient in full possession of the facts, prognosis and implications.

Prof Funk proposed that the indications for surgical intervention in the chronic shoulder are:

1. A lack of response to rehabilitation - weeks for a structural abnormality and months for a functional abnormality
2. A functional abnormality that has a significant effect on job, sport or lifestyle
3. A positive structural abnormality - a structural injury confirmed by MR imaging.

Ms Tanya Mackenzie is an experienced physiotherapist with a special interest in the shoulder. Her talk focused on the decisions around rehabilitating the shoulder as an alternative to surgery. She used several case histories to demonstrate the approaches and outcomes following rehabilitation. This session provided the audience with an understanding that surgery is not always the most appropriate option for the sporting population. The outcome for many shoulder problems is equally as good with rehabilitation as it is with surgery.

The final session of the day was a thought provoking session from **Dr Clodagh Dugdale**, Chair of the Ethics Committee at Nottingham University Medical School. Ethics can be a dry topic, however Clodagh focused on taking a step back from the day to day decisions in our sports medicine practice and challenged us to think about the ethical questions underpinning our thought processes. Two of the questions she focused on were: "Who are our responsibilities to? Does the greater good of society ever trump the rights of the individual?" We all left realising that the decisions we have to make have many implications and we need to be able to have a clear and justifiable thought process for making them in order that we can subsequently defend them.

We look forward to running the antithetical Sporting Lower Limb seminar in June 2015.

BIOGRAPHY

Dr Clodagh Dugdale
Assistant Professor in Sports and Exercise Medicine

Clodagh is the Module Coordinator for Physical Activity in Health and Disease and is also the Chair of the Medical School Research Ethics Committee. She works in a clinical role as a sports medicine physician for the Ministry of Defence and at Loughborough University. She is the team doctor for GB Shooting, works with a number of national level sports, including rugby and rowing, and performs part time work for the RFU. Clodagh also works as an expedition doctor, undertaking challenging expeditions to the Sierra Nevada and Mongolia.

It's who you know that matters

Report by Marina Skinner and Angus Wallace

Students learned spinal boarding and applying a collar to the injured

When health professionals consider a career in Sports Medicine, their ultimate goal would often be to work with a professional sport team, governing body or elite athletes. Getting hands-on experience to help them achieve the dream job is not always easy. Some will shadow a doctor/ physiotherapist who is already in that role whilst others volunteer their services at a local sport club. But without a qualification in emergency care, this is often not possible. Students studying the MSc Sports and Exercise Medicine at the University of Nottingham are however provided with the necessary training and opportunities.

The MSc course includes an Emergency Medical Management in Individual and Team Sports (EMMiITS) qualification aimed to provide students with the knowledge and skills to carry out pitch side emergency care. The 2 days EMMiITS course, which is approved by the Royal College of Surgeons Edinburgh (RCSEd) Faculty of Pre-hospital Care (Level II) and at the Gold standard award by the Association of Chartered Physiotherapists in Sports Medicine (ACPSM), is run at the Highfields Sports Ground used primarily for the University first team games. The site includes football and rugby pitches, cricket squares, tennis and netball courts. It also has a newly built pavilion which offers excellent facilities. Students learn practical emergency medical management in sport, including cardiovascular resuscitation, airway management, c-spine management and the acute management of the injured athlete. They also have the opportunities to practise scenarios outdoor on the pitch.

Once they have successfully completed EMMiITS and obtained the certificate (which is valid for 3 years) students are placed with a British Universities and Colleges Sports (BUCS) team to gain insight into working in the sporting environment. Full-time students are responsible for individual teams for the full duration of the academic year. This gives them the opportunity to work with players and coaches on a regular basis, provide pitch side cover at matches and assess injuries and be involved in the rehabilitation of players alongside an experienced physiotherapist employed by the University. Part-time students also have the opportunities to provide pitch side cover at matches that take place every Wednesday afternoon at Highfields, or are supported to work with their local teams.

In addition to the University placements, students are provided with opportunites to observe at professional clubs. We work with many different professional clubs, primarly in rugby league, football and cricket, although placements within other sports can be arranged. In the last academic year, students were placed with Notts County Football Club, the world's oldest professional club, on a 4-week rotation where they attended training sessions and pre-game debriefs in the treatment room on match day under guidance of the club's medical team. This has provided students with valuable experience and better understanding of professional athlete care in a public environment.

Students concur that these placements are valuable contributions to their CVs and 'contacts' lists:

"The MSc course in Nottingham offers an excellent step into the world of Sports Medicine. We've had lectures from specialists renowned at both national and international levels, and it has been a privilege to learn from their experiences. The opportunities for clinical experience and networking are brilliant, and I enjoyed my placements with the University BUCS teams, University varsity teams, Professional teams and Sports Medicine Clinics. The course lays a strong foundation for becoming a good sports clinician and definitely opens doors for career progression".

Dr Bhairavi Vivegananthan, MSc Student, University of Nottingham

"In this dynamic world of Sports Medicine, the MSc course at Nottingham University has instilled in us a strong theoretical foundation whilst giving us the rare opportunity for hands-on experience with athletes in a pre-hospital setting. The EMMiITS course prepared us specifically for pitch-side medical emergencies and this enabled us to provide the best level of care for our athletes - be it at University level with the BUCS teams, or during our professional placements with Notts County Football Club. This mind-set was greatly appreciated and carrying this forward, I was fortunate to have been offered the position of the Club Doctor for the Notts County Men's team. Additionally, being able to attend clinics with multidisciplinary specialities at the peak of their respective fields was a welcomed learning opportunity giving me a chance to hone my history and examination skills. The importance of life-long learning in medicine is well recognised, and I have no doubt that this course has provided me with a solid base for my future clinical career!"

Dr Rohi Shah, MSc Student, University of Nottingham

BIOGRAPHIES

Mrs Marina Skinner
Course Administrator Sports and Exercise Medicine

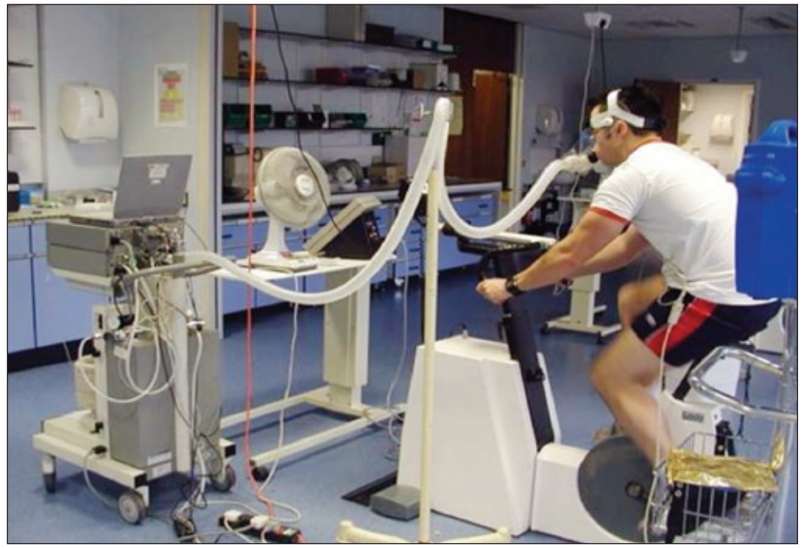
Marina Skinner joined the Division of Orthopaedic and Accident Surgery in December 1992. She was appointed Course Administrator for the MSc Sports and Exercise Medicine in January 1997. Our students appreciate her wide-ranging knowledge and the unfailing support she provides to them. She is an efficient, dependable and essential member of the Sports Medicine team. Previous to this role she had worked in the Personnel Office and was personal secretary to the Deputy Registrar at the University of Nottingham before taking a career break to bring up her family.

Prof W Angus Wallace
Professor of Orthopaedic and Accident Surgery

Prof is the clinical lead for the MSc SEM at the University of Nottingham, which he created with Professor Idris Williams in 1991. Clinically he is one of the most experienced Shoulder & Elbow Surgeons in the UK. He routinely uses PROMs in his clinical practice for assessing the treatment outcomes and in 2010 developed the Nottingham Clavicle Score. He has held a number of senior appointments in Surgery, Shoulder Surgery, Sports Medicine and Orthopaedics Surgery and is currently on the Executive Committee of the International Board of Shoulder and Elbow Surgery and the Council of the Faculty of Sport and Exercise Medicine UK.

Metabolic and Molecular Physiology

By Kostas Tsintzas, Tim Constantin, Ian Macdonald and Paul Greenhaff



Extensive state of the art facilities for invasive human metabolic and physiology based investigations at the two hospital sites

Metabolic and Molecular Physiology at the University of Nottingham comprises researchers in a wide range of disciplines, which are required to decipher and influence the many factors (e.g., diet, exercise, physical inactivity) determining health and well-being in ageing and disease (e.g., obesity and diabetes), and in particular musculoskeletal health. The group spans the two medical schools: located at Queen's Medical Centre (Prof. Paul Greenhaff, Prof. Ian MacDonald, Dr. Kostas Tsintzas, Dr. Peter Mansell, Dr. Rudi Billeter-Clark, Dr. Francis Stephens, Dr. Mark Cole, Dr. Tim Constantin-Teodosiu, Dr. Moira Taylor, Dr. Michael Rittig) and Derby Royal Hospital (Prof. Marco Narici, Dr. Nate Szewczyk, Dr. Phil Atherton, Dr. Kenny Smith, Dr. John Williams). It forms the core membership of the MRC/Arthritis Research UK Centre for Musculoskeletal Ageing Research at the University of Nottingham, and also actively contributes to the Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis.

Extensive state of the art facilities for invasive human metabolic and physiology based investigations are available spanning the two hospital sites, including volunteer screening rooms, clinical experimentation wards, metabolism laboratories (e.g., metabolic rate, insulin and glucose clamps, limb a-v balance, limb blood flow, and adipose tissue and muscle biopsy sampling), gymnasia and specialist ergometers for exercise training and rehabilitation. Dedicated facilities exist for measurement of body composition (DEXA), muscle function, exercise tolerance, in vivo haemodynamics and cardio-respiratory function. The group also routinely accesses world-leading whole-body magnetic resonance facilities for human imaging and spectroscopy in the Medical School and Sir Peter Mansfield Magnetic Resonance Centre.

From an analytical perspective, Metabolic Physiology houses a unique mass spectrometry core, with unrivalled in-house stable isotope tracer expertise. Similarly, facilities and skills exist for hormonal, biochemical (e.g. intermediary metabolism), mitochondrial (luminometric determination of ATP production rates) and molecular biological (e.g. genes and proteins regulating muscle size, energy metabolism and insulin action) analyses, including in-house facilities for low-density custom made gene array card analysis.

The group has created successful research partnerships with the Nottingham University Hospitals NHS Trust and Derby Hospitals Foundation Trust allowing translational research to flourish. Furthermore, expertise in rodent, primary muscle culture and invertebrate muscle biology has permitted parallel mechanistic investigation of the complex connections between ageing, diet, physical activity levels, insulin action, gene function and carbohydrate, lipid and protein metabolism. Current funding is secured from government (MRC, BBSRC), charities (Diabetes UK, Dunhill Medical Trust, Arthritis Research UK, Wellcome Trust), European Framework 7 and industry sources (e.g. Novartis, GSK, Ajinomoto, Abbott, and Mars).

Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis

Report by Bronya Norton

The Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis was awarded to Nottingham University Hospitals NHS Trust, under the directorship of Professor Mark Batt in January 2013. The Centre is a consortium of seven Universities, including The University of Nottingham, Oxford, Southampton, Bath, Loughborough, Leeds and University College London with an investment of 3M from Arthritis Research UK and 8M in match funding from the above institutions over an initial five year period. (Figure 1)

The key research areas covered by the Centre

- Are there factors that we can use to predict an individual's recovery rate or likelihood of developing osteoarthritis following an injury?
- Is the likelihood of injury sport- or individual-specific?
- Should treatments or interventions be targeted to specific sports, groups of people or types of injury?
- Can we predict whether someone likely to develop osteoarthritis following injury by analysing their training history, injury, movement, blood, joint fluid, x-rays and MRI scans?

This research is split into four work packages; Work Package 1: Epidemiology of sport, exercise and injury; Work Package 2: Mechanisms, biomarkers and intermediate phenotypes, Animal Sparing, Dry Biomarkers and Wet Biomarkers; Work Package 3: Mechanisms of movement dysfunction and interventions; Work Package 4: Translation and PPI.
Each work package consists of several cross site projects that involve Academics/Researchers and PhD studentships and various external collaborators. **(http://www.sportsarthritisresearchuk.org/seoa/research-projects/project-list/index.aspx).**

Beyond the original collaborators the Centre also works with several prominent international research groups such as Team OA and D-BOARD ; several sporting organisations such as the Rugby Football Union and has also been developing a Patient Public Involvement group to better inform the research of the Centre.

The Centre research aims to:

- Provide people with evidence-based advice and information about taking part in sports and exercise so they can reduce their risk of injury and development of osteoarthritis
- Identify and train researchers in the field of sport and osteoarthritis research
- Understand why some injuries can lead to osteoarthritis
- Predict who will develop symptomatic osteoarthritis post-injury
- Engage with key sporting bodies, patients and the public

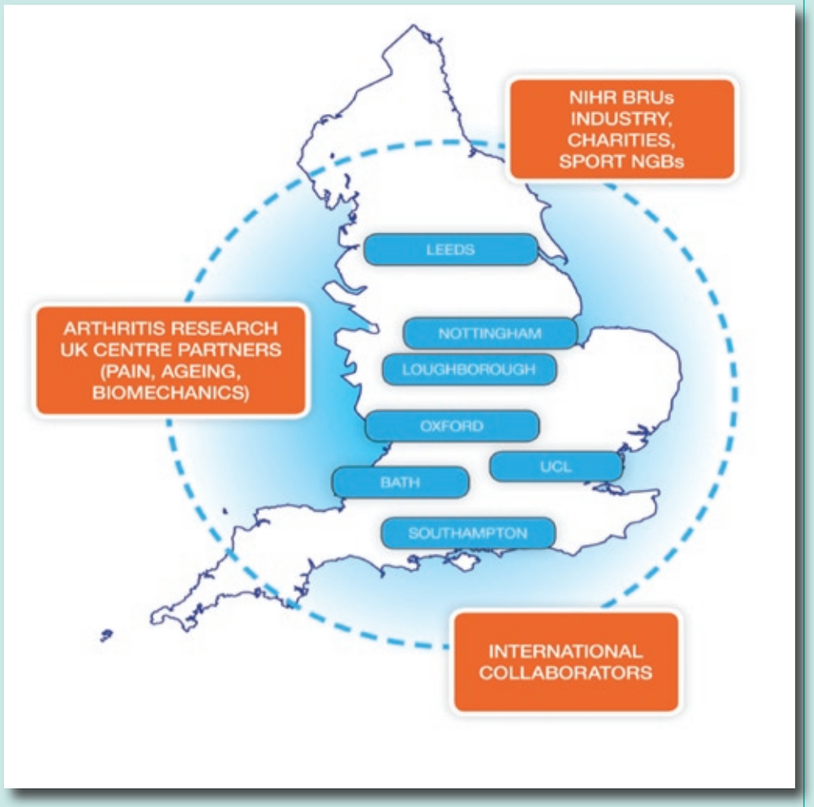


Figure 1: Geographical Spread of the Centre

If you would be interested in knowing more about the research that we are undertaking or wish to collaborate with us please look at our website **http://www.sportsarthritisresearchuk.org/** or Contact our Centre Manager, **Bronya Norton: Bronya.norton@nottingham.ac.uk**

"I am very lucky to have been given an opportunity to do a PhD with the Centre of Sport, Exercise and Osteoarthritis. My experience so far has been fun, challenging, and rewarding. The PhD has given me the opportunity to develop my knowledge and delve deeper into my area of interest - the use of exercise to reduce knee pain in people suffering from knee osteoarthritis and adherence to exercise. My PhD experience is enhanced by my strong supervisory team who excel at providing support, guidance and advice on training to ensure I get the most out of my PhD. Additionally, the Centre holds networking events to bring the 7 UK Institutions together to discuss current work and ideas. This is an exciting time to meet other students, academics and clinicians in similar areas of work and explore new collaboration opportunities".

Angela Ching, Postgraduate Researcher, University of Nottingham

Glenn Dods
Physiotherapist – Sportsmed SA

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Greg Retter
Intensive Rehabilitation Unit Manager
/ British Olympic Medical Institute

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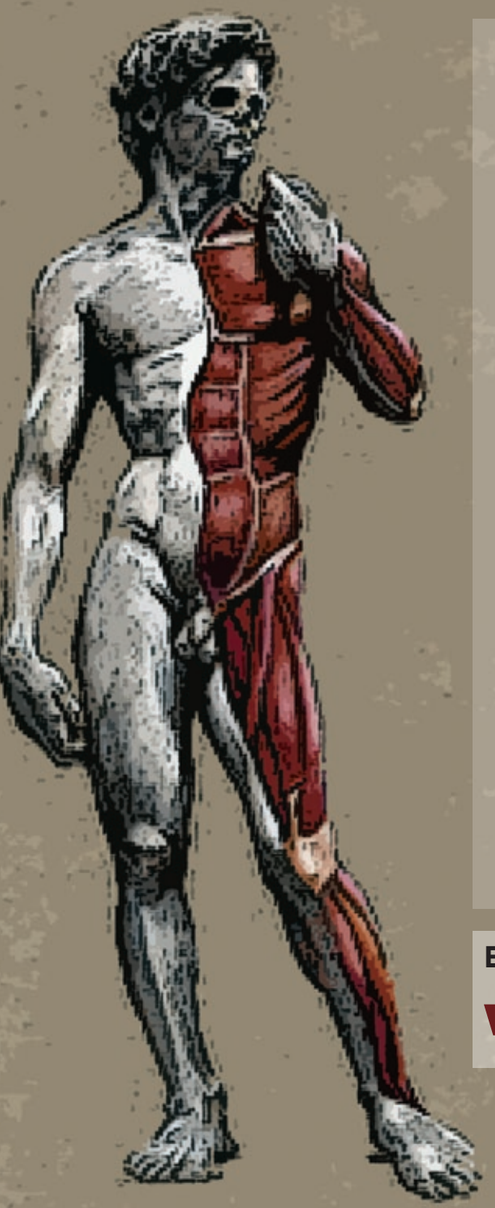

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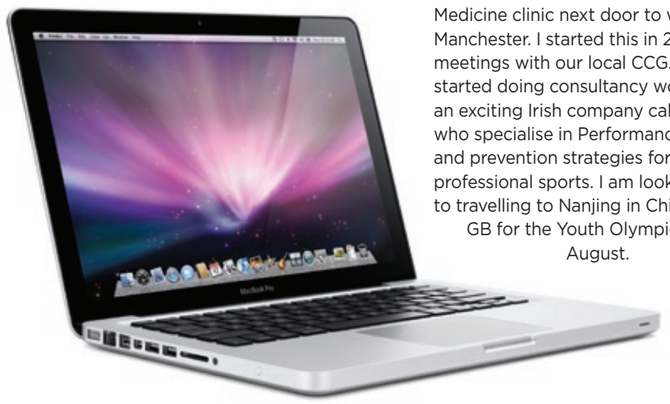
A SEASONAL CHAT...

...WITH **DR JOHN ROGERS**

MRCGP FFSEM(UK) CONSULTANT IN SPORT AND EXERCISE MEDICINE. UNIVERSITY HOSPITAL OF SOUTH MANCHESTER NHS FOUNDATION TRUST

01: What first interested you in Sports Medicine?

I have my dad to thank for my interest in sport. He was a PE teacher and he spent a lot of time teaching me how to do lots of different sports including football, golf, tennis, kayaking, climbing, running, cycling, swimming, diving, basketball etc. I played Gaelic Football until I was 21 and then competed as a middle distance runner through my 20s and early 30s. When I qualified as a doctor, I wanted to work in an area that I was passionate about so Sports Medicine seemed a logical choice. I missed a lot of time through injury and illness at different stages of my athletics career which made me particularly aware of the impact seeing a good doctor or physio could make. I guess this inspired me to want to do the same.



02: How and when did you get your current job?

Like many colleagues in SEM I have a portfolio career and currently do 4 different jobs. I work as an MSK physician for Bupa for 2 days a week in Manchester and 1 day a week in Leeds. I got this job after a grilling interview with BASEM Chair Tom Crisp back in 2012! I also work one day per week in an NHS Musculoskeletal and Sports Medicine clinic next door to where I live in Manchester. I started this in 2011 after lots of meetings with our local CCG. I have recently started doing consultancy work with an exciting Irish company called Orreco who specialise in Performance Medicine and prevention strategies for a range of professional sports. I am looking forward to travelling to Nanjing in China with Team GB for the Youth Olympic Games this August.

03: What is the best part of your job?

This probably sounds a bit corny but treating patients in a non elite setting where I see a diverse mix of all ages and sporting abilities. I get the most satisfaction from feeling that I have made some sort of impact in the quality of their life through what I have done.

04: What is the worst part of your job?

The intensity, workload and travel requirements in SEM make it hard sometimes to balance with family and personal life.

05: By whom have you been most influenced in your professional life and why?

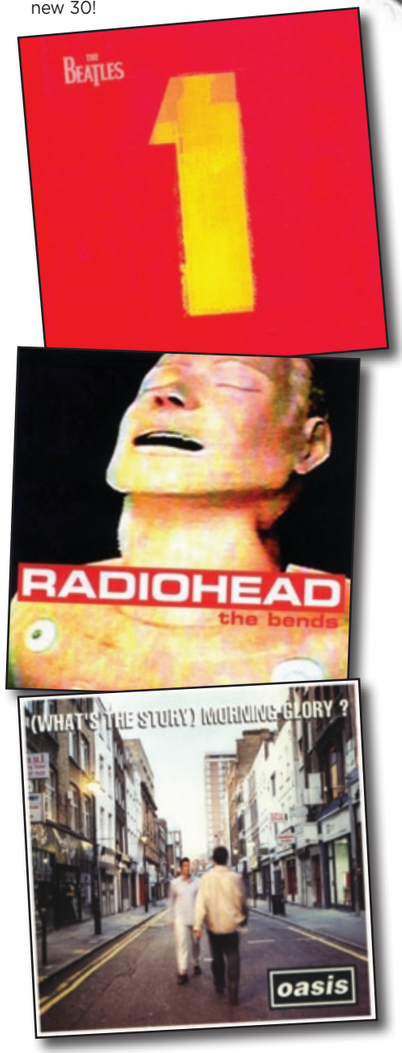
There are several –
My older sister Janet who is a GP in Belfast – the most selfless and caring doctor I know.
My parents and more recently my partner Jess for their constant support and encouragement regarding my career.
My PE teacher Peter McGinnity – significantly influenced my interest and development in a range of sports as a teenager.
Various educational and clinical supervisors over the years who went above and beyond including Mike Loosemore, Bruce Hamilton, Paul Dijkstra and Simon Till.
More recently colleagues Leon Creaney, Rob Chakraverty and Noel Pollock - all exceptionally talented sports physicians who I continue to learn from.

06: What do you do to relax?

Running, cycling, reading and spending time with family and friends.

07: What are the 5 things you could least do without and why?

- iPhone – communication crucial to job
- Mac Book Pro – integral to job for viewing scans, notes, presenting etc
- Passport – love travelling
- Trainers – love running
- Road bike – Officially a MAMIL (middle aged man in lycra) since turning forty but 40 is the new 30!



08: What would be your top five desert island CDs or DVDs?

- DVDs – Homeland, Rocky, 24, The Sopranos and Game of Thrones boxsets
- CDs –
  U2 - The Joshua Tree
  Radiohead - The Bends
  Oasis – (What's the story) Morning Glory
  The Beatles - 1
  The Corrs – Forgiven, Not Forgotten

09: If you could meet any historical figure (alive or dead) whom would that be and why?

Jesus Christ - lots of questions!

10: Would you like a second career and what would it be?

Yes. Working as a doctor for MSF. I met a 24 year old girl last week who had just left her own stable and secure job. When I asked her why she said she was devoting all her energy to fundraising and building an orphanage in Tanzania (madewithhope.org). It made me realise how much time I have wasted over the last 16 years!

11: What are your aspirations for your professional future?

Developing SEM services in North West England.

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