PROJECT DETAILS

**Project Title**

Pain, perception and function in patients with chronic low back pain

**Project Summary**

Back pain is the most prevalent musculoskeletal condition. It is a global problem estimated to cost for example over $100 billion in the USA. Two thirds of the costs are indirect relating to loss of wages and productivity as it affects those of working age and is responsible for 12.5% of sick days annually. Approximately 20% of those with back pain report a long term condition referred to as chronic back pain and this group account for > 75% of the costs. There is a continuing requirement to understand this chronic condition in order to explore how it may be best managed.

**Rationale**

Chronic back pain is a multifaceted condition for which there is no one cause or treatment. Beliefs, memories and psychosocial factors relating to chronic back pain have previously been explored (Lotze and Moseley 2007), but there is less evidence relating to the understanding of sensory perception (the way our brain interprets signals from our nervous system). Perceptual impairments for those with chronic pain are associated with chemical and transmission changes within the brain which affect not only feelings of well-being but the way in which pain is sensed. It is hypothesised that the sense of where are bodies are in space may also be affected in those reporting chronic back pain.

This study builds on a pilot study carried out by the supervisory team in which those with chronic back pain were noted to be more sensitive to movements in the back.

**Aims**

Investigate the relationship between self-rated health, body image, aspects of sensory perception and function in patients with chronic low back pain. This approach differs from other studies which have looked at these aspects in isolation.

**Mixed Methods approach with a pragmatic paradigm**

1) Systematic review of the literature to determine what is known about perception and back pain

2) Convenience sample of those with chronic low back pain (approximately 80) will be matched with volunteers who fulfil the criteria of being ‘healthy’ and free from back pain. Health related questionnaires will be completed and sensory perception tasks performed.

3) In-depth interviews with 10 participants with back pain to ascertain views on pain perception and self-perception of health (the theoretical philosophy to be determined by the student).

The sensory perception equipment is state of the art and housed in a purpose built facility designed for the functional assessment of musculoskeletal conditions. The research facility shares the same site as a spinal and musculoskeletal clinic which caters for >80 patients a day. It is therefore anticipated that there will be no difficulties recruiting those with chronic back pain.

**Outcomes:**

- Contribution to a body of knowledge around perception in individuals with chronic back pain
- Influence future knowledge in relation to preventing and managing back pain resulting in improving outcomes for those with back pain and resulting in cost savings for the NHS and increasing productivity in the workforce.
Peer reviewed publications in high impact journals i.e. Pain (IF 6.12)

### Academic Impact

The project will investigate new concepts in relation to; health related outcomes, function and sensory perception. It will enable the project team to continue to develop in-depth knowledge in this field. It will continue to strengthen collaborative research between BU and one of its partner organisations, AECC. This project is being co-created by staff, students and external stakeholders. It will enable continued engagement with researchers from Australia (University of South Australia) and other UK institutions (Imperial College London, Poole NHS Foundation Trust). As well as forming the basis for a PhD thesis supervised by an inter-professional research team (CC, SD, NO, AK). This project will feed into research, practice and education at both BU and AECC. This scientific approach engages staff across partner institutions and links the research themes of "Lifelong Health and Wellbeing” with “Technology and Design”, in a multidisciplinary practice-based project fitting the BU vision of Fusion and building on BUs reputation for collaborative research.

We anticipate a minimum of three academic papers in musculoskeletal and physiotherapy/chiropractic journals such as Journal of Orthopaedic and Sports Physical Therapy (IF 2.95) Pain (IF 6.12) and appropriate multi-disciplinary conferences.

### Societal Impact

The proposed project follows on from a pilot study in which there are new findings which may have implications for the future management of chronic low back pain. The project addresses an area of national and international importance as chronic low back pain represents a burden to society in relation to health care costs and lost productivity. Improving our understanding of how chronic back pain influences function will influence pain management strategies thus leading to changes in intervention which are likely to impact on quality of life. This is an international issue and currently the researchers are working with colleagues in Australia and the UK. The study will have local, national and international implications. Societal impact:

- Addressing requirements of those with chronic low back pain
- Improved outcomes for those with chronic low back pain in relation to quality of life
- Decreased costs to the NHS
- Increased productivity and a reduction in sick leave.
- Contribute to education of undergraduate and postgraduate students from AECC and BU, and informing the way professionals manage this patient group in their future careers.

### Training Opportunities

As well as the training opportunities afforded by BU Graduate School, the student will be supported to develop a wide range of additional skills and competencies. The student will be required to consult with the AECC Public and Patient Involvement Group throughout the project. To this end, they will receive training on how to make their research accessible to members of the public. A range of tests and equipment will be used to assess function in the study participants and therefore, the student will receive training on the use of the equipment as well as the rationale behind the testing by experienced professionals with expertise in the field. The resulting data from the tests will have to be processed and analysed, this will be done by the student with the support of the research team. By working as part of a multidisciplinary team, the student will benefit from the different perspectives each member brings to the project. The team will assist the student through the process of communicating their scientific results at conferences, in papers as well as a PhD dissertation.

### SUPERVISORY TEAM & RESEARCH ENVIRONMENT

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<tr>
<th>Role</th>
<th>Name</th>
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<tr>
<td>First supervisor</td>
<td>Dr Carol Clark</td>
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<tr>
<td>Additional supervisors</td>
<td>Dr Sharon Docherty</td>
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<td>Dr Neil Osborne</td>
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<td>Professor Ahmed Khattab</td>
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Recent publications by

Bagust, J., Docherty, S. and Razzak, R.A. 2013. Rod and frame alignment
supervisors relevant to this project


Clark, C.J., Carr, E.C.J. and Breen, A. C. 2011 Hypermobility, coordination and spinal pain: An inherent association. 16th World confederation of physical therapy Amsterdam, The Netherlands 20-23 June 2011

Clark, C., et al. 2011. Learning to improve the management of back pain in general practice: collaboration between service users and service providers. 16th World confederation of physical therapy Amsterdam, The Netherlands 20-23 June 2011


INFORMAL ENQUIRIES

To discuss this opportunity further, please contact Dr Carol Clark via email: cclark@bournemouth.ac.uk

ELIGIBILITY CRITERIA

All candidates must satisfy the University’s minimum doctoral entry criteria of an honours degree at Upper Second Class (2:1) and/or an appropriate Masters degree. An IELTS (Academic) score of 6.5 minimum (or equivalent) is essential for candidates for whom English is not their first language.

Preference for this studentship will be given to Chiropractors, Osteopaths and Physiotherapists. The successful candidate will be required to undergo a CRB check. All applicants will need to be a member of a relevant Professional Body.

HOW TO APPLY

Please complete the BU Research Degree Application 2014 and submit it via email to the School Research Administrator - Karen Ward - hscresearch@bournemouth.ac.uk by 31st March 2014. Further information on the application process can be found at www.bournemouth.ac.uk/phd2014