Impact Case Study

UoA 26: Sport and Exercise Sciences, Leisure and Tourism

Acute Management of Soft Tissue Injury

Summary of the Project

Research undertaken at the Centre for Sports Medicine and Sports Sciences within the Sport and Exercise Sciences Research Institute has directly contributed to an enhanced awareness of evidence-based management of acute injuries across a broad medical field and Academic Enterprise (Knowledge Transfer); International, European and National Medical guidelines on soft tissue injury management and First Aid; challenges to conventional wisdom on acute soft tissue injury management; and stimulation of international debate and influence in clinical practice.

Underpinning Research

Musculoskeletal injuries in the UK are common and costly. A large percentage of musculoskeletal injuries are incurred during sport and exercise. Currently, 50% of the Northern Ireland population participate regularly in sport; a figure that is set to increase in conjunction with the Northern Ireland Strategy for Sport and Recreation (2009-2019). Management in Accident and Emergency Departments and Primary Care facilities has traditionally been limited to generic advice that promotes a conservative approach of protection and rest (PRICE). This encompasses a one size fits all approach, with an emphasis on conservative treatment and rest.

Our research findings have highlighted that time honoured treatment approaches such as ice and compression may only be effective in certain clinical scenarios and are dose dependent.[1-3] Furthermore, an active rehabilitation approach was most effective at getting people back to functional activity after musculoskeletal injury.[4] This challenges conventional wisdom by replacing conservative interventions and rest after injury, with an early, tailored and incremental rehabilitation programme.[5-6] Our research has also developed evidence based guidelines on the optimal dose of rehabilitation exercise and guidance on how this should be tailored to clinical circumstances relating to injury severity, injury type and healing stage. We have also summarised this using a new a treatment acronym (POLICE: protection, optimal loading, ice, compression and elevation).[6]

The research underpinning this impact was developed between 2008 and 2012. We used a series of research approaches based on Cochrane reviews, randomised clinical studies and Clinical Guidelines. The research was collaborative in nature and involved a multidisciplinary group of researchers (consultant physicians, general practitioners, physiotherapists, physiologists, academics, statisticians) over 4 Higher Education Institutions, a National Sports Institute (Sports Institute of Northern Ireland) and a large NHS Trust. Most recently we have completed an innovative project developing a computer application (An App) to guide acute injury management; this is supported by a Public Health Agency Grant and supports our collaborative network within the University of Ulster (Ulster Sports Academy, Health Sciences, Computing and Engineering) and across industrial partners and patient users.

This research was supported through various funding streams including an 57K Project Grant from the Physiotherapy Research Foundation (2007-2009); a 36K Cochrane Fellowship from the R and D

Office of Northern Ireland (2008-2012) and most recently a 62K Knowledge Transfer Award from the Public Health Agency (2012-2013).

References to the Research

1. Bleakley C, McDonough S, MacAuley D. The use of ice in the treatment of acute soft-tissue injury: a systematic review of randomised controlled trials. Am J Sports Med. 2004 Jan-Feb;32(1):251-61. (124 citations; top 50 most read articles on AJSM, October 2013)
2. Bleakley CM, McDonough S, Gardner E, Baxter GD, Ty Hopkins, Davison GW. Cold water immersion (cryotherapy) for preventing and treating muscle soreness after exercise. The Cochrane Library 2012; Issue 1.
3. Bleakley CM, Costello JT, Glasgow PD. Should athletes return to sport after applying ice? A systematic review of the effect of local cooling on functional performance. Sports Med. 2012 Jan 1;42(1):69-87.
4. Bleakley CM, O'Connor S, Tully MA, Rocke LG, MacAuley DC, Bradbury I, Keegan S, McDonough SM. Accelerated rehabilitation after acute ankle sprain. British Medical Journal 2010 May 10;340:c1964. doi: 10.1136/bmj.c1964. (citations: 22; over 30,000 full text downloads from bmj.com up to Oct 2013)
5. Tully MA, Bleakley CM, O'Connor SR, McDonough SM. Functional management of ankle sprains: what volume and intensity of walking is undertaken in the first week post injury. British Journal of Sports Medicine 2012; Sept 46(12):877-82 (1,139 full text downloads from bjsportmed.com up to Oct 2013)
6. Bleakley CM, Glasgow P, MacAuley DC. PRICE needs updating, should we call the POLICE? Br J Sports Med. 2012 Mar;46(4):220-1. Epub 2011 Sep 7. (13,686 full text downloads from bjsportmed.com up to Oct 2013)

Details of the Impact

Academic Enterprise and enhanced awareness of evidence based management of acute injuries across a broad medical field.

This body of work has been widely accessed by medical researchers and clinicians with online statistics show that our research has been downloaded to full text over 40,000 times. This work has also been disseminated across a broad medical field through invited presentations at over 11 scientific conferences including: British Orthopaedic Foot and Ankle Society; American College of Sports Medicine; Physios in Sport UK; the Royal College of Surgeons; International Ankle Consortium; London Marathon Medicine. We have developed web based learning modules in collaboration with the BMJ (Continuing Medical Education Project) and Cochrane Collaboration (Cochrane Journal Club module) accessed >5000 times by researchers in UK, USA, India, Brazil, Spain and Germany. We have developed educational technology resources to accompany our research which have also been highly accessed; these include a learning DVD in collaboration with the American College of Sports Medicine and a podcast which is the 7th most downloaded file on the Mobiltape website (out of a total of >300 scientific podcasts, February 2013 – 76 downloads). Our work on evidence based management of acute soft tissue injuries has been incorporated into the teaching curriculum at Masters level (University of Cardiff) and we have contributed to specialist CDP training days for elite Sports Medicine teams (Arsenal Football Club), Higher Education Research Institutes (University of Northumbria), Sport Wales, Football Association (English FA) and the Royal College of Surgeons, England.
Additional Academic Enterprise activity includes the development of a Computer Application (App). The content of this App is based on our previous research and provides evidence based

guidelines for acute injury management. This project was externally funded by the Public Health Agency. The App has recently been submitted to NHS choices which is the UKs biggest health website and includes over 20000 regularly updated articles and other multimedia resources. By the end of 2013, the App will also be available for commercial download for practitioners and patient user groups directly from the Google Play store, providing further capacity for knowledge transfer.

Contribution to International, European and National Medical guidelines on soft tissue injury management and First Aid.

This research has contributed to and is referenced within current International, European and National medical treatment guidelines. These include clinical guidelines: UK Clinical Guidelines For Acute Soft Tissue Injury Management [endorsed by the SKIPP project (Supporting Knowledge in Physiotherapy Practice) and distributed to over 150 clinicians]; two versions of Royal Dutch Society for Physiotherapy Guidelines for acute ankle sprain treatment (KNGF 2006 and 2012); and International and European First Aid guidelines (see other sources C-E). Our research is also forms part of the course curriculum on the first aid guidelines of the Football Association (FA, Intermediate First Aid for Sport Course).

Challenge to conventional wisdom on acute soft tissue injury management and stimulation of debate in international news, bestselling magazines and social media.

This research has challenged conventional wisdom, and has stimulated significant debate among stakeholders. This includes a discussion on a local radio (U105, Ulster Radio) and interviews and coverage of research findings within the International newspapers including: the New York Times, BBC news and Fox news. We have provided interviews and features articles in various types of international magazines with significant debate in Science (New Scientist), Sports and Fitness (Runners World, Shape, Fitness Magazine, Four Four Two, Men's Health), Lifestyle (Marie Clare) and travel magazines (Easyjet Travel). The readership of these magazines is between 0.5 and 25 million people each year. Of particular interest to sports people has been our new treatment Mnemonic for acute injury management – P.O.L.I.C.E; this has been widely cited and well received throughout the sporting community. This is evident through numerous referencing, debates and sharing in the multi-media, with over 1000 people sharing or commenting on this research using social bookmarking (up to December 2012). This research has changed practice for specific groups of practitioners, athletes and lay people. This includes clinical decision making in professional sports medicine in the UK.

Sources to Corroborate the Impact

1. British Medical Journal (BMJ) Continuing Education Project
2. Cochrane Collaboration Derivatives Editor (http://www.cochranejournalclub.com/cryotherapy-preventing-treating-muscle-soreness-exercise/ (CPD, Cochrane Journal Club)
3. http://www.mobiltape.com/conference/2011-ACSM-58th-Annual-Meeting
4. Director of Postgraduate Healthcare Studies at Cardiff University and Programme Manager of the MSc in Sport and Exercise Physiotherapy
5. Speaker invitations and conference programmes confirming contributions
6. Confirmation of grant award from HSC R&D Division, Public Health Agency (also attached are screenshots from the App)
7. Vice President of Physios in Sport UK (Association of Chartered Physiotherapists in Sport and Exercise Medicine)

8. Head Of Medical Education and England Development Teams, English Football Association (FA)
9. http://well.blogs.nytimes.com/2012/01/04/why-ice-may-be-bad-for-sore-muscles/?ref=gretchenreynolds (hard and soft copy of article in New York Times with evidence of debate with 120 online comments)
10. Physiotherapist working in elite sport (Arsenal Academy)

Other sources

a. http://www.bbc.co.uk/news/health-17015767 (Article in BBC news; example of debate and lay dissemination: shared >500 times)
b. http://www.foxnews.com/health/2012/02/20/cold-water-baths-may-soothe-aches-risks-unknown/
c. https://www.kngfrichtlijnen.nl/images/imagemanager/guidelines_in_english/KNGF (Clinical guidelines KNGF, 2006)
d. http://bjsm.bmj.com/content/early/2012/04/19/bjsports-2011-090490.full (Clinical guidelines KNGF, 2012)
e. http://www.ifrc.org/PageFiles/53459/IFRC%20-International%20first%20aid%20and%20resuscitation%20guideline%202011.pdf (International First Aid Guidelines)

Individual users/beneficiaries who could be contacted by the REF team to corroborate claims:

1. Consultant Orthopaedic, Princess Royal Hospital and Course Director of the Introduction to Sports Injuries, Royal College of Surgeons, England
2. Director of Postgraduate Healthcare Studies at Cardiff University and Programme Manager of the MSc in Sport and Exercise Physiotherapy; President of the International Federation of Sports Physical Therapy
3. Physiotherapist, Arsenal Football Club
4. Head of Medical Education and England Development Teams, English Football Association (FA)