



**ANGLO-EUROPEAN
COLLEGE OF CHIROPRACTIC**

RESEARCH AND GRADUATE STUDIES

Academic Years September 2009 to August 2011





ANGLO-EUROPEAN
COLLEGE OF CHIROPRACTIC



Department of Research and Graduate Studies
and
Institute of Musculoskeletal Research and
Clinical Implementation

In memory of

DR HUGH GEMMELL

Principal Lecturer, AECC

1953 - 2010

TABLE OF CONTENTS

Introduction	9
Research Interests	11
Memberships	37
Publications and Presentations	43
Research Projects, Dissertations and Theses	53
Research Studies approved by the Research Ethics Subcommittee	69
Grants	73
Graduate Studies and Continuing Professional Development	75

INTRODUCTION

As an educational institution, the AECC is committed to research both to inform, and be informed by our teaching activities. Researchers play a central role in designing and teaching undergraduate and postgraduate research modules, supervising Masters and Doctorate research students, and generating income through successful grant applications. The quality of our research publications and the work our researchers do on external research committees and editorial boards all contribute to the institution's reputation as one of excellence in chiropractic education and training, and increasingly in other health-related areas as well.

There have been, and continue to be enormous challenges in higher education in the UK, not least in facing financial constraints. At times like these we must reflect on our research priorities and ensure that precious resources are targeted in areas that are important to the profession, societies and most of all, patients.

This report covers the research activity and output of AECC and IMRCI over the past two years. In the future we will build on this and develop a plan to meet our goal of a better understanding of musculoskeletal health through empirical observation. We will be active in seeking external grants to enable us to expand our research capacity, and focus on areas where we have developed the expertise to contribute at the highest level to new knowledge and clinical applications. We are pleased to present this Report, which acknowledges the work of faculty, dedicated research staff and those we have had the privilege of collaborating with. It is dedicated to the memory of our colleague Dr. Hugh Gemmell, a great proponent of research and its importance in the education of students and in the advancement of knowledge.

Professor Jennifer Bolton

Director of Research and Graduate Studies

Professor Alan Breen

Director of The Institute for Musculoskeletal Research and Clinical Implementation (IMRCI)

RESEARCH INTERESTS

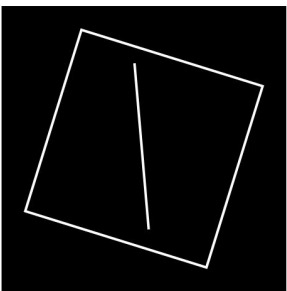


JEFF BAGUST

Emeritus Professor of Experimental Research



For more than 30 years my research interests have centred around the function of the nervous system. Prior to joining the AECC my investigations concerned sensory processing in the mammalian spinal cord using electrophysiological techniques. On moving to the AECC in 1998 the focus moved to human physiology, and I have conducted investigations into muscle control, heart rate variability, autonomic nervous system and respiratory function. Since retiring and being awarded Emeritus Professor status I have continued my involvement with experimental research at the AECC, both with my own projects, and in facilitating the research of other members of faculty.



A major area of ongoing interest is in the use of a Computer Rod and Frame (CRAF) program that I developed to measure the accuracy of an individual's perception of subjective visual vertical (and more

recently horizontal). This was prompted by an observation in the chiropractic literature that some people with chronic neck pain have larger errors in estimating vertical orientation, especially in the presence of a conflicting background (a tilted frame), than control subjects. This has been confirmed using the CRAF system in studies in the UK (with Hugh Hurst

and George Rix), and in Switzerland (with Sharon Docherty, Professor Kim Humphreys and Rebekka Schärer).

It is thought that distortions in the perception of subjective visual vertical might be a factor affecting balance and coordination making falls more likely. Sharon Docherty and I have collected a large set of data to validate and define the properties of CRAF that we are in the process of publishing. We also have collaborations, both in the UK and internationally, in which CRAF is being used to investigate different aspects of the subjective visual vertical:

- Parkinson's disease with Professor Ahmed Khattab and Professor Khaled Amar in Bournemouth, UK.
- Development in school age children – Lifestyle of our kids (LOOK) in Australia with Richard Telford, Wayne Haynes and Mark McGrath.
- Menstrual cycle and diabetes with Rima Abdul Razzak in Bahrain.
- Personality types with Mark Baldwin and Alex Browman in Canada.

Ian Brown and I have also been collaborating with Professor Steve Allen and Professor Ahmed Khattab (Bournemouth) in developing a new measure of human respiratory function which can be used by weak and infirm subjects who are unable to perform conventional spirometry manoeuvres. The results of a preliminary study demonstrating 'proof of principle' has been accepted for publication (April 2011).

ANGELO BATTISTON

Lecturer in Chiropractic Sciences



The mechanism by which foot orthoses improve postural control remains uncertain, but research suggests that it may stem from improvements in sensory feedback or changes in the centre of pressure that in turn affect joint movements. The term 'balance' describes a subject's ability to remain upright in stance. Postural control is the ability to maintain the body's centre of gravity within the borders of support. Postural control is consequently a strategy for maintaining balance. Balance occurs during static stance (standing or sitting still) and dynamic gait (any movements from a laying position to a moment of motion). Postural control is typically

measured during standing static stance and can be evaluated during either single- or double-limb support.

Loss of postural control has been consistently observed in subjects with chronic musculoskeletal instability involving structures including the feet, ankles and pelvis. Studies using traditional force plate testing have consistently linked poor postural control only to an acute ankle sprain rather than subjects with chronic ankle instability. Elderly subjects at risk of falling have also shown consistent deficits in postural control. Thus, efforts to improve postural control may potentially benefit diverse subject populations with different apparent needs and activity levels.

I am currently collaborating on a study of the effects of foot orthoses on postural control in healthy subjects. This will provide insight into the possible benefits of these devices with the potential to prevent traumatic falls and recurrent



JENNIFER BOLTON

Professor of Chiropractic Education



Evidence-based practice is central to healthcare practices throughout the world, and teaching undergraduate and postgraduate students the necessary knowledge and skills is a large part of our work. This year I was invited to teach on courses to the International Veterinary Chiropractic Association in Hamburg, and the new Norwegian chiropractic research school at the University of Stavanger. I also supported numerous first time researchers at Masters and Doctorate levels.

In terms of conducting research, epidemiology is concerned with mapping the prevalence, incidence and course of diseases in populations. A number of us have an interest in the identification of prognostic markers that can predict good or bad outcomes in populations of patients. This includes Hugh Hurst who is studying for his Professional Doctorate in prognostic markers for recovery in patients with back and neck pain undergoing treatment in a chiropractic practice in Bristol, and David Newell and Laura Davies in patients with back pain undergoing treatment in chiropractic practices throughout the UK. In this area I am also collaborating with Professors Humphreys and Peterson at the University of Balgrist, Switzerland, on prognostic factors in patients with back, neck and herniated disc pain.

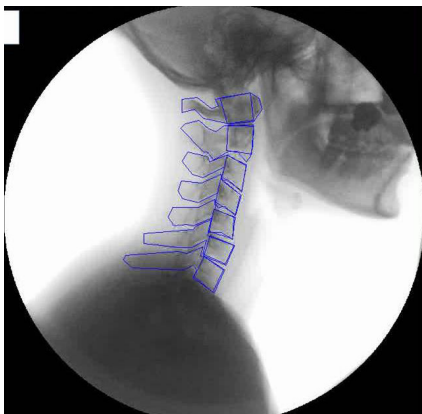
From the perspective of evidence-based medicine, it is essential to have measurement instruments that make it possible to detect clinically significant

improvements due to therapeutic interventions. Different methods of calculating cut-off scores in outcome measures that translate into worthwhile improvements is also an area of research that I continue to pursue.

In the UK the current government has placed considerable emphasis on quality of care. I am actively pursuing a health services research agenda aimed at describing the ways in which chiropractic services are delivered to meet population demands, and the effectiveness, cost-effectiveness and safety of these services. This will become an increasingly important area to concentrate on given the new GP commissioning groups and widening patient choice initiatives, giving chiropractic the opportunity to move forward into mainstream healthcare in the UK. Two important projects to date in this area are the outcomes project in which an instrument has been developed to measure quality of care in chiropractic practices (Taco Houweling) and the project tracking outcomes and experiences of patients with musculoskeletal pain referred by their GP to a multidisciplinary manual therapy service. This latter project is in collaboration with Mark Gurden, other chiropractors, and with osteopaths and physiotherapists, providing a good example of professions working together for the benefit of patients.

JONATHAN BRANNEY

PhD Research Fellow

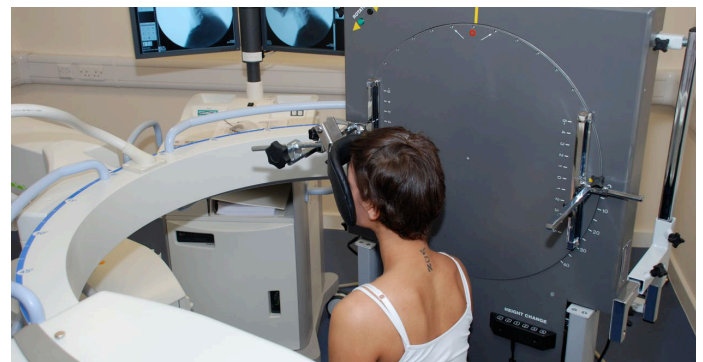


Neck pain is a common problem which is often disabling and costly to society, but our knowledge of the pathology and pathophysiology of this condition remains limited,

and a meaningful diagnosis is very difficult in most cases. Cervical intervertebral motion is thought to be an important factor in neck pain but accurate and meaningful quantification of this motion has been hampered by a lack of reliable means of measurement and analysis. Spinal manipulative therapy, a commonly sought treatment for neck pain, is purported to exert a therapeutic effect by improving intervertebral motion.

Contemporary advances in spinal biomechanics research mean that it is now possible to measure movement of the cervical spine continuously as a patient moves utilising quantitative fluoroscopy. It is this technology that I will be employing for my PhD, which commenced in September 2010 following the award of a Research Fellowship from the European Academy of Chiropractic. I will be analysing cervical

intervertebral motion in patients before and after receiving spinal manipulation for neck pain over four weeks and exploring whether any changes are related to patient-reported improvement. Additionally, healthy volunteers will be recruited to provide intervertebral motion data against which to compare the motion data from patients with neck pain. This PhD study is scheduled for completion in early 2014.



This is a very exciting research area as in most cases of neck pain current (static) imaging techniques are not usually particularly helpful diagnostically or for informing therapeutics.

Dynamic measurement of the cervical spine with quantitative fluoroscopy promises to be more information-rich than existing methods and may provide important insights, allowing more accurate diagnosis of neck pain and hopefully improving treatment selection in the future.

ALAN BREEN

Professor of Musculoskeletal Healthcare



The Institute for Musculoskeletal Research and Clinical Implementation (IMRCI) is a multi-disciplinary, externally-facing research department within the College. It has had two main aims over the 2009-2011 period; to deliver high quality, externally-funded multi-disciplinary research in the musculoskeletal field and to increase research capacity through post-graduate studentships.

The staff from 2009-2011 comprised a senior researcher (Jennifer Langworthy), a research radiographer (Fiona Mellor), a medical physicist (Alex Breen), a chiropractor and nurse (Jonny Branney) and a research administrator (Linda Bruce). As Director, I have supervised five PhD students from different disciplines over this period and externally examined two from other universities. Fiona Mellor and Jonny Branney hold prestigious doctoral fellowships from the UK National Institute of Health Research and the European Academy of Chiropractic respectively.

Until the end of 2010, the Institute collaborated with the School of Health and Social Care at Bournemouth University, two local Primary Care Trusts and the charity Back Care, to run and evaluate a large health improvement project funded by the Health Foundation. This was aimed at improving the management of back pain in the community and involved nine GP practices recording over 1,000

patient events. This project is now completed, although work to validate a questionnaire to assess GP educational needs in the management of back pain is continuing.

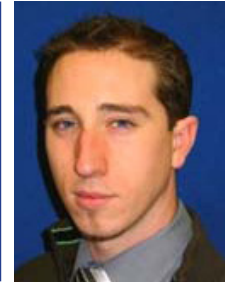
The Institute's main work is now largely centred around the use of a new breakthrough technology called Quantitative Fluoroscopy. This is able to measure the motion patterns between the bones of the spine in living subjects. The technology was invented and developed at the AECC by Institute staff and is rapidly gaining recognition in the research and clinical spine communities.

The technology works by combining specialised fluoroscopic imaging of the spine and bespoke image processing programs to measure the mechanics of the spine in living people.

Our current priority is to determine the reference ranges in healthy people without back pain. We also have contracts to assist our commercial partners, Ortho Kinematics (www.orthokinematics.com), to disseminate the technology by sharing our clinical biomechanics, radiographic and medical physics expertise with them. Currently, this technology supports our two PhD fellowships and a Masters degree studentship. The state-of-the-art fluoroscopic equipment needed to support this has been installed in the AECC Outpatient Clinic.

ALEX BREEN

Medical Physicist (Specialist - OSMIA)

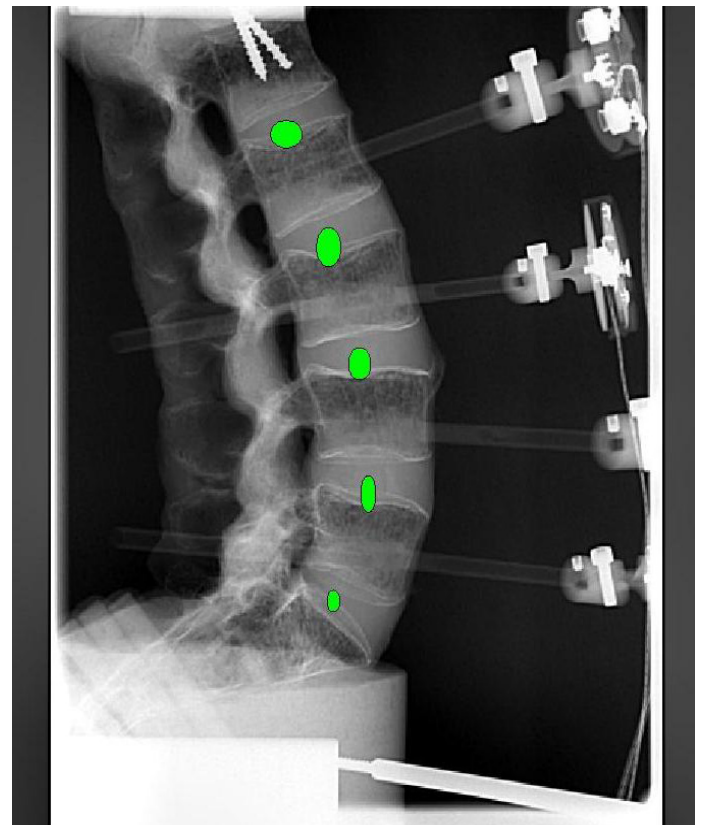


Measuring the mechanics of the spine in living subjects is a challenge that has been overcome by the development of the Objective Spinal Motion Imaging Assessment (OSMIA) technology at the AECC. Once moving x-ray images are obtained from patients, the whole sequence must be analysed by computers that both track the motion of individual bones and display the results as graphs and diagrams for clinical interpretation. This involves complex programming using image processing computer codes as well as the construction of computer interfaces that make the whole procedure accessible to the non-specialist.

My work in the analysis and display of the results of OSMIA investigations underpins the research and clinical investigations undertaken at the AECC. Typically, investigators want to know what the motion patterns look like. They also want to be able to measure the contributions that individual bones make to the motion of a whole section of spine so that the consequences of structural laxity or stiffness can be assessed.

We are also able to measure different features of the motion between the bones, such as their laxity. My work has also been to embed this within the computer analysis and display programmes. Sometimes it is desirable to display the information directly onto the images themselves.

In addition to developing these programs and making sure that they work for our investigators here and abroad, my work also involves the design and implementation of studies of their reliability. This is also the subject of my Masters degree dissertation in Medical Physics.



IAN BROWN

Principal Lecturer

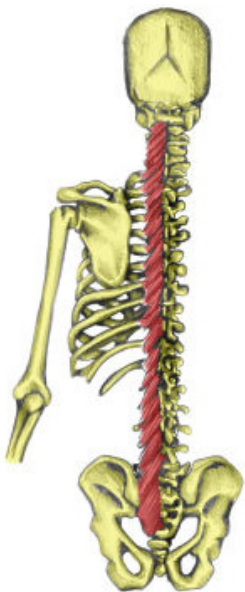


I am currently involved in a research collaboration with Professor Steve Allen, Royal Bournemouth Hospital, Professor Ahmed Khatab, Bournemouth University and Professor Jeff Bagust, AECC, investigating a new index for assessing respiratory function in populations of patients that are unable to perform forced expiratory lung performance tests.

I am also involved in investigating the effects of acute and chronic stress on heart rate variability as an indicator of autonomic sympathetic nerve activity and the release of the stress hormone, cortisol. This research is in collaboration with Richard Foreman and Professor Jeff Bagust at AECC.

JANE COOK

Senior Lecturer



My research interests are in diagnostic ultrasound of the musculoskeletal system. I am involved in ongoing research into the evaluation of the lumbar multifidus muscle using ultrasound. My current study aims to confirm baseline measurements for lumbar multifidus contraction in both asymptomatic and chronic low back pain patients outlined by previous investigators.

The study will investigate contraction of lumbar multifidus

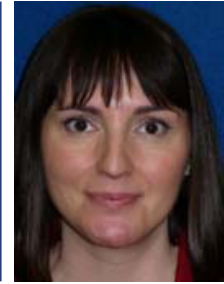
in chronic low back pain patients as measured by diagnostic ultrasound and compare this with an asymptomatic population. The intra-rater reliability of ultrasound measurement of lumbar multifidus muscle thickness and contraction at L4-5 and L5-S1 in an asymptomatic group of subjects will also be investigated.

We hope that the knowledge gained in this study will be taken forward to inform future treatment and rehabilitation programs in the AECC Clinic.



LAURA DAVIES

PhD Research Fellow



Over the past decade the “one size fits all” therapeutic approach to non-specific low back pain (nsLBP) has largely been deemed redundant due to recognition of the heterogeneous nature of nsLBP, which may be considered as being composed of a number of subgroups. Consequently, the identification of these

subgroups has been highlighted as a key research priority in recent times within the manual therapies. More specifically in the context of chiropractic research, subgroups and their prognostic factors for recovery have been identified in the Scandinavian chiropractic nsLBP patient population. In the UK, an observational study is currently being conducted in chiropractic clinics nationwide, thereby continuing the effort to identify predictors of outcome in nsLBP patients undergoing chiropractic care. Based at the AECC (and jointly funded by the AECC and the BCA), the study forms the basis of a PhD registered at the University of Portsmouth.

Data for the study have been collected in clinical-practice settings and subsequently by postal

questionnaires sent to participating patients at three and six months from the date of their first visit. Various domains of potential predictors of outcome have been included in the study, ranging from patient and clinician demographics and characteristics, to clinical examination findings and psychosocial factors, including the potential influence on outcome of the patient-practitioner relationship or therapeutic alliance. This concept originated from psychotherapy and although recently has begun to be investigated in patients with musculoskeletal complaints undergoing manual therapy, it is being introduced to a UK chiropractic study for the first time.

A further unique aspect to this study is the implementation of text-messaging as an innovative data collection tool to record outcomes in the immediate short term from patients over seven consecutive days following their first visit.

Data analysis is currently nearing completion and it is anticipated that the thesis will be submitted by the end of 2011. The results from this study may assist in the targeting of appropriate treatment for subgroups of patients with nsLBP presenting to a chiropractor. Furthermore, the identification of prognostic factors amenable to modification may have a considerable impact on patient management.

PHILIP DEWHURST

Lecturer



Anatomy is a key subject within the education of a chiropractor. Whilst a great deal is known about anatomy education in medical undergraduate programmes, very little is known about how anatomy is taught and how students learn the subject in chiropractic programmes.

The approaches to teaching anatomy in the UK vary from one chiropractic institution to another. It is not known if the methods employed result in students understanding and retaining knowledge for clinical application, or if they promote short term memorisation for passing examinations. Various different approaches to teaching anatomy have been studied in medicine since the 1993 publication of 'Tomorrow's Doctors' by the General Medical Council, which has resulted in two main types of syllabus delivery; the traditional method (using dissection) and the modern method (using a variety of techniques other than dissection). As

no UK chiropractic institution uses dissection, it can be said that chiropractic in the UK utilises a modern approach to teaching anatomy. However, there is great variability in the modern method (e.g. prosection, problem based learning, small group tutorials, medical imaging and use of plastic models) and no single approach has been shown to be of greatest educational benefit.

In order to begin to understand if the teaching of anatomy in chiropractic programmes is suitable for retention of knowledge and clinical application, a survey was distributed to final year students of the AECC in 2009. The survey aimed to understand if students felt that the anatomy education they had received had prepared them for their clinical internship. This cohort of students indicated that gross anatomy and neuroanatomy were of greatest clinical importance with histology being of less importance. The students also highlighted that the college's prosection laboratory was the best teaching tool and that the majority of students studied anatomy because it was important to their future careers and not just to pass examinations.

Future research needs to focus on the approaches used in teaching within chiropractic programmes to understand if the methods of delivery are appropriate for the needs of the future clinician. This is an area of interest which we have only just started to explore and future research will help identify the most efficient and beneficial ways to teach anatomy.

SHARON DOCHERTY

Research Associate



Being aware of our body's position in relation to our surroundings is an important aspect of our ability to function in a changing environment. This internal picture is made up of information from our eyes, the receptors that tell us where we are in relation to gravity and proprioceptors within our joints and muscles that give us information about how our body is positioned. Therefore, a problem with any of these systems can lead to a change in how we are able to negotiate our environment and may, for example, lead to an increased risk of falling.

The rod and frame test is an easy, non-invasive method of measuring a person's internal perception of "which way is up". I have been working with Professor Jeff Bagust on a series of projects using a computerised version of the rod and frame test. These projects have led to a collaboration with Professor Ahmed Khattab from Bournemouth University and Professor Khaled Amar, Director for Parkinson's Disease in the South Coast region with the DeNDroN (Dementias and Neurodegenerative Diseases) research network, investigating whether patients with Parkinson's disease have an altered perception of vertical.

As well as local collaborations, we have been working with Professor Kim Humphreys and Rebekka Schärer

at Balgrist University Hospital, looking at the influence of chronic neck pain on a person's perception of vertical and horizontal, and also as part of a large international multi-disciplinary research team (based at the Australian National University) on the effect of a physical education intervention on the health and development of schoolchildren. These studies are all reaching completion with papers either submitted or in preparation for publication.

Looking to the future, we are developing a collaborative relationship with Rima Razzak of the Arabian Gulf University in Bahrain on the effect of glucose levels on rod and frame performance.

In addition to the rod and frame studies, I have carried out a study investigating the effects of using a telephone headset on musculoskeletal pain in the head and neck region. This was externally funded, bringing in a valuable source of income for research. Furthermore, I am about to embark on a trial, funded by Foot Levelers Inc, investigating the effect of using Spinal Pelvic Stabilizers on balance, vertical perception, posture and lower limb biomechanics. This study will be carried out in conjunction with Angelo Battiston and Neil Osborne.

JONATHAN FIELD

PhD Research Student



Along with my clinical experience, reviewing collated outcome results from chiropractic practices has led me to become increasingly curious as to why patients presenting with apparently similar painful musculoskeletal conditions respond differently. If we knew at the start that a patient was unlikely to respond to one type of treatment approach it would be helpful in guiding us to recommend alternative management. The limited number of factors so far described as having a relationship with outcome in studies involving chiropractic patients with low back pain (gender, duration of pain, severity of pain and pain elsewhere) are of limited help to a clinician when deciding on a care plan as they appear to adversely affect the prognosis with all treatments. In other patient groups, psychological factors are believed to significantly influence response to treatment. However, studies with chiropractic populations have not found the same association. Having recently conducted a comparative review of the literature it appears that those choosing to present to chiropractors have generally lower levels of potentially adverse psychological factors.

Early change in symptoms whilst having chiropractic care does appear to be highly prognostic. Patients not seeing a change in their symptoms (for better or worse) after an initial visit appear less likely to have

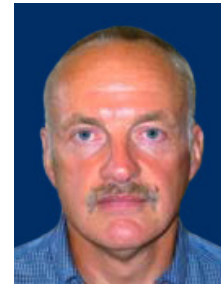
made good progress at four sessions, and where there has been no real improvement by the fourth visit the chance of worthwhile improvement despite continued care is limited. This suggests that factors may be present early in care that could be useful in identifying those less likely to respond.

Together with David Newell and Professor Peter McCarthy, I have conducted a preliminary investigation into changes in psychological variables after an initial visit to a chiropractor. We described how patients who were not reassured, retaining higher levels of fear avoidance beliefs, catastrophic thoughts or less pain related self-efficacy were less likely to have improved within a month. This may suggest that failing to be reassured after this first visit has the potential to be a useful prognostic indicator.

As part of a PhD being supervised through the AECC by David Newell and Pat Partington I am looking further at the extent and significance to the patient of reassurance after starting chiropractic care. I will be exploring the results of the preliminary study further using larger patient samples whilst controlling for a range of possible confounding factors. Data collection for this is due to start in May 2011. In addition a qualitative study using patient interviews will investigate possible explanations for the lack of reassurance seen in some patients.

RICHARD FOREMAN

Senior Lecturer

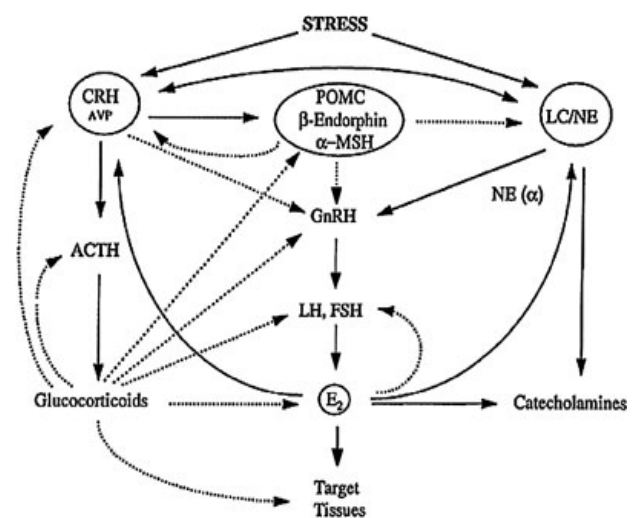


The stress response has evolved in mammals as a means of coordinating emotional, physiological and metabolic responses to adverse or threatening situations. In humans the response can be triggered by pathological or psychosocial factors and its alleviation can be a significant factor in determining the efficacy of any therapeutic intervention.

The sympathetic/adrenomedullary (SA) system and the hypothalamic-pituitary-adrenal (HPA) axis both contribute to the stress response. Catecholamines released as a result of an increase in SA system activity produce the classic “fight or flight” response including increases in heart rate, cardiac contractility, ventilation rate and plasma glucose concentration and a simultaneous decline in gastro-intestinal activity. In the HPA axis, exposure to adverse stimuli leads to an increase in the release of cortisol from the adrenal cortex, which in turn alters the metabolic balance in a variety of tissues, giving rise to hyperglycaemia, selective mobilisation of fat stores and suppression of the inflammatory and immune responses. It is important to note that the two components of the stress response do not operate in isolation. Idiopathic variations in the response to identical stressful stimuli are well documented and have their origin in both environmental and genetic factors. In particular, recent work has indicated that an increase in the stress response in early life may have long term predisposing effects on patient wellbeing in terms of

susceptibility to depressive illness and inflammatory disease.

Thus, reliable and accessible measurement of the stress response immediately before and after a treatment would be a useful objective tool in determining the potential therapeutic benefit of any treatment regime. In addition it would be of interest to examine the baseline levels of stress experienced by patients attending the clinic for short term versus more chronic conditions where there is the possibility of a modified response. To this end we plan to measure biochemical and physiological indices of the stress response in test subjects to develop a robust model of stress measurement that can be applied to the clinical situation.



TACO HOUWELING

PhD Research Fellow



The provision of treatment for low back pain is an important contributor to national health care costs in the UK. As such, it is not only necessary to ensure adequate health outcomes but also that resources are allocated efficiently. The delivery of better health outcomes and cost effective care is now more important than ever as the NHS comes under increasing pressure to save £20 billion over the next four years. These health outcomes, along with parameters that may maximize them, such as patients' experience of the process and safety of care, are important determinants of health care quality.

Health care quality and costs cannot be determined without suitable instruments and this study aims to develop and use an instrument to assess quality of care in patients with low back pain undergoing chiropractic treatment. This instrument has now been developed based on a review of the available evidence and is being used to collect data in chiropractic clinics throughout the UK. Following completion of data collection, in addition to documenting quality and related costs of care, the robustness of the instrument will be evaluated. Moreover, outcomes data will be reported in ways that are meaningful to healthcare stakeholders, with costs of care being determined using national tariffs.

This study, which is funded by the BCA and AECC, is being conducted as a PhD thesis. I started as a

Research Fellow in January 2009 and aim to complete the work in summer 2012. The study marks the start of a strategic goal of research at the AECC in health services research and providing evidence to a range of stakeholders of the quality and cost of chiropractic care.



HUGH HURST

Professional Doctorate Student



The incidence of back and neck pain appears to be as prevalent as ever in the developed world and a small percentage of these sufferers go on to develop chronic and disabling pain which

is a tremendous economic burden to both employers and the state.

Considerable research has been conducted in recent years in musculoskeletal disorders to identify subgroups of either prognostic factors or treatment modifiers. Prognostic factors are the characteristics that identify patients who will recover at different rates or will have different outcomes, regardless of treatment. In spite of all the research, no clear predictors for back and neck pain have been identified. It could be that different authors define different treatment outcomes such as, for example, return to work or improvement. My Doctorate study, which is observational in nature, set out to describe the clinical and demographic characteristics of back

and neck pain patients to i) determine a method for identifying improvement in these patients; ii) to determine variables associated with improvement in these patients at the 4/5th treatment and 10th treatment; and iii) to see if these variables were independently associated with improvement. The study forms the basis of a Professional Doctorate and is registered at the University of Portsmouth.

Data for this study have been collected in a clinical practice at baseline, the 4/5th visit and the 10th visit for consecutive back and neck pain patients. Patients were categorised as improved using the anchor-based method, comparing change scores on the post-treatment Bournemouth Questionnaire with the Patient-rated Global Improvement Scale as the anchor. All baseline predictors were entered into a univariate model and the predictors that remained significant were entered into a multivariate model for the outcome of improvement at treatment 4/5 and 10. The predictors which have been identified for back and neck pain patients should inform both practitioner and patient about the likely outcome of the presenting complaint and could help to identify subgroups of patients undergoing chiropractic treatment most likely to improve.

AMANDA JONES-HARRIS

Senior Lecturer



I am a senior lecturer at the AECC and currently the lead lecturer in Neuro-orthopaedics on the undergraduate MChiro course and the pathway leader for the MSc Advance Professional Practice (Orthopaedics). My research interests lie in the healthcare role of chiropractors, evidence-based practice and medical education.

Knowledge of evidence-based practice and research methods is integral to modern healthcare, and whilst these are now integrated into the undergraduate chiropractic programme there is a need to provide post-graduate education and support in these disciplines. My involvement in this has included teaching on the post-graduate CPD and Masters

courses at the AECC, as well as at the new Norwegian chiropractic research school at the University of Stavanger.

My interest in medical education research complements my full-time teaching post, with several research projects currently ongoing that aim to improve the education and assessment of chiropractic students. These include a questionnaire-based survey into the experience of the chiropractic student during the transition between pre-clinical studies and clinical internship, and a qualitative study into the introduction of the OSLER (objective structured long examination record) as a test of clinical competence.



JOYCE MILLER

Associate Professor



The gap between clinical practice and research can be wide in healthcare and this is especially so in paediatrics, where research offers special challenges. It is important to fill that gap as both clinicians and patients understand that the keys to life-long health are often grounded in the early years, even in the earliest weeks and months of life. This has been emphasised recently as new research shows that children today are more likely to suffer from chronic conditions including obesity, asthma, diabetes, allergies and musculoskeletal pain and resulting difficulty, rather than acute disease processes.

Chiropractors, with their knowledge of lifestyle, posture, nutrition and psychosocial dynamics, take a keen interest in public health which over-arches a special interest in musculoskeletal health. My specific interest is in paediatric research. When a health problem can be solved for children, it has a beneficial rippling effect for the family, community and general public health. The kinds of problems that require our focus are those that take the greatest toll on infant and family health and resources. These include pain behaviours of infancy (most commonly described as excessive crying of infancy or infant colic), feeding/sleeping and musculoskeletal disorders including neck, back and headache as well as analgesic/asymmetric postures, including positional head deformity.

The MSc in Paediatric Musculoskeletal Health is one way that this essential research can be done.

I have conducted research with a number of Masters students, including mapping chiropractic care of paediatrics throughout Europe (Aurelie Marchand) and around the world (Matt Doyle). Zoe Freedman investigated how chiropractors perceive their paediatric practices and Aurelie Marchand investigated forces appropriate for treatment.

I have also completed (with David Newell and Professor Jennifer Bolton) a randomised controlled trial (RCT) in treatment for infant colic, which resulted in a significant improvement in crying reduction with treatment as opposed to no treatment in the same time period.

An observational study of subgrouping excessively crying infants (David Newell and Sean Phelps) has also been completed, as has initial validation of a parent survey against the crying diary to document change in infant behaviours (Amanda Green).

It is important to include the mother in research. The significance of post-natal depression in the crying baby/mother dyad has been documented in chiropractic practice (Loretta Mullins-McGuillion, Annique Holleman) and an observational study of chiropractic care during pregnancy has been published (Elisabeth Aas Jacobsen). An RCT investigating chiropractic treatment for back pain in pregnancy is planned for 2011/12 (Linzi Howell and Maria Browning).

PETER MILLER

Senior Lecturer



Let me ask you a simple question; what is it that chiropractors treat when they perform a spinal adjustment? This simple question has caused more angst over the lifetime of the chiropractic profession for chiropractors than any other clinical question. My Professional Doctorate, completed in 2009, attempted to understand what it was that chiropractic teaching institutions perceived they were treating (termed a 'spinal manipulable lesion' for the purposes of the research) and how this entity is detected. The research also investigated why these attitudes and opinions towards the detection of the

spinal manipulable lesion were held. The results suggested that the spinal manipulable lesion treated during a chiropractic adjustment is a complex entity and consisted of a number of elements. The research also suggested that the teaching of detection of the spinal manipulable lesion was a difficult skill and an evolving process. The Doctorate led directly to a change in how detection of the spinal manipulable lesion is taught and has acted as the basis for a number of changes throughout the teaching of technique in general at the AECC.

My other research interests have included looking into the efficacy of a number of myofascial treatment techniques and modalities and, along with Hugh Gemmell, I completed and published a randomised controlled trial investigating the efficacy of commonly used treatments for sub-acute neck pain.

My preferred method of research is the qualitative paradigm and I have worked on a number of studies investigating the perceptions of patients to different aspects of care.

FIONA MELLOR

Research Radiographer / NIHR Clinical Doctoral Research Fellow



The biomechanics of the lumbar spine *in vivo* and its relationship to chronic non-specific low back pain (cnsLBP) is poorly understood. The majority of cnsLBP is deemed 'mechanical' which means it is made better or worse by movement or position.

Cadaveric studies have shown that movement patterns between lumbar vertebrae (inter-vertebral movement) are altered when the disc is diseased or disrupted. However, by their nature, these studies are unable to depict motion patterns influenced by muscular (active) and motor (neural) control. Conversely, *in vivo* studies have not been able to remove the influence of the active and motor control subsystems because the methods of trunk movement have been weight-bearing and uncontrolled.

Using a technique called passive motion quantitative fluoroscopy, which can measure inter-vertebral movement not influenced by active or motor control, I am undertaking a part-time PhD to compare the differences in movement patterns in those with cnsLBP (which is presumed to be mechanical) and those without back pain. This will hopefully bridge the gap between *in vitro* and *in vivo* studies of inter-vertebral motion.

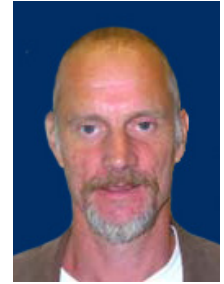
The PhD is supported by the National Institute of Health Research (NIHR) under a Clinical Academic Training Fellowship awarded in 2009, and is due for completion in 2013.

Additionally I am an active member of the Society and College of Radiographers Research group and the Research Forum for Allied Health professionals. The remit for both groups includes strategic planning for research in the Allied Health Professions (AHPs) and enabling AHPs to engage and undertake research in clinical practice.



DAVE NEWELL

Senior Lecturer



Low back pain (LBP) and neck pain are common complaints and account for significant costs to society and suffering for the patient. Low back pain in particular has proven especially resistant to identifying effective treatment. Randomised controlled trials have universally indicated that manipulation is not markedly superior to other common interventions, most of which in any account are modest. However, it is common experience amongst practitioners that patients do improve, sometimes substantially when undergoing chiropractic management and it is possible that the average effect across a heterogeneous population of types does not reflect the benefit seen by particular subgroups of LBP sufferers. In an attempt to see if certain types of patients are more or less likely to improve, a number of us are currently investigating whether characteristics at baseline (presentation) are able to predict outcome in chiropractic patients with LBP. This type of study is a preliminary step to the identification of patients that may respond more positively to particular types of management and ultimately can serve to target specific patients to the best treatment.

Clearly the initiatives outlined above have to be supported by appropriate and efficient ways of measuring patient outcome. In this regard, Andrew

Vitiello and I have initiated the development of a smart phone App capable of recording multiple outcomes from patients in their home environment. This smart App reminds the patient when feedback is needed and either automatically sends information over the web to a central collection, or downloads the data when the patient next attends the practitioner. An application for £20K and amounting to one year's support has been submitted to the BUPA foundation to support this initiative in conjunction with collaborators at the University of Ulster headed by Huiru Zheng.

Although patient-reported outcomes are widespread, there has been an increasing interest in LBP research to develop other more objective measures of function that may either allow progression of, or predict recovery. To this end I and others, notably Professor Kim Humphreys at the University of Balgrist, Switzerland, have been looking at the walking characteristics of patients with LBP. Following initial work here at the AECC, we recently hosted a Swiss MSc student for three months, who investigated the relationship between walking characteristics in patients with LBP. The development of potential adjunct physical measures that may help characterise some aspect of musculoskeletal problems is an emerging area.

NEIL OSBORNE

Senior Clinical Tutor



Current healthcare provision, necessarily, has been the important focus of evidence-based practice. However, the outcome measures that we have for this are almost exclusively self-report measures such as 'pain' or 'disability'; parameters that cannot be effectively measured as there is no parity between subjects. It is important therefore to look beyond pain to see whether there is a measure of function that can be determined, i.e. a measure that may herald the emergence of a clinical condition without relying upon the patient's interpretation of their symptoms; a measure that may herald the onset of a painful condition before the symptoms have begun.

My own previous studies, which formed the basis of a PhD, focussed on aspects of eye-movement, which have had some support in the scientific literature in 'defining' the presence or absence of whiplash. The jury is still out on whether this is possible, but from what Professor Ann Moore from the University of Brighton, Professor Jeff Bagust and I have observed to date, there are associations but we are a far cry from defining whiplash, and it is debateable whether such a goal will be possible. However, there are other less subtle aspects of function that may be more successful in predicting the presence of a condition.

Many of these approaches I have learned as I have had the privilege of being the course leader in MSc Rehabilitation since 1996 and a student of the great pioneers and scientists of the 'functional approach', such as Professors Lewit, Janda and McGill. It is important to develop objective scientifically validated measurement strategies for some of these functional deficits, which include strength, endurance and movement patterns, to see whether they are indeed present in certain conditions, and to see, in a prospective cohort study, whether they pre-exist future pain or non-contact injury. Juliet Lock and Anna Jonasson are two of the AECC's MSc students who have taken this mantle upon themselves. Juliet Lock has investigated endurance strength in rowers and Anna Jonasson is working with the Dutch National Football team looking at aspects of balance. Currently eleven different sports-specific assessment protocols have been developed at the AECC, which now require refinement and then testing in a prospective setting.

It is quite possible that the prediction and therefore prevention of re-injury is likely through functional measurement. The goal however, is primary prevention; in other words the assessment of an individual so as to predict first-time injury.

KATE ROWE-JONES

Lecturer



Whilst doing my Masters in Academic Practice I became acutely aware of the challenges of reflection. There is a plethora of literature purporting to various strategies and techniques for eliciting

reflection which is often very confusing and complex. Final Year Exercise Science students are required to write a reflective journal for their Clinical Placement Unit and in my experience as their Programme Manager this has proved to be a task they are not comfortable with and often find extremely difficult. I realised students needed much greater guidance in terms of both the actual process of reflection and also greater support than they were currently receiving. Similarly, for my own professional development, I wanted to find out if it was actually possible to teach students to reflect.

In order to gain insight into students' understanding of reflection and ways in which they felt they could have been better supported, I conducted a semi-structured focus group interview. With the results of this interview and the knowledge gleaned from the literature, an action research cycle was initiated,

instigating strategies to support student reflection in another student cohort across one year of clinical placements. Subsequently, a further focus group interview was carried out with this second cohort to ascertain if the strategies put in place had been effective, if students had a better understanding of reflection and also if they had found the reflection process less problematic.

In this research I found that students felt most comfortable and supported in a confidential seminar situation, where effective facilitation enabled them to develop and elicit the skills required to reflect successfully upon their clinical experiences and learning. Students did not find the use of process models and guidelines helpful in their reflective activities.

My research identified that every student is a unique individual and so will respond differently to varying learning environments under the influence of a vast array of factors such as history, gender, culture, personality and preferred learning styles. This research is testimony to the importance of educational research in our teaching institutions.

HAYMO THIEL

Associate Professor



The capture, recording and analysis of information on patient safety incidents is essential to reduce and manage risk and ultimately improve patient safety. With this in mind, we introduced in 2005

the Chiropractic Reporting and Learning System (CRLS) in conjunction with the British Chiropractic Association to collect patient safety incident data from chiropractors. In 2007, a second system known as the Patient Incident Reporting and Learning System (PIRLS) was developed at the McTimoney College of Chiropractic. In order to unify the process of safety incident reporting in the UK, and to facilitate participation among all registered UK chiropractors, we combined our experiences with those of the other UK chiropractic educational institutions, the four UK professional associations, and the College of Chiropractors. This led to the joint development of a new online reporting system known as the Chiropractic Patient Incident Reporting and Learning System (CPiRLS). The CPiRLS project aims to enhance

the learning element and improve the ease and accessibility of incident reporting.

I have also been in close contact with colleagues in Switzerland during the development of the Swiss Critical Reporting and Learning System (CRLS), which was launched in 2007 by Martin Wangler and Beatrice Zaugg. As with CPiRLS, the Swiss CRLS website (www.crls-chiro.ch) informs on the purpose and scope of incident reporting and learning, and only chiropractors can submit and read reports on the password-protected website.

The development of these two European incident reporting and learning systems, as well as the establishment of guidelines, are excellent examples of what can be achieved through collaboration between interested individuals, chiropractic teaching institutions, professional associations and post-graduate bodies. It also supports the notion that continuing professional development must relate to self-directed, life-long learning by reflection and evidence, in order to provide effective and safe care as knowledge and practice evolve.

ANDREW VITIELLO

Lecturer



My current research interests are broad and encompass a variety of issues pertinent to musculoskeletal health.



I have a keen interest in further developing methods to improve current backpack designs in order to minimise the ill-effects heavy loads have on the human body, particularly within the adolescent/school population. My PhD thesis (Effect of backpack design on the electromyographical activity of back muscles) investigated how design modifications could have real and tangible effects in reducing muscle activity and the perception of fatigue.

Within the arena of signal processing/EMG I also have a keen interest in investigating the effects of cognitive influences on the behaviour of back muscles. Further research into this area may help shed light on the link between cognitive dissonance and the onset of early fatigue markers in muscle activity. Understanding this link may help improve our understanding of the

bio-psychosocial element of chronic low back pain.

With the advent of smart phones, and the subsequent take-up of such technologies by the broader mobile phone consumer market, there are potential areas for research into the use of such technologies in the clinical setting. I have been investigating the use of smart phones to gather important health-related data within the clinical practice setting. Currently I am involved in developing a smart phone application that will allow the collection of various patient- and disease-centred outcome measures for both clinicians and health researchers. Smart phones offer the medical and research communities a unique platform from which quick and efficient gathering of specific patient information can be collected away from the clinical setting.

I was awarded the Research Award 3rd Prize at the World Federation of Chiropractic Congress in Rio De Janeiro, Brazil in 2011 for my work with A Kalamir, R Bonell and P Graham entitled "Intra-oral myofascial therapy, education and self care for chronic myogenous temporomandibular disorder: a randomized controlled trial".

MEMBERSHIPS



Honorary Lectureships/Professorships

Breen AC

- Centre for Postgraduate Medical Research and Education, Bournemouth University (Visiting Professor)
- Centre for Wellbeing and Quality of Life, Bournemouth University (Visiting Fellow)
- Department of General Practice and Primary Care, Barts and the London School of Medicine and Dentistry, Queen Mary University of London (Honorary Senior Research Fellow)
- Faculty of Health Science, University of Stavanger (Adjunct Professor)
- School of Medicine, University of Southampton (Visiting Lecturer)

Brown I

- School of Medicine, University of Southampton (Visiting Research Fellow)

Editorial Boards

Bolton JE

- Clinical Chiropractic (Assistant Editor)
- Journal of Chiropractic Education (Editorial Board)
- Journal of Chiropractic Medicine (Editorial Board)
- Journal of Manipulative and Physiological Therapeutics (Editorial Board)
- Topics in Integrative Healthcare (Editorial Board)

Breen AC

- BMC Chiropractic and Osteopathy (Editorial Board)
- BMC Family Practice (Reviewer)
- BMC Musculoskeletal Disorders (Reviewer)
- Clinical Biomechanics (Editorial Board)
- Clinical Chiropractic (Editorial Board)
- Complementary Therapies in Medicine (Editorial Board)
- Journal of Alternative and Complementary Medicine (Editorial Board)
- Journal of Manipulative and Physiological Therapeutics (Editorial Board)
- Manual Therapy (Editorial Board)
- National Electronic Library of Health (NELH) - Complementary and Alternative Medicine Specialist Library (Associate Editor)
- Pain (Reviewer)
- The Chiropractic Report, Canada (Editorial Board)

Mellor FE

- Radiography Journal (Reviewer)

Miller J

- Biomed Central (Reviewer)
- Clinical Chiropractic (Reviewer)
- Journal Canadian Chiropractic Association (Reviewer)
- Journal Manipulative and Physiologic Therapeutics (Reviewer)

Osborne N

- Clinical Chiropractic (Reviewer)
- International Journal of Manual Medicine (Editorial Board)
- Journal of Bodyworks and Movement Therapy (Editorial Board)

- Manual Therapy (Editorial Board)

Newell D

- Clinical Chiropractic (Editorial Board)

Thiel H

- Chiropractic and Osteopathy (Reviewer)
- Clinical Chiropractic (International Advisory Board)
- International Journal of Osteopathic Medicine (Reviewer)
- Journal of Manipulative and Physiological Therapeutics (Reviewer)
- Journal of Medical Case Reports (Reviewer)
- Journal of the Canadian Chiropractic Association (Editorial Board)
- Manual Therapy (Reviewer)
- The Back Letter (Editorial Board)

Wilson FJH

- Chiropractic History (Editorial Board)

Membership on External Scientific Advisory Boards/Committees

Bolton JE

- College of Chiropractors (Research Committee)
- European Academy of Chiropractors (College of Researchers)

Breen AC

- Arthritis Research Campaign Grants Committee (Reviewer)
- Medical Research Council Grants Committee (Reviewer)
- Research Council of the European Chiropractors' Union (Member)
- Research Council of the World Federation of Chiropractic (Member)

Browning M

- European Council on Chiropractic Education (Evaluation Team Member)

Mellor FE

- Research Forum for Allied Health Professions (Alternate Member)

Newell D

- AFC Boot Camp Project Steering Committee (HFC, Bournemouth University)

Thiel H

- Arthritis Research UK, National Institute for Health Research and Keele University (Member, Delphi consensus study on Clinical Assessment of Low-back related Leg Pain in Primary Care)
- British Standards (Member Development Group BSI SVS/013 Chiropractic Services)
- European Academy of Chiropractic (Member Development Group, European Guidelines for a Chiropractic Incident Reporting and Learning System)
- European Committee for Standardisation (Contributor to CEN/PC394 Services of Chiropractors)
- Research Council for Complementary Medicine (Member Working Group, The way ahead – safety and evidence for CAM professional bodies)

Wilson FJH

- University of Glamorgan (External Examiner)

Membership of Research Societies

Bagust J

- British Neuroscience Association
- Federation of European Neuroscience Societies
- Physiological Society
- Society For Neuroscience (American)

Battiston A

- International Federation of Sports Chiropractic

Bolton JE

- Society for Back Pain Research

Breen AC

- Arthritis Research Campaign: Musculoskeletal Pain Clinical Studies Group (Keele University)
- Dorset Spine Club
- Institute of Physics and Engineering in Medicine
- Society for Back Pain Research

Mellor FE

- Society for Back Pain Research
- Society and College of Radiographers Research Group

Wilson FJH

- Association for the History of Chiropractic
- Health and History Interdisciplinary Group (Bournemouth University)
- Osteopathic History Group (UK)

Positions in Professional Bodies/Associations

Battiston A

- International Federation of Sports Chiropractic Research Committee (Member)

Bolton JE

- British Chiropractic Association (Honorary Fellow)
- College of Chiropractors (Member, Court of Electors; Honorary Fellow)
- European Academy of Chiropractors (Director of Academic Affairs)
- European Academy of Chiropractors (Founding Fellow)
- Higher Education Academy (Fellow)

Branney J

- British Chiropractic Association (Member)

Breen AC

- Audit Committee of the UK General Chiropractic Council (Member)
- British Chiropractic Association (Member)
- College of Chiropractors (Fellow)
- Education Committee of the UK General Chiropractic Council (Member)
- Fitness to Practise Committee of the UK General Chiropractic Council (Chair)
- General Chiropractic Council of the UK (Member)
- Royal Society of Medicine (Fellow)
- Societe Franco-Européenne de Chiropractique

- Society for Academic Primary Care

Browning M

- British Chiropractic Association (Member)
- European Academy of Chiropractic (Member)
- European Chiropractors' Union (Member)

Field JR

- British Chiropractic Association (Member)
- British Pain Society (Member)
- College of Chiropractors (Fellow)

Jones-Harris AR

- British Chiropractic Association (Member)
- College of Chiropractors (Fellow, Orthopaedics)
- European College of Chiropractors (Fellow, Orthopaedics)
- Higher Education Academy (Fellow)

Lewis B

- European Chiropractors' Union (First Vice President 2009-2011)
- World Federation of Chiropractic (European Representative)

Miller J

- College of Paediatrics, European Academy Chiropractic (Chair)

Newell D

- College of Chiropractors (Honorary Fellow)

Osborne N

- British Chiropractors Association (Fellow)
- College of Chiropractors (Fellow)
- College of Chiropractors Orthopaedics and Rehabilitation Faculty (Fellow)
- Higher Education Academy (Fellow)
- International Society of Clinical Rehabilitation Specialists (Board of Directors)
- Neuro-orthopaedic Institute (Member)
- Royal Society for the Promotion of Health (Fellow)

Thiel H

- British Chiropractic Association (Fellow)
- College of Chiropractors (Fellow)
- College of Chiropractic Sciences, Canada (Fellow)
- European Academy of Chiropractic (Founding Fellow)
- Higher Education Academy (Fellow)
- Integrated Health Committee, Royal College of Physicians (Member)
- International Academy of Clinical Acupuncture (Fellow)
- Professional Standards Committee, British Chiropractic Association (Member)

Wilson FJH

- British Chiropractic Association (Fellow)
- College of Chiropractors (Fellow)
- European Academy of Chiropractic (Fellow)
- Higher Education Academy (Fellow)

PUBLICATIONS AND PRESENTATIONS



Full Papers

Aas-Jakobsen E, **Miller J**. Chiropractic care during pregnancy: survey of 100 patients presenting to a private clinic in Oslo, Norway. *Journal Clinical Chiropractic Pediatrics* 2010;11(2):771-774.

Allen S, **Brown I**, Khatab A, **Bagust J**. Inspiratory conductance: an alternative index of the relationship between inspiratory effort and airflow, with potential for clinical use. *The Clinical Respiratory Journal* (accepted for publication).

Bagust J, **Docherty S**, Abdul Razzak R. Time: an extra dimension for the rod and frame test. *European Journal Neuroscience* (submitted for publication).

Bishop F, Lewis G, Harris S, McKay N, Prentice P, **Thiel H**, Lewith G. A within-subjects trial to test the equivalence of online and paper outcome measures: the Roland Morris disability questionnaire. *BMC Musculoskeletal Disorders* 2010;11:113.

Blom M, **Jones-Harris AR**, de Zoete A, Knaap S. Opinions of chiropractors in the Netherlands on the importance of general diagnosis. *Clinical Chiropractic* 2010;13:268-274.

Bolton JE. When diamonds are a clinician's best friend. *Clinical Chiropractic* 2009;12:117-121.

Bolton JE, Humphreys BK, van Hedel H. Validity of weekly recall ratings of average pain intensity in neck pain patients. *Journal of Manipulative Physiological Therapeutics* 2010;33:612-617.

Bolton JE, **Newell D**. Statistical and clinical significant change in low back pain patients: A comparison of approaches. *Clinical Chiropractic* (accepted for publication).

Branney J, **Newell D**. Back pain and associated healthcare seeking behaviour in nurses: A survey. *Clinical Chiropractic* 2009;12:130-143.

Branney J. Annual Conference Letter. *Manual Therapy* 2009;14(5):e5.

Breen A. In praise of chiropractic. *Journal of Health Services Research and Policy* 2009;14(3):188-189.

Breen AC. Spinal Manipulation (Update) National Library for Health (NHS Evidence) November 2009. <http://www.library.nhs.uk/CAM/ViewResource.aspx?resID=328912>.

Breen AC. Annual Evidence Update on Chiropractic. National Library for Health (NHS Evidence) December 2010. <http://www.library.nhs.uk/cam/ViewResource.aspx?resID=396560&tabID=289>.

Breen AC, Carr E, **Langworthy JE**, Osmond C, Worswick L. Back pain outcomes in primary care following a practice improvement intervention: a prospective cohort study. *BMC Musculoskeletal Disorders* 2011;12:28.

Browning M, **Miller J**. Chiropractic for infant colic? *Manipulative Therapies* 2009;14(1):40-41.

Browning M. Low Back and Pelvic Girdle Pain of Pregnancy: Recommendations for diagnosis and clinical management. *Journal of Clinical Chiropractic Pediatrics* 2010;11(2):775-780.

Bush E, **Foreman R**, Walker RJ, Holden-Dye L. The actions of chloride channel blockers, barbiturates and a benzodiazepine on *C.elegans* glutamate and ivermectin gated chloride channel subunits expressed in *X* oocytes. *Invertebrate Neuroscience* 2009;9:175-184.

Clark CJ, Carr EC, **Breen AC**. Joint hypermobility syndrome and developmental coordination disorder in adults:

comorbid or overlapping disorders? *Dyspraxia* 2009;8:2-26.

Clark C, Carr E, **Breen A**. The development and initial validation of the functional difficulties questionnaire (FDQ-9) aimed at identifying developmental coordination disorder (DCD) in adults with joint hypermobility syndrome (JHS). *Disability and Rehabilitation* (submitted for publication).

Davies L, Newell D, Bolton JE, Leboeuf-Yde C. The UK back pain subpopulation study: predictors of outcome in patients receiving chiropractic treatment. *European Journal of Integrative Medicine* (accepted for publication).

Dewhurst P. Conservative management of patellofemoral pain syndrome: What is the best approach? *Clinical Chiropractic* 2009;12:79-82.

Docherty S, Bagust J. From line to dots: an improved computerised rod and frame system for testing subjective visual vertical and horizontal. *BMC Research Notes* 2010;3:9.

Docherty S, Schärer R, Bagust J, Humphreys BK. Perception of subjective visual vertical and horizontal in patients with chronic neck pain: a cross-sectional observational study. *Manual Therapy* (submitted for publication).

Evans DW, **Breen AC**, Pincus T, Sim J, Underwood M, Vogel S, Foster NE. The effectiveness of a posted information package on the beliefs and behavior of musculoskeletal practitioners: the UK chiropractors, osteopaths, and musculoskeletal physiotherapists low back pain management (COMPLEMENT) randomized trial. *Spine* 2010;35(8):858-56.

Ferrance R and **Miller J**. Chiropractic diagnosis and management of non-musculoskeletal conditions of infants and children. *Chiropractic and Osteopathy* 2010;18:14.

Field JR, Newell D, McCarthy P W. Preliminary study into the components of the fear-avoidance model of LBP: change after an initial chiropractic visit and influence on outcome *Chiropractic and Osteopathy* 2010;18:21.

Froud R, Eldridge S, Kovacs F, **Breen A, Bolton J**, Dunn K, Fritz J, Keller A, Kent P, Lauridsen H, Ostelo R, Pincus T, van Tulder M, Vogel S, Underwood M. Back pain trials reporting outcomes consensus (BaROC). *European Journal of Pain* (accepted for publication).

Gemmell H, Bagust J. Can surface electromyography differentiate muscle activity between upper trapezius muscles with active versus latent trigger points? *Clinical Chiropractic* 2009;12:67-73.

Gemmell H, Miller P. Relative effectiveness and adverse effects of cervical manipulation, mobilisation and the activator instrument in patients with sub-acute non-specific neck pain: results from a stopped randomised trial. *Chiropractic and Osteopathy* 2010;18:20.

Gemmell H, Miller P, Jones-Harris A, Cook J, Rix J. An alternative approach to the diagnosis and management of non-specific shoulder pain with case examples. *Clinical Chiropractic* (accepted for publication).

Georgy EE, Carr EC, **Breen AC**. Back pain management in primary care: Patients' and doctors' expectations. *Quality in Primary Care* 2009;17(6):405-13.

Houweling TAW. Reporting improvement from patient-reported outcomes measures. *Clinical Chiropractic* 2009;13:15-22.

Houweling TAW, Head A and Hamzeh MA. Validity of isokinetic testing for previous hamstring injury detection

in soccer players. *Isokinetics and Exercise Science* 2009;17:213-220.

Houweling TAW and Hamzeh A. Does knee joint alignment with the axis of the isokinetic dynamometer affect peak torque? *Isokinetics and Exercise Science* 2010;18:217-221.

Jones-Harris AR. Are chiropractors in the UK primary healthcare or primary contact practitioners?: a mixed methods study. *Chiropractic and Osteopathy* 2010;27:18-28.

Kvitver B, **Miller J, Newell D.** Improving our understanding of the colicky infant: An observational study 2011. *Journal Clinical Nursing* (accepted for publication).

Mellor FE, Breen AC. Objective assessment of spinal motion: The future? *Imaging and Oncology* 2009;34-41.

Mellor FE, Muggleton JM, Bagust J, Mason W, Thomas PW, Breen AC. Midlumbar lateral flexion stability measured in healthy volunteers by *in vivo* fluoroscopy. *Spine* 2009; 34:E811–E817.

Miller J, et.al. Grand Rounds: Infantile colic. *Journal of Clinical Chiropractic Pediatrics* 2009;10(2):681-686.

Miller, J. Safety of chiropractic manual therapy for children: How are we doing? *Journal of Clinical Chiropractic Pediatrics* 2009;10(2):655-660.

Miller J. Demographic survey of pediatric patients presenting to a chiropractic teaching clinic. *Chiropractic and Osteopathy* 2010;18:33.

Miller J, Newell D. Differences in characteristics of subgroups of infant patients with crying disorders: A prospective cohort study. *Journal of the Canadian Chiropractic Association* (accepted for publication).

Miller J and Newell D. Subgrouping of infants with excessive crying disorders. (submitted for publication).

Miller J, Newell D, Bolton J. Efficacy of chiropractic manual therapy in infant colic: a pragmatic single-blind randomised controlled trial. (submitted for publication).

Miller P, Poggetti A. Qualitative study on chiropractic patients' personal perception of the audible release and cavitation. *Clinical Chiropractic* 2011;14:8-16.

Newell D, Bolton JE. Responsiveness of the Bournemouth Questionnaire in determining minimal clinically important change in subgroups of low back pain patient. *Spine* 2010;35(19):1801-6.

Newell D, Van Der Laan M. The fractal dynamics of walking in chronic non specific low back pain patients. *Clinical Chiropractic* 2010;13(1):8-14.

Newell D. What is the evidence for chiropractic management of headache? *Clinical Chiropractic* (accepted for publication).

Osborne N, Bagust J, Moore A. Does the electro-oculograph have sufficient resolution to research neck-eye deficits in whiplash associated disorders? (accepted for publication).

Robinson S, **Newell D.** Identifying subgroups and predicting outcome using artificial neural networks: Their potential use in clinical practice. (submitted for publication).

Rowe-Jones K. "There isn't a right or a wrong way to do it": supporting reflection in professional practice, a qualitative action research study. *International Journal of Clinical Skills* (accepted for publication).

Schmidt J, **Docherty S**. Comparison of the posture of school children carrying backpack versus pulling them on a trolley. *Clinical Chiropractic* 2010;13:253-260.

Simmonds N, **Miller P**, **Gemmell H**. A Theoretical framework for the role of fascia in manual therapy. *Journal of Bodywork and Movement Therapy* 2010 (accepted for publication) access via <http://dx.doi.org/10.1016/j.jbmt.2010.08.001>

Thiel H, Wangler M. Reaching clinical quality management at an European level – Patient safety. *Clinical Chiropractic* 2010;13:46-51.

Thiel H. Incident reporting and learning systems for chiropractors – developments in Europe. *Journal Canadian Chiropractic Association* 2011;55:75-78.

Vallone S, **Miller J**, Larsdotter A. Chiropractic approach to the management of children. *Chiropractic and Osteopathy* 2010;18:16.

Wangler M, Fujikawa R, Hestbæk L, Michielsen T, Raven T, **Thiel H**, Zaugg B. Creating European guidelines for chiropractic incident reporting and learning systems (CIRLS): relevance and structure. *Chiropractic and Manual Therapies* 2011;19:9.

Wilcock PM, Carr ECJ, Campion-Smith C, **Breen AC**, Worswick L. Learning to improve the management of back pain in the community: fusing clinical evidence, improvement methods and interprofessional learning in practice - The LIMBIC Project. *The Joint Commission Journal on Quality and Patient Safety* (submitted for publication).

Yang M, Zheng H, Wang, H Mcclean, S, **Newell D**. igait: An interactive accelerometer-based gait analysis system. (submitted for publication).

Zuzak TJ, Boňková J, Caredduc D, Garamid M, Hadjipanayise A, Jazbec J, Merrick J, **Miller J**, et.al.,. Published data and expert perspectives on the use of complementary and alternative medicine by children in Europe. (submitted for publication).

Published Abstracts

Amar K, **Docherty S**, **Bagust J**, Wellington R, Khattab A. Measuring perception of subjective visual vertical using the computerised rod and frame test in Parkinson's Disease patients. 2nd World Parkinson Congress, Glasgow, 2010.

Bjelkaroy M, **Miller J**. Randomised controlled trial in infant colic. WFC's 11th Biennial Congress, Rio de Janeiro, 2011.

Bolton JE. Continuing professional development: priorities, methods and role in maintaining clinical competencies. WFC Education Conference, Madrid, 2010.

Bolton JE. Undergraduate clinical training: instilling habits of lifelong learning. WFC Education Conference, Madrid, 2010.

Breen AC. Clinical applications of OSMIA. *Clinical Chiropractic* 2010;13(1):107-110.

Docherty S, **Bagust J**, Khattab A, Amar K. Visual vertical and olfactory perception in Parkinson's Disease. *Neuroscience*, Chicago, 2009; 530.6.

Houweling T, Bolton J, Newell D. Outcomes of patients undergoing chiropractic care: Phase 1. *Clinical Chiropractic*, 2010;13(2):185-186.

Julian C, Hoskins W, **Vitiello AL.** Sports chiropractic management at the World Ice Hockey Championships. *Chiropractic and Osteopathy* 2010;18:32.

Kalamir A, Bonell R, **Vitiello AL** and Graham P. Intra-oral myofascial therapy, education and self care for chronic myogenous temporomandibular disorder: A randomized controlled trial. *Journal of Manipulative Physiological Therapeutics*, (accepted for publication).

Mellor FE. Ideas for research. Making research happen. Society and College of Radiographers. London, 2010.

Mellor FE. Training needs. Making research happen. Society and College of Radiographers. London, 2010

Mellor FE. Research in radiography. An overview. Salisbury district hospital. Radiology department, 2010.

Mellor FE. The diagnostic research radiographer's perspective. Initiatives in research. Society and College of Radiographers. Manchester, 2010.

Mellor FE. Comparison of lumbar intervertebral motion in healthy controls and chronic low back pain patients. Spinal motion master class, 2010.

Mellor FE. Views from a successful applicant. Clinically relevant research: creating a clinical academic highway. Bournemouth University, 2011.

Mellor FE. Views from a successful applicant. NIHR Clinical Academic Training Pathway. NIHR Clinical Research Doctoral Fellowships. Research Forum for Allied Health Professions Seminar. Society and College of Radiographers. London, 2011.

Miller J, Mullins-McGillion L and Holleman A. Postnatal depression in mothers of infants presented to a chiropractic clinic for care: chicken or egg? *Alternative Therapies* 2009;15(3):S117.

Miller J, Newell D, Bolton J. Chiropractic manual therapy for the infant with colic crying: A randomised double blind placebo-controlled trial. *Clinical Chiropractic* 2010;13(2):178-180.

Miller J. Should a master's degree be a minimum standard for recognized chiropractic specialist paediatric qualification? WFC Education Conference, Madrid, 2010.

Raven T, **Bolton JE.** Who reviews the reviewers? WFC Education Conference, Madrid, 2010.

Thiel H. Patient Safety - A European model for reporting and learning from adverse events. WFC Educational Conference, Madrid, 2010.

Wangler M, **Thiel H.** Reaching clinical quality management at an European level – patient safety. ECU Convention, London, 2010.

Book Contributions

Breen AC. Manipulation In: G Lewith H Jonas, A Walach (eds) *Clinical Research in Complementary and Alternative Medicine: (2nd Edition)* Elsevier Ltd. Chapter 6, p255-276 2011.

Field JR, Cairns D. Physical approaches to back pain II. Manipulative therapy (Chiropractic and Osteopathy). In *Oxford Pain Management Library - Back Pain*. OUP. (accepted for publication).

Deitz AK, **Breen AC**, **Mellor FE**, Teyhan DS, Panjabi MM, Wong KWM. Kinematics of the ageing spine: A review of past knowledge and survey of recent developments, with a focus on patient-management implications for the clinical practitioner. In Yue, Guyer, Johnson, Khoo and Hochschuler (eds). The comprehensive treatment of the ageing spine: Minimally invasive and advanced techniques (1st Edition). Elsevier Inc. Chapter 10; p51-67 2011.

Jones-Harris AR. Beirman R. Differential diagnosis for the physical and manipulative therapies. Churchill Livingstone, 2011.

Mellor FE. Knapp K, Research outcome measures. In Ramlal A (Ed) Medical imaging and radiotherapy research: Skills and strategies, Edinburgh. Churchill Livingstone, 2010.

Presentations

Platform

Bolton JE. Evidence for manual therapy in musculoskeletal conditions. Royal College of General Practitioners Conference, Harrogate, 2010.

Bolton JE. Is your patient better? Measuring improvement in practice. ECU Convention, Zurich, 2011.

Branney J. An investigation into the effects of manual therapy on cervical intervertebral motion and patient-reported outcomes in patients with neck pain. Spinal Researchers Masterclass, AECC, 2010.

Breen A. Quantitative fluoroscopy method for mechanical back pain. 6th Annual Symposium on Research Innovation and Interprofessional Learning, Bournemouth University, 2009.

Breen A. Stiffness in inter-vertebral discs *in vivo*. Back to Back meeting, Institute of Orthopaedics, RJ and AH Orthopaedic Hospital, Oswestry, 2010.

Breen A. Clinical applications of OSMIA. ECU Convention, London, 2010.

Breen A. Efficacy and mechanism studies of spinal manual therapy for sub-acute low back pain. North American Spine Society, Orlando, 2010.

Breen A, Mellor F, Fowler J. Lumbar inter-vertebral kinematics following flexible stabilisation for spondylotic back pain – an exploratory study. Institute of Medical and Biological Engineering Day Conference, University of Leeds, 2011.

Breen A. Better for whom? Taking an individualised approach to chiropractic care. ECU Convention (Keynote address) Zurich, 2011.

Browning M. Treating the most common paediatric patient to present to chiropractors - the crying infant: what the research says. ECU Conference, 2009.

Carr E, Worswick L, **Breen A**, Champion-Smith C, Wilcock P. Learning to improve the management of back pain in the community (LIMBIC): a regional interprofessional education project. 11th International Forum on Primary Care Research in Low Back Pain, Melbourne, 2011.

Carr E, Worswick L, Champion-Smith C, **Breen A**, Wilcock P. Stop trying to cure us and listen: User involvement in postgraduate interprofessional education (IPE) on back pain. Joint British and Canadian Pain Society meeting, Edinburgh, 2011.

Davies L, Newell D, Bolton JE, Leboeuf-Yde C. The UK back pain subpopulation study: predictors of outcome in patients receiving chiropractic treatment – preliminary results form a text-messaging study. ECU Convention, London, 2010.

Davies L, Newell D, Bolton JE, Leboeuf-Yde C. The UK back pain subpopulation study: predictors of outcome in patients receiving chiropractic treatment. CAMSTRAND, Southampton, 2011.

Davies L, Newell D, Bolton JE, Leboeuf-Yde C. The UK back pain subpopulation study: predictors of outcome in patients receiving chiropractic treatment - predictors of short term outcome. ECU Convention, Zurich, 2011.

Field JR. Evidence informed practice - practical implementation. College of Chiropractic Wessex Faculty, Salisbury, 2011.

Field JR. Investigating barriers to early recovery with chiropractic care. Chiropractic Evidence 2011, London, 2011.

Gurden M, Morelli M, Sharp G, Baker K, **Bolton J.** Multidisciplinary manual therapy services for the management of GP-referred non-specific back and neck pain. ECU Convention, Zurich, 2011.

Houweling T. Patient-Reported Outcomes Measures (PROMs): an update and why you need to be involved. British Chiropractic Association Conference, Kenilworth, 2010.

Houweling T. The Chiropractic Patient-Reported Outcomes Measures Study (C-PROMS). European Chiropractors' Union Convention, London, 2010.

Houweling T, Bolton J and Newell D. Patient-reported quality and costs of care in low back patients undergoing chiropractic treatment. European Chiropractors' Union Convention, Zürich, 2011.

Humphreys BK, Peterson C, **Bolton JE.** Outcomes after chiropractic treatment for adult patients complaining of low back pain. ECU Convention, London, 2010.

Hurst H, Bolton JE. Measuring improvement in back pain patients in routine chiropractic practice. ECU Convention, London, 2010.

Hurst HC, Bolton JE. Can patient-reported outcome measures (PROMs) be used as predictors of outcome in back and neck pain patients? ECU Convention, Zurich, 2011.

Lewis B. "I can understand my notes - but can anybody else?" British Chiropractic Association Autumn Conference, Kenilworth, 2010.

Mellor FE. Moving back: Video x-rays of the lumbar spine during motion. Is there a difference between those with chronic low back pain and healthy volunteers? PhD Open Seminar, School of Health and Social Care, Bournemouth University, 2011.

Miller J, Newell D, Bolton J. Chiropractic manual therapy for the infant with colic crying: a randomised double blind placebo-controlled trial. ECU Convention, London, 2010.

Miller J. Healthy children: nutrition and breastfeeding: what is the role of musculoskeletal therapy? NHS Keeping abreast of the times. Breastfeeding Awareness Conference, 2010.

Miller J. An inter-professional approach to the infant with sub-optimal breast feeding. Bournemouth Hospital Breast feeding Support Programme, 2010.

Miller J. Chiropractic Paediatrics: Safety first. ECU Convention, Zurich, 2011.

Miller J. Evidence based chiropractic: Mind the gap between research and practice. ICA/ACA Paediatric Conference, Edinburgh, 2011.

Miller J. Staying safe in chiropractic care for paediatrics. ICA/ACA Pediatric Conference, Edinburgh, 2011.

Newell D, Davies L, Bolton JE, Leboeuf-Yde C. The UK back pain subpopulation study: does the therapeutic alliance predict outcome? ECU Convention, Zurich, 2011.

Osborne N. Rehabilitation of the low back. Saarland University, Germany, 2010.

Osborne N. What can you do in three minutes? Royal College of General Practitioners Conference, Harrogate, 2010.

Osborne N. Whiplash: can I see it in your eyes? ECU Convention, London, 2010.

Osborne N. Functional assessment of the shoulder. AECC and BSO joint conference, Loughborough University 2011.

Osborne N. Management considerations in the cervical spine. 2nd Norwegian Multidisciplinary congress on Spine Disorders, Trondheim, Norway, 2011.

Osborne N. "Where am I now?" Research Conference, Brighton University, 2011.

Osborne N. "What does your brain think of all this?" International Myofascial Pain Conference, Manchester UK, 2011.

Rothman E, Thiel H. Workshop on: diagnosis and clinical decision making – a presentation of two cases. ECU Convention, London, 2010.

Thiel H. Chiropractic incident reporting – experiences with the CRLS. College of Chiropractors 11th Annual General Meeting, London, 2010.

Thiel H. Clinical quality management. Institut Franco-Européen de Chiropratique, Paris, France, 2010.

Worswick L, Campion-Smith C, Breen A, Wilcock P. Learning about quality improvement in interprofessional teams - service users and healthcare workers learning together about improving primary care management of back pain. Critical Perspectives on Service User and Carer Involvement in Education for Health and Social Care Conference, University of Central Lancashire, 2011.

Posters

Bagust J, Cook J, Breen A. Lumbar muscle electrical activity during image acquisition for quantitative fluoroscopy studies of spine stability. 13th World Congress on Pain, Montreal, 2010.

Bolton JE, Newell D. Response of low back pain patients to treatment. Boston International Forum X Primary Care Research on Low Back Pain Boston, USA, 2009.

Breen A, Langworthy J, Worswick L, Carr E, Campion-Smith C. Shifting knowledge and attitudes to back pain management using an improvement methodology – influence on service use and patient outcomes. 13th World Congress on Pain, Montreal, 2010.

Carr E, Campion-Smith C, Worswick L, Wilcock P, Breen A. Learning to improve the management of back pain

in the community. International Forum on Quality and Safety in Health Care, Nice, 2010.

Field J, Newell D, McCarthy P. Are chiropractic patients a psychologically self-defining subgroup? Chiropractic Evidence, College of Chiropractors, London, 2011.

Field JR. Investigating relationships between reassurance and recovery in a chiropractic lower back pain population. Researchers presentation day, University of Portsmouth, 2011.

Houweling T, Bolton J, Newell D. Outcomes of patients undergoing chiropractic care - phase 1. ECU Convention, London, 2010.

Kalamir A, Bonell R, **Vitiello AL** and Graham P. Intra-oral myofascial therapy, education and self care for chronic myogenous temporomandibular disorder: a randomized controlled trial. WFC, Rio De Janiero, Brazil, 2011.

Mellor FE, Breen AC, Fowler J. Chronic, non-specific back pain: is there a biomechanical subgroup? National Institute for Health Research Trainee's Conference, Manchester, 2010.

Worswick L, Campion-Smith C, **Breen A**, Wilcock P. Learning about quality improvement in interprofessional teams - improving primary care management of back pain. Delivering Better Health Services Conference, The Health Services Research Network, Liverpool, 2011.

Other Publications

Branney J. What counts as evidence? Backspace, September 2010;28.

Davies J, Mathers S, McNair H, **Mellor FE**, Miles E, Rawlings C, Probst H, Doustis D. The ACORRN/SCoR research radiographer starter pack for therapeutic and diagnostic radiographers. 2nd edition. SCoR professional document. London.

Mellor FE, Breen AC. Objective assessment of spinal motion: The future? Imaging and Oncology, 2009;3:34-41.

RESEARCH PROJECTS,
DISSERTATIONS AND THESES



Undergraduate Research Projects

2009-2010

Ameloot B

Comparison of sEMG activity of lumbar erector spinae muscles in asymptomatic subjects with latent trigger points pre- and post-treatment using impulse to no treatment controls
(*Bagust J - supervisor*)

Andorff A

Antioxidants - effects in cancer prevention and treatment: a literature review
(*John C - supervisor*)

Andresen I

The effects of physical exercise and co-ordination on cognition and brain function
(*Cook J - supervisor*)

Archer EC

The prevalence of injury in cricketers at county level and amateur level cricket
(*Edlund K - supervisor*)

Bailey GCJ

General injury rates among pre-professional dance students
(*Rothman E - supervisor*)

Baruzzi M

Chiropractic through the eyes of GPs: the situation in Italy after its legal recognition
(*Langworthy J - supervisor*)

Bekkers D

Ultrasound elastography of the supraspinatus tendon
(*Cook J - supervisor*)

Birch MJ

Cervical manipulation versus thoracic manipulation on the effect of lowering blood pressure using Gonstead adjustments
(*Edlund K - supervisor*)

Bjelkarøy MT

Understanding the crying baby through investigating crying diaries
(*Miller J - supervisor*)

Bjorklund ASI

The effect of mindfulness meditation in the treatment of chronic pain
(*Partington P - supervisor*)

Boles BR

Effects of post-isometric relaxation or placebo PIR on pain threshold
(*Brown I - supervisor*)

Booth JH

The health benefits of regular tai chi practise: a literature review
(*Battiston A - supervisor*)

Borgersen E

Investigation into the proportion of new patients undertaking a rehabilitation programme, the type of rehab undertaken, rate of compliance and outcome of the programme
(*Hamley R - supervisor*)

Boulter BJ

Dynamic versus static stretching and its effects on power
(*Osborne N - supervisor*)

Bowen TJ

Repeatability of subjective visual vertical in CRAF
(*Docherty S - supervisor*)

Cannillo M

Correlation of sudden temperature change thermography with lumbar spine dysfunction
(*Kondracki M - supervisor*)

Champion KR

Qualitative study into the lived experience of hypnotherapy for pain management of chronic pain in chiropractic patients
(*Partington P - supervisor*)

Choi Y

Caffeine effects on balance
(*Foreman R - supervisor*)

Claykens TDM

Prediction of gym membership dropout: motivation and subject characteristics as it may relate to long term gym activity
(*Newell D - supervisor*)

Collingwood-Norris CM

Maternal choices of infant feeding methods: a study of mothers who present their children to AECC clinic
(Miller J - supervisor)

Cormier LH

Multiple sclerosis, sunlight and vitamin D: a literature review
(Tyler A - supervisor)

Cowie IJ

Chiropractic in South-West Norway: a survey of the healthcare services provided
(Jones-Harris A - supervisor)

Dalaker M

Current evidence on somatovisceral disorders and chiropractic management
(Rix G - supervisor)

de Rosa D

Carbon dioxide syndrome and its effects on health
(Brown I - supervisor)

Decavel BJ

Physiological responses to images of food
(Docherty S - supervisor)

Deknudt MPG

Pathological process and treatment of medication overuse headache and its relationship to chronic headaches
(Hamley R - supervisor)

Devereux JV

Are silicone breast implants safe?
(Cook J - supervisor)

Di Blasio SN

Motivational influences in different populations of ballroom dancers
(Rothman E - supervisor)

Dillon HD

Do health visitors and GPs refer infant patients for chiropractic treatment?
(Browning M - supervisor)

Douglas NA

Omega-3 fatty acids and cognitive function in children. A literature review
(Tyler A - supervisor)

Ekle TE

Investigation of job satisfaction of chiropractors in the UK compared to chiropractors in Norway
(Vall K - supervisor)

Enserink DJD

Investigation into the role of deep cervical flexors in normal and abnormal functioning of the cervical spine
(Cook J - supervisor)

Forrest CA

Study to measure the effects of incorporating plyometric training for the forwards of an amateur rugby union club in Dorset
(Battiston A - supervisor)

Foster HL

The locus of control of patients presenting to a chiropractic clinic
(Jones-Harris A - supervisor)

Giddings DR

Literature review on the effects of academic-based learning on the stress levels of medical students with emphasis on chiropractic students
(Wright L - supervisor)

Gillingham MJ

Survey to determine the role of chiropractic in sport and specifically professional football in England
(Battiston A - supervisor)

Gloersen EK

The science of meditation and its application in stress management
(Pabbathi V - supervisor)

Grace A

Acupuncture: an exploration and its relevance to chiropractic treatment of lower back pain
(Brown I - supervisor)

Graham JP

Prescription rights for chiropractors: a survey of the pharmacist profession
(Wilson F - supervisor)

Haanstra T

Chiropractors' views on incorporating psychotherapy in the treatment of patients
(Wilson F - supervisor)

Habershon KV

The relationship between chronic pain and quality of life: a qualitative investigation
(Partington P - supervisor)

Harlow RL

Sudden infant death syndrome: a literature review
(Pabbathi V - supervisor)

Helsing J

Degenerative dysplasia of the hip in infants with emphasis on prevalence, genetic traits, DDH screening and treatment outcomes
(Rix G - supervisor)

Henley BE

Evaluation of the assessment of neonates at the AECC teaching clinic
(Miller J - supervisor)

Heo JE

An online based survey on representatives of a variety of South Korean manual therapy associations: perception and attitude towards the chiropractic profession and legislation
(Langworthy J - supervisor)

Herbert VU

Is leg dominance a factor relating to injuries in youth football players (17-23)?
(Battiston A - supervisor)

Holgersen TA

Plant-derived antioxidant supplementation (flavonoids), the beneficial values in both the inflammatory process and in the healthy state
(Foreman R - supervisor)

Høst C

How do undergraduate students learn anatomy?
(Dewhurst P - supervisor)

Hustoft J

Communication between public health centres and chiropractic care for children (0-5 years) in Norway
(Browning M - supervisor)

Jones P

Relative immediate effect of electric point stimulation and the fascial edge tool to upper trapezius trigger points: a randomised clinical trial
(Gemmell H - supervisor)

Jørgensen VN

The prone stability test in people without back pain
(Breen A and Mellor F - supervisors)

Kang KW

Survey of new patients at AECC clinic: perception of exercise relating to low back pain
(Turner A - supervisor)

Kes JJM

Factors influencing patients' choice to seek CAM care
(Wood A - supervisor)

Kim JS

Prevalence of injuries in elderly golf players
(Edlund K - supervisor)

Kimber D

A non-pharmaceutical approach to the treatment of irritable bowel syndrome
(Rix G - supervisor)

Koch L

Patients' perception and awareness of chiropractic in Germany: a survey of new patients attending chiropractic clinics
(Wilson F - supervisor)

Kong E

Expectation and satisfaction levels of patients attending for a radiographic examination at the AECC clinic
(Wood A - supervisor)

Kwon KM

Placebo effect and chiropractic care: a literature review
(Newell D - supervisor)

Lear GEB

Achilles tendon rupture: mechanisms and management
(Kondracki M - supervisor)

Lee N

Use of outcome measures by chiropractors
(Bolton J - supervisor)

Lee AG

Influence of ulcerative colitis on pregnant women
(Pabbathi V - supervisor)

Lindseth PK

A critical review of evidence-based research and current opinions of Norwegian chiropractors on Network spinal analysis
(Wright L - supervisor)

Magnusson JA

The importance of hydration and the nature of hydrating medium in performance of handball athletes
(Foreman R - supervisor)

McKay ND

Chiropractic treatment of wheelchair-bound patients: a survey
(Langworthy J - supervisor)

Möhle AK

Psychoneuroimmunology: what is the biochemical link between mind and body?
(Foreman R - supervisor)

Monteiro NAM

Significance of chiropractic care upon treating scoliosis
(Rix G and Pabbathi V - supervisors)

Moon YJ

Perceptions and experiences of AECC interns in managing the child patient
(Miller P - supervisor)

Nielsen OJH

Do AECC LBP patients that go in to rehab have different characteristics to those that do not go into rehab?
(Benramdane A - supervisor)

Oaten J

The lived experience of mothers with babies that cry excessively
(Miller J - supervisor)

Oliver RM

The effects of psychological stressor and relaxation stimuli upon heart rate variability in normal subjects
(Brown I - supervisor)

Ovrid C

Effects of exercise in the management plan of osteoarthritis in the hip and lumbar spine
(Coode A - supervisor)

Pantelios Z

An investigation using sEMG into the recruitment of the gluteus medius and lower trapezius during appropriate Pilates exercises which claim to target these muscles
(Bruno P - supervisor)

Perkins R

Cognitive behavioural therapy in the treatment of low back pain: a literature review
(Foreman R - supervisor)

Persson ME

Does an undergraduate student at AECC have a “real patient experience” when consulting an intern?
(Kondracki M - supervisor)

Petrie NR

Intern-patient communication skills: comparison between chiropractic interns and medical interns
(Bolton J - supervisor)

Raymond J

Surgical versus conservative treatment of posterior shoulder dislocations
(Coode A - supervisor)

Richards ME

Effect of physical activity on health-related outcomes
(Bolton J - supervisor)

Richter F

The philosophy of chiropractic at the AECC: an investigation of students’ beliefs and their development
(Turner A - supervisor)

Riemann KJB

Overuse injuries and treatment of the lower extremities and back in triathletes of the ironman distance with regard to stretching habits and the amount of training
(Edlund K - supervisor)

Ritchie G

The efficacy and immediate effect of activator trigger point therapy compared to stripping massage in the upper trapezius muscle: a randomised control trial
(Miller P - supervisor)

Robinson SJ

Categorising low back pain using neural networks
(*Newell D - supervisor*)

Rogers SL

The lived experience of back pain in emergency ambulance workers
(*Miller P - supervisor*)

Røsaker C

Possible consequences of marijuana abuse
(*Cook J - supervisor*)

Rose CL

The female athlete triad: are active women at a greater risk?
(*Botha M and Richards J - supervisors*)

Rosseel E

How common is the treatment of paediatric patients in Belgian chiropractic practice?
(*Browning M - supervisor*)

Scott B

The effect of a self-hypnosis based pain-management programme in the treatment of chronic pain
(*Partington P - supervisor*)

Sewpersad CL

The effect of different genres of music on pain perception
(*Miller P - supervisor*)

Shaw FA

A comparison of whole cow's milk to fermented cow's milk products
(*Tyler A - supervisor*)

Shay T

Does thoracic adjustment change mechanical lung function?
(*Brown I - supervisor*)

Siedentop J

Survey amongst German general practitioners about the awareness and perception of chiropractic in Germany
(*Wilson F - supervisor*)

Stavland K

Chiropractic students' experiences of entry into the teaching clinic
(*Jones-Harris A - supervisor*)

Steyn JJ

Personality types and time taken to complete the rod and frame test
(*Docherty S - supervisor*)

Sveen M

Review of conservative (non-surgical) management of cervical radiculopathy and radicular pain
(*Rix G - supervisor*)

Sylling CA

Sleep-associated behaviours and quality of sleep in AECC students
(*Docherty S - supervisor*)

Tandberg T

Norwegian medical doctors' attitudes and opinions towards the chiropractic profession: how often do they refer?
(*Kondracki M - supervisor*)

Tapper TM

Review of compression of peripheral nerves and the consequent histopathological changes in direct mechanical compression
(*Collins P - supervisor*)

Tønnesen CE

How safe is it to use diagnostic x-rays as a part of chiropractic care?
(*Turner A - supervisor*)

Tottle SCT

The ergogenic effects of optimal creatine supplementation and its potential as an aid to improve anaerobic and aerobic sports performance
(*Foreman R - supervisor*)

van den Berg RH

The science of psychoneuroimmunology
(*Pabbathi V - supervisor*)

Versteete WJLJ

An investigation into possible differences in the micro and macro complexity of gait parameters between younger and older subjects
(*Newell D - supervisor*)

Watanabe N

Headache caused by temporomandibular joint dysfunction and chiropractic treatments
(*Collins P - supervisor*)

Weston GJ

An investigation into the effects of different genres of music on the perception and coping mechanisms of pain

(Partington P - supervisor)

Whatling PMC

Prevalence of low back pain in field hockey players

(Jones-Harris A - supervisor)

Williams JJ

A study into techniques used in chiropractic clinics by UK graduates within 5 years of graduation on a national and European level

(Miller P - supervisor)

Witzøe SB

The effect of scuba diving in tropical climate on quality of life of people with physical disabilities: a qualitative study

(Miller P - supervisor)

Wuytack F

The lived experience of fibromyalgia: a qualitative study

(Miller P - supervisor)

2010-11**Adams JD**

Neurophysiological differences in developmental dyslexia

(Rix G - supervisor)

Andersen M

Neck pain following adolescent dental correction: a case control study of the prevalence of neck pain following dental correction with neck pull or other head gear

(Newell D - supervisor)

Arkle JA

Evaluation of young adult upper body muscle strength using a hand-held dynamometer to yield normative data and compare intra examiner reliability

(Cook J - supervisor)

Basque EC

What is the prevalence of chiropractors in the UK who use nutritional advice as part of their treatment?

(Battiston A - supervisor)

Bay HJ

Comparison of cervical spine motion analysis methods: OSMIA tracking and manual digital analysis

(Turner A - supervisor)

Beaven RL

Involvement of non-neuronal cellular modulators and neuroplasticity in the development of chronic pain

(Brown I - supervisor)

Beesley EOC

What is the link between autoimmune disease and obsessive compulsive disorder?

(Foreman R - supervisor)

Beyer R

Increasing patient compliance by text messaging specific exercise reminders

(Newell D - supervisor)

Black SC

Patient referral to chiropractors practising in Scotland from GPs

(Wilson F and Thiel H - supervisors)

Blackwell LF

Astigmatism and perception of horizontal and vertical

(Coode A - supervisor)

Boardman SA

Do rotator cuff exercises decrease the prevalence of shoulder injuries in experienced swimmers aged 18-26 years?

(Battiston A - supervisor)

Cash AM

The effect of diet on the behaviour of autistic children

(Tyler A - supervisor)

Cheung ECT

Is there a difference in thoracic extensibility between subjects with low back pain compared to subjects without?

(Osborne N - supervisor)

Chilton N

A review of literature: does an acute bout of static, dynamic and ballistic stretching affect performance?

(Cook J - supervisor)

Coller JSH

A cross-sectional study comparing active and passive cervical range of motion amongst amateur rugby union

(Battiston A - supervisor)

Craig S

Pain perception in lower back pain

(Rix G - supervisor)

Crombie IKJ

A cross-sectional study into the size difference in the semispinalis capitis muscles comparing rugby players and controls

(Battiston A - supervisor)

Dakeyne JM

An analysis of student physiotherapist's perception of chiropractic education

(John C - supervisor)

Davis RC

A review into the pathophysiological theory of current migraine prophylaxis and the efficacy of manual therapy in its management

(Dewhurst P - supervisor)

de Haan FV

The significance of depression during pregnancy and risk factors for developing depression during pregnancy

(Browning M - supervisor)

Donaldson TE

The role of nutrition in the management of acne vulgaris: a literature review

(Brown I - supervisor)

Eckholdt T

An evaluation of the health risks involved in taking fish oil supplements or a fish-based diet

(Foreman R - supervisor)

Elliott DM

Non-specific factors contributing to change in strength of skeletal muscle: practitioner-mediated placebo-genesis

(Newell D - supervisor)

Elsas F

Agreement between subjective clinical and EMG assessment of the sternocleidomastoid and upper

trapezius muscles in the physical examination of mechanical faulty breathing pattern

(Brown I - supervisor)

Endresen SS

A survey of Norwegian chiropractors identifying current patient profiles

(Wilson F and Thiel H - supervisors)

Falco GP

Evaluation of lower limb muscle strength with a digital hand held dynamometer. Assessing intra-examiner reliability and normative values

(Cook J - supervisor)

Farmer CM

Compliance to exercise rehabilitation at the AECC clinic: an exploration of potential predictive factors

(Newell D - supervisor)

Forster L

Effects of centre of gravity on persons who take part in unilateral board sports

(Dewhurst P - supervisor)

Foster KA

An investigation to see if age is related to the intensity, duration and frequency of menstrual migraines

(Newell D - supervisor)

Frost J

The use of psychological anchors and hypnotherapy in high level sport

(Battiston A - supervisor)

Garbett A

Neurobiological mechanisms of placebo effect in clinically observed conditions with symptoms of pain

(Foreman R - supervisor)

Gavenciakova A

The effects of Dynamic Neuromuscular Stabilization (DNS) stimulation on abdominal EMG activity

(Osborne N - supervisor)

George PV

Study of gait patterns in individuals with acute and sub-acute back pain

(Newell D - supervisor)

Gibbs L

Women's behaviours and beliefs towards physical exercise during pregnancy

(Browning M - supervisor)

Gjerde C

Is there a relationship between running and osteoarthritis in the hip and knee?

(Kondracki M - supervisor)

Gover JK

The effect of diet on chronic inflammation: a cross sectional study investigating dysmenorrhoea

(Tyler A - supervisor)

Gregory JP

Hamstring:quadriceps ratios and fatigue in women's soccer

(Edlund K - supervisor)

Gustafsdottir S

Joint hypermobility syndrome: a literature review

(Miller J - supervisor)

Hassen N

A literature review on the neurophysiological effects from chiropractic spinal manipulation therapy

(Rix G - supervisor)

Heale PR

The ultrasound appearance of the supraspinatus tendon in symptomatic and non-symptomatic patients over the age of 40

(Cook J - supervisor)

Heinmets M

Cortical role in the development of phantom limb pain

(Brown I - supervisor)

Hellard EJ

Asperger's Syndrome: a review of the diagnosis, management and support pathways

(John C - supervisor)

Helset MG

The chiropractic approach to the excessively crying infant and the effect of this treatment

(Browning M - supervisor)

Hidalgo-Rodriguez A

What is the delay between recognition of a problem in an infant and presentation to the chiropractic clinic?

(Miller J - supervisor)

Hill DM

Investigation of a breathing relaxation technique on pulse rate and heart rate variability

(Pabbathi V and Bagust J - supervisors)

Hindle PW

A literature review to assess the current evidence base for the link between seasonal flu prevalence and vitamin D levels in human populations

(Tyler A - supervisor)

Hodgkins AJ

The effect of pain on sleep: a literature review

(Foreman R - supervisor)

Hoff C

Effect of stress relief on cardiovascular system

(Pabbathi V - supervisor)

Hofstad R

How communication may be used to influence people and how this may be helpful in the doctor-patient consultation

(Cook J - supervisor)

Hughes CC

Emotional response of rugby league players to moderate and major injuries

(Battiston A - supervisor)

Isted K

A comparative study between the effectiveness of the fascial edge tool and electrical point stimulator in reducing trigger-point symptoms within the upper trapezius muscle

(Rix J - supervisor)

Jacobsen A

Whiplash injuries and its effect upon the cervical spine: a literature review

(Rothman E - supervisor)

Jåsund ST

Prevalence of injuries in Norwegian male amateur and semi-professional ice hockey players

(Jones-Harris A - supervisor)

Jones SW

Is there a difference in playing position/posture with those who suffer back pain and those who do not within the sport of field hockey

(Osborne N - supervisor)

Jønsson SV

Pathomechanical changes of the throwing shoulder in baseball players: a literature review
(Rix J - supervisor)

Kanis G

The effectiveness and use of marketing strategies in chiropractic practices in The Netherlands
(Rothman E - supervisor)

Kapsoulis A

The role of radiographic audit in a chiropractic clinic
(Wood A - supervisor)

Kelly F

Attitudes and perceptions of Irish GPs towards chiropractic
(Hamley R - supervisor)

Kim HM

Cervical spine instability: clinical and radiographical evidence
(Turner A - supervisor)

Knippahls S

Investigation of the likelihood of high performance track athletes to injure at a certain time of the year with regard to age, gender, athletic experience and type of training
(Vitiello A - supervisor)

Knüppel M

Investigation of the length of posterior leg muscles in competitive football players and possible relationship to injury pattern
(Thiel H - supervisor)

Krapf J

A qualitative study about the observed effects of therapeutic horseback riding on autistic children
(Cook J - supervisor)

Kretz L

The role of chiropractic touch in building a therapeutic alliance
(Partington P - supervisor)

Kristensen S

Whole body vibrations and degenerative effects on the lumbar intervertebral disc
(Jones-Harris A - supervisor)

Landro BH

Does sugar affect or alter the behaviour of children diagnosed with ADHD?
(Botha M - supervisor)

Langkau J

The development of the concept of KISS-syndrome and long and short term effects of manual therapy for KISS-syndrome diagnosed children
(Miller J - supervisor)

Le Roux D

Does raster stereography evaluation of scoliosis patients compare to the current diagnostic imaging evaluation? A critical review of the literature
(Botha, M and Thiel H - supervisors)

Lippens G

Is the BTE Primus RS valid for functional isotonic force measurements in a football kick compared to 3D motion capture?
(Vitiello A - supervisor)

Lynn C

A review of the treatment for Chiari malformation Type I
(Pabbathi V - supervisor)

McFarland LD

Gene therapy for Duchenne muscular dystrophy. The potential for a cure?
(Collins P - supervisor)

Melbourne LLJ

The relationship between movement and cognition: a literature review
(Selby A - supervisor)

Moore VL

Ocular dominance and balance
(Osborne N - supervisor)

Mucha JR

Survey of the femoral head extrusion index in AP lumbopelvic views
(Thorkeldsen A - supervisor)

Muijtjens N

Non-invasive manual therapy treatments of myofascial trigger points in the upper trapezius muscle: a systematic review of randomised controlled trials

(Kondracki M - supervisor)

Nielsen G

Effects of controlled breathing on stress-mediated physiological changes

(Pabbathi V - supervisor)

Nilsen A

The effect of instrument assisted acupuncture on forearm myalgia compared to a no-treatment group

(Miller P - supervisor)

O'Neill JD

Survey of the current use, awareness of and barriers to chiropractic care in the treatment of neuromusculoskeletal complaints in the mentally disabled community

(Selby A - supervisor)

Palmer TD

Is the prevalence of low back pain in footballers less than the control due to their increased core stability?

(Edlund K - supervisor)

Park EJ

Dysmenorrhoea aetiology and management: a literature review

(Botha M - supervisor)

Pedersen JC

Musculoskeletal disorders in diabetes mellitus

(Kondracki M - supervisor)

Pellissier JF

Does the posture assumed by snowboard athletes whilst snowboarding have an effect on the normal individual daily posture?

(Brown I - supervisor)

Plant L

The prevalence of low back pain in student weight lifters

(Coode A - supervisor)

Powell CRL

The average number of chiropractic treatments required to resolve common presenting complaints of infants aged 0-12 months at the AECC clinic: a retrospective study

(Browning M - supervisor)

Prentice PA

The effect of economic recession on chiropractic

practice in the UK

(Rix J - supervisor)

Ramaekers AF

Using physiological stress markers to determine the effectiveness of hypnotherapy in alleviating stress - a pilot study

(Partington P - supervisor)

Rawson IMB

Demographic profile of paediatric patients presenting to the AECC versus BSO teaching clinic 2009-2010

(Miller J - supervisor)

Recio Ahrendt S

The effects of non-pharmacological therapies on the release of endorphins and its impact on health

(Pabbathi V - supervisor)

Rees RC

What is the optimum nutrition for sufferers of polycystic ovary syndrome (PCOS)?

(Tyler A - supervisor)

Ruhe M

Prevalence of temporomandibular joint disorder in subjects with and without headache

(Cook J - supervisor)

Rushworth LO

Management of fibromyalgia syndrome: what is the evidence?

(John C - supervisor)

Russell FP

The difference between the lunge movement patterns in field hockey players with a history of non-traumatic low limb pain and those without

(Osborne N - supervisor)

Sackey S

An investigation to assess differences in inter-stride variability and COP changes in patients with chronic sacroiliac joint dysfunction compared to normal individuals

(Hamley R - supervisor)

Sancho HS

Relationship between time perspective and treatment adherence in chiropractic patients of Spanish practices

(Partington P - supervisor)

Scheel D

Comparison of the use of a Nintendo Wii board to a standard exercise regime for core stability training
(*Dewhurst P - supervisor*)

Schlott M

Neurologic changes in patients with complex regional pain syndrome (CRPS): a study of chronic pain and abnormal pain experience
(*Rix G - supervisor*)

Schwintek KT

The lived and treatment experience of migraine headache patients
(*Jones-Harris A - supervisor*)

Scotts ACP

Measuring the electrical activity in the biceps brachii, upper trapezius and erector spinae when carrying a surf board
(*Vitiello A - supervisor*)

Seeds C

Adhesive capsulitis aetiology and impact - a qualitative study
(*Hamley R - supervisor*)

Sikking DJ

A survey of chiropractors practicing in the Netherlands: the use and integration of evidence based practice within the clinical practice
(*Wilson F and Thiel H - supervisors*)

Simmons CL

Adherence to sports injury rehabilitation - the psychological considerations
(*Edlund K - supervisor*)

Sommerfelt PA

The correlation between patient expectations and outcome of non-specific spinal pain with chiropractic management
(*Breen A - supervisor*)

Sorensen LMN

The effect of nutrition and physical activity upon brain activity during depression
(*Kondracki M - supervisor*)

Spyrides S

Screening patients in the clinic using the STarT back screening tool
(*Bolton J - supervisor*)

Strand S

A survey to establish the chiropractic interventions most frequently used by current interns in the AECC clinic
(*Hamley R - supervisor*)

Swatman RO

Recurrence of back pain: incidence and predictive factors
(*Bolton J - supervisor*)

Tidemann-Andersen F

Prevalence of non-impact injuries in Norwegian elite competitive road cyclists
(*Edlund K - supervisor*)

Todd RB

The effect of core stability and strength training on improving passing accuracy in amateur rugby players
(*Dewhurst P - supervisor*)

Todd SN

The potential for integrating psychotherapy in chiropractic care
(*Partington P - supervisor*)

Tsang GPS

The practice of chiropractors treating the canine patient
(*Breen A - supervisor*)

Tverodd SR

Smoking and its contribution towards intervertebral disc degeneration
(*Miller P - supervisor*)

van Bodegom D

Do patients experience anxiety when first attending the AECC teaching clinic?
Wilson F (supervisor)

van Loon IHM

An OSMIA assessment: *in vivo* reliability and *in vitro* validity of saggital plane translation and disc height in the lumbar spine
(*Breen A, Mellor F and Breen A - supervisors*)

van Vlijmen JJT

A survey of the attitudes of Dutch GPs and physiotherapists towards chiropractic care in the Netherlands
(*Thiel H - supervisor*)

Weston N

Pelvic stability and pelvic girdle pain: a literature review

(Selby A - supervisor)

Whitaker SM

A survey of AECC student opinion about the scope of chiropractic care

(Wilson F and Thorkeldsen A - supervisors)

White TE

The prevalence and type of injuries received by competitive swimmers

(Edlund K - supervisor)

Wong WW

A prospective observational cohort study to examine the difference in treatment outcomes between patients with musculoskeletal pain of differing chronicity

(Selby A - supervisor)

Dissertations and Theses**MSc Advanced Chiropractic Paediatric Practice****In progress****Van Dyk N**

Infant tummy time and back to sleep: A survey of parental knowledge

Bournemouth University; start date 2006

(Miller J - supervisor)

Completed**Aas-Jakobsen E**

Characteristics of pregnant women presenting to a chiropractic clinic in Oslo, Norway. A retrospective survey

Bournemouth University; 2010

(Miller J - supervisor)

Doyle M

A multinational survey of the demographics of chiropractic paediatric care

Bournemouth University; 2010

(Miller J - supervisor)

Freedman Z

Why do some chiropractors treat infants and children? A qualitative study

Bournemouth University; 2010

(Miller J - supervisor)

Marchand A

Attitudes and perceptions of European chiropractors in paediatric care

Bournemouth University; 2010

(Miller J - supervisor)

MSc Advanced Chiropractic Practice**Completed****Kazemi M**

Relationships between injury and success in elite Tae Kwon Do athletes

Bournemouth University; 2010

(Ross K - supervisor)

Kopansky-Giles D

Development and evaluation of the health professional collaborative competency perception scale © (HPCCS)

Bournemouth University; 2010

(Vernon H - supervisor)

Lishchyna N

Contrasting demographic and clinical characteristics of patients presenting to a community teaching clinic with those presenting to practicing chiropractors: a cross-sectional study

Bournemouth University; 2010

(Mior S - supervisor)

MSc Advanced Chiropractic Rehabilitation Practice**Completed****Dunne N**

Chiropractors' attitudes and perceptions of patient compliance and locus of control with rehabilitation and prescribed exercises. A practitioner survey

Bournemouth University; 2009

(Bolton J - supervisor)

MSc Advanced Professional Practice (Clinical Sciences)**Completed****Dewhurst P**

How do undergraduate chiropractic students learn anatomy?

Bournemouth University; 2010
(Collins P - supervisor)

Richards J

Does psychomotor skill training increase the force and rate of change of force of manipulation in first year chiropractic students at the AECC?

Bournemouth University; 2010
(Bagust J - supervisor)

**MSc Advanced Professional Practice
(Musculoskeletal Rehabilitation)**

In progress

Audo Y

Case management of chiropractic patients with low back pain: a survey of chiropractic students

Bournemouth University; start date 2008
(Thiel H - supervisor)

**MSc Advanced Professional Practice
(Sports and Rehabilitation)**

In progress

Jonasson A

Association between balance performance and non-contact injuries in soccer

Bournemouth University; start date 2008
(Osborne N - supervisor)

Lardon A

A prospective survey: epidemiology of overuse injury in a male teenager competitor cyclist population

Bournemouth University; start date 2008
(Thiel H - supervisor)

Completed

Battiston A

A pilot survey of injuries in amateur rugby union players within the Dorset region of England

Bournemouth University; 2011
(Vitiello A - supervisor)

Lock J

Isometric endurance times in the rowing population compared to the non-rowing population

Bournemouth University; 2010
(Osborne N - supervisor)

Wieser R

A survey of "hardiness" in professional male football players

Bournemouth University; 2011
(Thiel H - supervisor)

MSc Ultrasound (General and Gynaecology)

In progress

Camilleri N

The relationship between total PSA and prostatic volume, as measured by the transabdominal and transperineal approaches in Maltese men. Can variation from this relationship indicate the presence of prostatic carcinoma?

Bournemouth University; start date 2009
(Hussain B - supervisor)

Camilleri V

Reaching a diagnosis of urolithiasis in patients presenting with suspected renal colic in a primary healthcare setting

Bournemouth University; start date 2009
(Hussain B - supervisor)

Sciortino M

Introducing ultrasound in the management of post-menopausal bleeding: the experience of the newly trained General Practitioner

Bournemouth University; start date 2009
(Miller P - supervisor)

MSc Ultrasound (Musculoskeletal)

In progress

Cook J

Lumbar multifidus contraction in chronic low back pain: a cross-sectional study

Bournemouth University; start date 2008
(Bolton J - supervisor)

Ohuegbe C

Real-time sonoelastography of the normal patellar tendon: a pilot study and pattern description

Bournemouth University; start date 2008
(Hussain B - supervisor)

MSc Ultrasound (Obstetrics and Gynaecology)

In progress

Vohra S

To evaluate the accuracy of the combined screening test for Down's Syndrome

Bournemouth University; start date 2008

(Bolton J - supervisor)

Completed

Gauci S

The role of ultrasound as a diagnostic tool in Maltese general practice

Bournemouth University; 2010

(Bolton J - supervisor)

Doctorate Research Degrees

In progress

Branney J

An observational study of changes in cervical intervertebral range of motion and the relationship with patient-reported outcomes in patients undergoing spinal manipulative therapy for neck pain

Bournemouth University; start date 2010

(Breen A, Bolton J and Hean S - supervisors)

Davies L

The UK back pain subpopulation study: predictors of outcome in patients receiving chiropractic treatment

University of Portsmouth; start date 2008

(Newell D, Bolton J, Leboeuf-Yde C and Mills G - supervisors)

Field JR

Changes in catastrophisation, fear-avoidance belief and pain self-efficacy in LBP patients following an initial consultation with a physical therapist and their effect on rate of recovery and short term outcomes

University of Portsmouth; start date 2010

(Newell D, Partington P - supervisors)

Houweling T

Effectiveness and cost-effectiveness of chiropractic care for spinal conditions

University of Portsmouth; start date 2009

(Bolton J, Newell D and Mills G - supervisors)

Hurst H

Predictors of recovery in back and neck pain patients undergoing chiropractic treatment

University of Portsmouth; start date 2002

(Bolton JE -supervisor)

Mellor FE

Diagnosing chronic low back pain: a biomechanical assessment of intervertebral motion in symptomatic and asymptomatic participants

School of Health and Social Care, Bournemouth University; start date 2008

(Breen AC - supervisor)

Wilson F

Professionalisation of chiropractic in the UK

University of Southampton; start date 2010

(Harris B, Causer G and Bolton J - supervisors)

Completed

Miller P

Attitudes and opinions of chiropractic teaching staff towards methods of detecting the spinal manipulable lesion

University of Portsmouth; 2009

(Bolton J and Mills G - supervisors)

Osborne N

Eye:neck co-ordination training in the rehabilitation of chronic neck pain patients

University of Brighton; 2009

(Bagust J and Moore A - supervisors)

Vitiello AL

The effect of backpack design on the electromyographical activity of back muscles

University Macquarie; 2010

(Pollard H and Bonello R - supervisors)

Other Postgraduate Award-Bearing Programmes

In progress

Breen AC

Post Graduate Certificate, Research Degree Supervision

Bournemouth University; start date 2010

John C

Post-graduate Certificate, Diploma and MSc in

Medical Education
Dundee University; start date 2010

Completed

Branney J Post-Graduate Certificate in Professional Practice (Chiropractic)
Bournemouth University; 2010

Browning M
ESME Certificate in Medical Education
AMEE; 2010

Davies L
Postgraduate Certificate in Scientific Research Methods
University of Portsmouth; 2009

Hamley R
ESME Certificate in Medical Education
AMEE; 2009

Selby A
ESME Certificate in Medical Education
AMEE; 2011

Supervision of External Doctoral Degrees

Georgy E
Back pain management in primary care: Development of a questionnaire for doctors' and patients' expectations and the relevance of matched expectations
School of Health and Social Care, Bournemouth University
(*Breen AC – PhD supervisor*)

Clark C
Exploring the possible overlap of joint hypermobility syndrome (JHS) and developmental coordination disorder (DCD) and their impact on adults with musculoskeletal disorders
School of Health and Social Care, Bournemouth University
(*Breen AC – PhD supervisor*)

Mieritz R
3D Spinal Motion and Back Pain
Faculty of Health Sciences, University of Southern Denmark; School of Health and Social Care, Bournemouth University
(*Breen AC – PhD supervisor*)

RESEARCH STUDIES APPROVED BY
THE RESEARCH ETHICS SUBCOMMITTEE



Research Studies Approved by the Research Ethics Subcommittee

Bagust J

- Can the cardiac vagal tone index be used as a measure of cardiovascular fitness? A pilot study. January 2010
- An investigation into the effects of 8 weeks training in Nordic Walking on cardiovascular fitness as measured by the Cardiac Vagal Tone (CVT) index. March 2010

Battiston A

- A pilot injury surveillance study of amateur rugby union players within the Dorset region of England. May 2010

Bruno P

- Investigating the association between lumbar intersegmental laxity as determined by OSMIA and lumbar segmental instability as determined clinically. December 2009

Camilleri N

- The relationship between total PSA and prostatic volume, as measured by the transabdominal and transperineal approaches in Maltese men. Can variation from this relationship indicate the presence of prostatic carcinoma? March 2011

Camilleri V

- Reaching a diagnosis of urinary stone disease in patients presenting with renal colic in a primary health care setting. April 2011

Cook J

- Effect of fascial release on connective tissue structure in human subjects with chronic low back pain as determined by ultrasound imaging: a randomised controlled trial. July 2010
- The relationship of lumbar multifidus activation and chronic low back pain: a cross-sectional study. January 2011

Dewhurst P

- How do undergraduate chiropractic students learn anatomy? September 2009

Docherty S

- Age and visual perception. March 2010
- The short-term effects of using a telephone headset: a pilot study. August 2010
- The effect of Foot Levelers' Spinal Pelvic Stabilizer system on postural control and lower limb movement patterns: a pilot RCT. June 2011

Doyle M

- A multi-national survey of the demographics of chiropractic paediatric care. June 2010

Field J

- Changes in catastrophisation and fear-avoidance beliefs in patients following an initial consultation with a chiropractor and their effect on rate of recovery and short term outcomes. June 10

Gauci A

- The role of ultrasound as a diagnostic tool in Maltese general practice. February 2010

Gemmell H

- Relative effectiveness of trigger point therapy compared to spinal manipulation in correcting a thoracic spinal manipulable lesion in subjects with mechanical thoracic back pain: a randomised trial. May 2010

- Comparative effectiveness of the multiple thrust Impulse instrument and the Activator IV single thrust instrument in correcting a lumbar spinal manipulable lesion and improving lumbar erector spinae flexion-relaxation response in subjects with non-specific low back pain: a randomised trial. June 2010

Guala G

- Fractal variability during walking in non-specific low back pain (nsLBP) patients and its possible relationship to self reported items on the Bournemouth Questionnaire (BQ). October 2010

Houweling T

- Development of an instrument to measure patient-reported outcomes and costs for low back pain patients in routine chiropractic practice. October 2009

Hurst H

- Outcomes of patients undergoing chiropractic treatment and can these be predicted? November 2009

Jonasson A

- Balance as a predictor of non-contact injuries in elite soccer players in the Netherlands. June 2010

Jones-Harris A

- The transition between pre-clinical studies and clinical internship in chiropractic students. September 2010
- The educational locus of control in chiropractic students. September 2010

Lock J

- The lumbar endurance ability of the rowing and sculling population compared to the non-rowing population. June 2010

Marchand A

- Attitudes and perceptions of European chiropractors to paediatric care. March 2010

Ohuegbe CI

- Measurement of supraspinatus tendon strain ratio with sonoelastography: an exploratory study. January 2011
- Real-time sonoelastography of the normal patellar tendon: a pilot study and pattern description. February 2011

Rix J

- Does psychomotor skill training increase the force and rate of change of force of manipulation in first year chiropractic students at the AECC? April 2010

Sciortino M

- Introducing ultrasound in the management of post-menopausal bleeding: the experience of the newly trained General Practitioner. February 2011

van Dyk N

- Infant tummy time and back to sleep: a survey of parental knowledge. May 2011

Wieser R

- A survey of "hardiness" in professional male football players. November 2010

GRANTS



Branny J

ECA - £90K

European Academy of Chiropractic Research Fellowship, 2010-13.

AECC TAM Club - £5.68K

Cervical spine inter-vertebral motion study, 2011.

Breen AC

Ortho Kinematics - £25K

Research and development support grant - development of training materials and analysis methods for the OSMIA technology, 2009-10.

Ortho Kinematics - £53.86K

A reliability and validity study of lumbar spine inter-vertebral motion (FDA study), 2010-11.

Carr EC, Campion Smith C, Breen AC

The Health Foundation - £423K

Learning to improve the management of back pain in the community, 2009-11.

Davies L

BCA - £20K

Prediction of outcome in back pain patients undergoing chiropractic treatment in the UK, 2009-10.

Davies L and Houweling T

AECC TAM Club - £1349

Consumables for research projects, 2009-10.

Docherty S

Plantronics UK Ltd. - £15K

Short term effects of using a telephone headset on musculoskeletal complaints, 2010.

Foot Levelers Inc. - £30K

The effect of Foot Levelers' Spinal Pelvic Stabilizer system on postural control and lower limb movement patterns, 2011.

Houweling T

BCA - £20K

Measurement of health outcomes and cost in back patients undergoing chiropractic treatment, 2009-10.

BCA - £20K

Measurement of health outcomes and cost in back patients undergoing chiropractic treatment, 2010-11.

Mellor FE

National Institute for Health Research - Clinical Academic Training Fellowship for nurses, midwives and AHPs - £243K

Mid-lumbar inter-vertebral motion phenotypes in participants with and without chronic low back pain, 2009-14.

GRADUATE STUDIES AND CONTINUING PROFESSIONAL DEVELOPMENT



Graduate Studies and Continuing Professional Development

The AECC has offered award-bearing programmes to chiropractors and other healthcare professionals for many years and the portfolio of programmes continues to grow with the addition of two new programmes in 2010 and 2011.

MSc Professional Development (Health)

The MSc Professional Development (Health) programme has been designed to recognise a practitioner's investment in continuing professional development by enabling enrolment on one unit from a range of single Masters units, also known as 'pick 'n' mix', to accumulate M level credits at their own pace, and 'cashing' these in at a later stage for a postgraduate award. Once the unit has been completed the practitioner can choose another from the wide selection, designing their own programme and working at their own pace. Once enough credits have been accumulated, these can be 'cashed' in for a PgCert, or they may continue to work towards a PgDip or MSc.

Single M level Units for MSc Professional Development (Health)	
Audit Methods	Clinical Placement
Current Advances in Practice	Evidence-based Practice
Musculoskeletal Health in the Infant	Musculoskeletal Health in the Pre-school Child
Musculoskeletal Health in the School-aged Child	Musculoskeletal Health in the Adolescent
Orthopaedic Practice	Professional Clinical Practice
Research Methods	Sports and Exercise Psychology
Sports Nutrition	Structured Learning Event
Writing for Publication	

MSc Advanced Professional Practice (Paediatric Musculoskeletal Health)

The new MSc Advanced Professional Practice (Paediatric Musculoskeletal Health) programme is open to all healthcare professionals with an interest in health in the paediatric population, epidemiology including risk factors, and public health issues including nutrition and physical activity. Students will concentrate on four major age groups - musculoskeletal health in the infant, in the pre-school child, in the school-aged child and in the adolescent.

All MSc Advanced Professional Practice Programmes	
Clinical Sciences	Musculoskeletal Rehabilitation
Sports and Rehabilitation	Orthopaedics
Paediatric Musculoskeletal Health (new for 2011)	

All postgraduate programmes are validated by Bournemouth University and we are pleased that the MSc Ultrasound also carries the CASE (Consortium for the Accreditation of Sonographic Education) stamp of approval. Our postgraduate studies go far and wide and in the past year we have been able to offer postgraduate programmes and seminars in Malta, Norway and Canada.

MSc Ultrasound Programmes	
Musculoskeletal	General
Obstetrics	Gynaecology
Gynaecology and Obstetrics	General and Gynaecology



Maltese GPs on the MSc Ultrasound (General and Gynaecology) programme



Dr Craig Liebenson's seminar at the AECC



2010 graduates from our postgraduate programmes



MSc Ultrasound (Musculoskeletal) seminar at the AECC

Schedule of Short Courses and Seminars 2009-2010

Date	Course Title	Tutor(s)
26 Sept 2009	Headache: Practical & Multidimensional Treatment	Gemmell H
26/27 Sept 2009	Clinical Hypnotherapy f/t Part 1	Partington P
03/04 Oct 2009	Gonstead Masterclass Weekend 6	Geary D
17/18 Oct 2009	Clinical Hypnotherapy f/t Part 2	Partington P
17/18 Oct 2009	Introduction to Dry Needling	Reynolds J
24/25 Oct 2009	Paediatric Orthopaedics	Peterson C, Miller J, de Koekoek T
31 Oct/01 Nov 2009	Trigenics	Austin A O
7 Nov 2009	An Audience with Prof Karel Lewit	Lewit K
14/15 Nov 2009	Gonstead Masterclass Weekend 7	Vosel D
14/15 Nov 2009	Certified Chiropractic Extremity Practitioners Programme (CCEP) Module 1	Capes M
21/22 Nov 2009	Research Methods for Clinicians Part 1	Bolton J, Jones-Harris A, Miller P
21/22 Nov 2009	Clinical Hypnotherapy f/t Part 3	Partington P
21 Nov 2009	Diagnostic Imaging of Low Back & Pelvic Pain Patients	Peterson C
28 Nov 2009	Acupuncture for Low Back Pain	Gemmell H
5/6 Dec 2009	Certified Chiropractic Extremity Practitioners Programme (CCEP) Module 2	North N
12/13 Dec 2009	Research Methods for Clinicians Part 2	Bolton J, Jones-Harris A, Miller P
9 Jan 2010	Gonstead Mini Series	Edlund K
9/10 Jan 2010	Activator Track 1: Part 1	Bates E
9/10 Jan 2010	Clinical Hypnotherapy f/t Part 4	Partington P
16/17 Jan 2010	Certified Chiropractic Extremity Practitioners Programme (CCEP) Module 3	Bruno G
23/24 Jan 2010	Clinical Hypnotherapy: 2 Stage Route (p/t) - Module 1	Partington P
23/24 Jan 2010	Evidence-Based Practice Part 1	Bolton J, Jones-Harris A, Miller P
30/31 Jan 2010	Ladies Gonstead	Taylor J
6/7 Feb 2010	Introduction to Dry Needling	Reynolds J
6/7 Feb 2010	Clinical Hypnotherapy f/t Part 5	Partington P
20/21 Feb 2010	Evidence-based Practice Part 2	Bolton J, Jones-Harris A, Miller P

Date	Course Title	Tutor(s)
20/21 Feb 2010	Clinical Hypnotherapy - 2 Stage Route (p/t) Module 2	Partington P
27/28 Feb 2010	Certified Chiropractic Extremity Practitioners Programme (CCEP) Module 4	Hearon K
6/7 Mar 2010	Certified Chiropractic Extremity Practitioners Programme (CCEP) Module 5	Hearon K
13/14 Mar 2010	Clinical Hypnotherapy f/t Part 6	Partington P
20/21 Mar 2010	Clinical Hypnotherapy: 2 Stage Route (p/t) - Module 3	Partington P
27/28 Mar 2010	Building the Ultimate Back	McGill S
24-28 Mar 2010	International Academy of Veterinary Chiropractic (IAVC) Module 1 (hosted course)	IAVC team
10/11 Apr 2010	Certified Chiropractic Extremity Practitioners Programme (CCEP) Module 6	Sinclair E
17/18 Apr 2010	Clinical Hypnotherapy-2 Stage Route (p/t) Module 4	Partington P
24/25 Apr 2010	Clinical Hypnotherapy f/t Part 7	Partington P
May 2010	Gonstead Mini Series	Edlund K
22/23 May 2010	Sports Exercise Psychology	Partington P
22 May 2010	Intermediate Dry Needling	Reynolds J
12-16 May 2010	International Academy of Veterinary Chiropractic (IAVC) Module 2 (hosted course)	IAVC team
5/6 Jun 2010	Neuromuscular Re-education Level 1: The Soft Tissue Injury Solution	Levy P
16-20 Jun 2010	International Academy of Veterinary Chiropractic (IAVC) Module 3 (hosted course)	IAVC team
19/20 Jun 2010	Introduction to Dry Needling	Reynolds J
03 Jul 2010	Benign Paroxysmal Positional Vertigo	O'Hara R
10/11 Jul 2010	Certified Chiropractic Extremity Practitioners Programme (CCEP) Module 7	Downes J
17/18 Jul 2010	Introduction to Dry Needling	Reynolds J
28 Jul-1 Aug 2010	International Academy of Veterinary Chiropractic (IAVC) Module 4 (hosted course)	IAVC team
30 Jul-1 Aug 2010	Graston Technique hosted by AECC	Graston team

Schedule of Short Courses and Seminars 2010-2011

Date	Course Title	Tutor(s)
8-12 Sep 10	Chiropractic (IAVC) Module 5 (hosted course)	IAVC team
25/26 Sep 10	Advanced Dry Needling Module 2	Reynolds J
25/26 Sep 10	Clinical Hypnotherapy Module 5	Partington P
2/3 Oct 10	Chiropractic Peripheral Joint Technique: Upper & Lower Extremities	Broome R
2/3 Oct 10	Neuromuscular Reeducation Level 2 - The Extremities	Levy P
16/17 Oct 10	Clinical Hypnotherapy Module 6	Partington P
23/24 Oct 10	Orthopaedic Practice - Part 1	Jones-Harris A
23-/28 Oct 10	Chiropractic Care for the Pregnant Patient	Miller J, Browning M
23-25 Oct 10	Sports Injuries and Emergency Intervention	South Western Ambulance Service
6/7 Nov 10	Advanced Gonstead Technique Workshop	Firczak S & Pennebaker G
13/20/27 Nov 11	Gonstead Mini Series	Edlund K
13/14 Nov 10	Foot Levelers 'Silent Obstructions to Optimal Performance'	Jensen B
20/21 Nov 10	Clinical Hypnotherapy Module 7	Partington P
20/21 Nov 10	Activator Track 1, Part 2 - Basic Scan Protocol	Bates E
27/28 Nov 10	Research Methods for Clinicians - Part 1	Bolton J, Jones-Harris A, Miller P
27/28 Nov 10	Orthopaedic Practice - Part 2	Jones-Harris A
4/5 Dec 10	Functional Anatomy for Chiropractic	Miller P, Pabbathi V
11/12 Dec 10	Research Methods for Clinicians - Part 2	Bolton J, Jones-Harris A, Miller P
14/16 Jan 11	Dynamic Neuromuscular Stabilisation According to Kolar (DNS) (Course A)	Kobesova A
15/16 Jan 11	Advanced Dry Needling: Head, Face, Neck and Shoulders	Reynolds J
22/23 Jan 11	Evidence Based Clinical Practice - Part 1	Bolton J, Jones-Harris A, Miller P
22 Jan 11	Gonstead Intermediate Workshop	Edlund K
22 Jan 11	Benign Paroxysmal Positional Vertigo (BPPV)	O'Hara R
5/6 Feb 11	Introduction to Dry Needling (Diploma Module 1)	Reynolds J
05 Feb 11	Gonstead Workshop	Edlund K
12 Feb 11	An Inspector Calls (or how I passed my inspection)	Wood A

Date	Course Title	Tutor(s)
12/13 Feb 11	An Audience with Professor Karel Lewit	Lewit K
19/20 Feb 11	Evidence-based Clinical Practice - Part 2	Bolton J, Jones-Harris A, Miller P
12/13 Mar 11	Ladies Gonstead Weekend Workshop	Taylor J
16-20 Mar 11	International Academy of Veterinary Chiropractic (IAVC) Module 1 (hosted course)	IAVC team
19 Mar 11	Gonstead Workshop: Lower Limb	Edlund K
26/27 Mar 11	Functional Capacity Evaluation & Performance Enhancement: The Sports Medicine Approach for Everyone	Liebenson C
11 Apr 11	Monday Evening Forum: "Cases that don't fly flags"	Rowe L
07 May 11	Gonstead Workshop: Lumbar and Thoracic Spine	King L, Edlund K
4-8 May 11	International Academy of Veterinary Chiropractic (IAVC) Module 2 (hosted course)	IAVC team
05 May 11	Veterinary Chiropractic 'Taster' Evening Seminar (When Patients Want to Lick You)	IAVC team
14/15 May 11	Sports Nutrition	Ryan L
14/15 May 11	Advanced Dry Needling (Diploma Module 4)	Reynolds J
21/22 May 11	Cervicogenic Dizziness / Vestibular Rehabilitation (CDVR)	O'Hara R
11/12 Jun 11	Rehabilitation of Temporomandibular & Cervicothoracic Disorders	Skaggs C
15-19 Jun 11	International Academy of Veterinary Chiropractic (IAVC) Module 3 (hosted course)	IAVC team
18 Jun 11	Clinical Hypnotherapy workshop	Partington P
18/19 Jun 11	Introduction to Dry Needling (Diploma Module 1)	Reynolds J
9/10 Jul 11	Gait Analysis	Winchester B
20-24 Jul 11	International Academy of Veterinary Chiropractic (IAVC) Module 4 (hosted course)	IAVC team
5- 7 Aug 11	Graston Technique hosted by AECC	Graston team
06 Aug 11	Benign Paroxysmal Positional Vertigo (BPPV)	O'Hara R



**ANGLO-EUROPEAN
COLLEGE OF CHIROPRACTIC**

13-15 Parkwood Road
Bournemouth, Dorset, BH5 2DF
Tel: +44 1202 436 200
Fax: +44 1202 436 262
www.aecc.ac.uk