

CELEBRATION OF WORLD ARTHRITIS DAY - October 12th 2006 PUBLIC RESEARCH SYMPOSIUM

A BJD and Arthritis WA initiative undertaken in conjunction with the School of Physiotherapy, Curtin University.

The Decade of the Bone and Joint 2000-2010

The Decade of the Bone and Joint (BJD) has become a multi-disciplinary, global campaign that is promoting and implementing musculoskeletal health initiatives in all parts of the world.

As the BJD's main goal is to improve the health-related quality of life for all people with musculoskeletal disorders, one important strategy is to promote and publicise research projects designed to improve their prevention and treatment.

In WA, as in other Australian States, physiotherapists have played a major role in pushing the boundaries of research into many poorly understood areas of musculoskeletal and pain medicine.

Therefore, the BJD in conjunction with Arthritis WA, invited the public to attend a Symposium to learn of current research programmes under the auspices of the School of Physiotherapy, Curtin University.



Jean – Arthritis WA



Ms Lynn Jensen, Dr Anne Smith, Dr Angus Burnett

Chronic Pain in Children

The first speaker was Ms Lynn Jensen, a paediatric physiotherapist whose special interests include chronic pain in children and physical activity levels in children. Her presentation - "The Causes and Treatment of Chronic Pain in Children" - summarised research undertaken in

conjunction with the Physiotherapy Department, Princess Margaret Hospital.

Some of the causative factors for pain include joint hypermobility, diminished endurance of back muscles, low levels of physical activity, excessive time spent sitting (particularly in front of computers and other electronic equipment), abnormal trunk posture, and limited trunk movement.

The consequences for these children were physical (pain spreading to other body parts), psychological (depression, anxiety, fear and avoidance of movement), and school absenteeism. Importantly, a childhood setting of chronic pain appears to be a precursor for pain in adulthood.

A three-pronged treatment approach is recommended for these children, with emphasis given to changing postural and movement patterns, changing their thinking about pain, and then integrating these changes into everyday tasks. Clearly, further research is required in this vital area.

Collaborators: Dr Peter O'Sullivan, Dr Kevin Murray and Dr John Kirwan.

Low back pain in seated athletes

Dr Angus Burnett, Sports Biomechanist and Research Fellow at the School of Physiotherapy, Curtin University, spoke to the topic "Low Back Pain in Sports and Exercise." He addressed the particular question as to why some athletes undertaking seated sports such as rowing and cycling are likely to suffer low back pain.

When examining cyclists with and without back pain, Dr Burnett and his co-workers found that the former group showed a tendency towards increased lumbar flexion and axial rotation together with an associated loss of co-contraction of the muscles that control these movements.

Moving on to a study of a cohort of female adolescent rowers, Dr Burnett's team found that 47% complained of low back pain, compared to 15% of matched control subjects. Aggravating factors included long spells of rowing, lifting the rowing shell and "sweep" rowing.

Most of those in pain showed an increased lumbar flexion pattern when seated. They also exhibited diminished lower limb endurance and poor back muscle endurance, possibly leaving the spine vulnerable to soft tissue strain.

Co-workers: Ms Mary Cornelius, Dr Wim Dankaerts, Associate-Professor Peter O'Sullivan, Ms Debra Perich.

Spinal pain in adolescence

Continuing the theme of spinal pain in adolescence, Dr Anne Smith (NHMRC Research Fellow) presented findings from the current 'Raine Study' cohort of 1621 adolescents in WA who have been followed up from birth at 1, 2, 3, 5, 8, 10 and 14 years of age. Data on spinal pain was collected from all subjects at the age of 14 years.

Neck/shoulder pain had been experienced by 47% of adolescents, with 29% reporting pain in the last month, and 5% on the day of the survey. Pain lasting more than 3 months was reported by 8%. They were 3 times more likely to have neck pain if they also had low back pain, and were 7 times more likely to have chronic neck pain if they had chronic back pain.

Surprisingly, the upright sitting posture was more associated with neck pain than the slumped sitting posture, and females tended to sit more upright than males. This means that current beliefs regarding 'good' posture may not be valid.

Chief Investigators: A/Professor Leon Straker, A/Professor Peter O'Sullivan, Dr Kevin Murray, A/Professor G Kendall, Dr A Smith and Dr M Perry.

Back pain and nursing

To conclude the first session, Tim Mitchell, musculoskeletal physiotherapist, presented his research on "Back Pain in Nurses". Because nursing is known to be a high-risk occupation for spinal pain, he first undertook a prospective study to identify predictors of low back pain in Perth student nurses.

It is of concern that 70% of Curtin and Edith Cowan University undergraduate nursing students reported experiencing 1 or more episodes of low back pain in the previous year. Some 45% had pain that required treatment and/or reduction in activity.

Looking at Perth nursing graduates, 90% of those surveyed had one or more episodes of low back pain in the previous year. Of these, 71% associated their pain with lifting. Some 39% experienced more severe back pain since they had commenced working and 65% reported more frequent episodes of back pain since commencing work.

Tim pointed out that a “fixing the job” (the standard ergonomic) approach was only half the story. “Fixing the people” at risk also needed to be undertaken. In order to tackle this task, he screened 200 undergraduate nursing students in an attempt to determine which remediable factors might predispose them to suffer low back pain.

This is an ongoing study in which Tim will be examining back muscle endurance, posture, body position awareness, activity levels, and psychosocial factors. The main thrust of his work is to devise a screening tool to identify individuals at high risk of future episodes of low back pain and to devise a preventative programme to reduce the risk in targeted individuals.

Supervisors: Dr Peter O’Sullivan, Dr Angus Burnett, A/Professor Leon Straker, A/Professor Cobie Rudd, and Dr Jenny Thornton.

Non-specific neck pain

In the second session, Associate-Professor Stephen Edmonston reported upon his research into physiotherapy treatment for “non-traumatic” neck pain.

Despite the availability of sophisticated investigational techniques (such as CT scan and MRI), over 80% of individuals presenting with neck pain can be grouped in the “non-specific” category. It has previously been assumed that all members of this group are likely to respond in the same way to treatment.

However, by studying 77 subjects (Female 51, male 26) of mean age 58 years, it was found they fell into one of two further groups - a “loading” group, where pain was provoked by adopting sustained posture and range of neck movement was normal, and a “movement” group, in whom their pain was provoked by activities requiring movement and their range of active movement was restricted.

The important finding of this study was that the “loading” group required significantly less treatment to improve their pain, mood, and disability levels than did the “movement” group. Further research will attempt to better measure neck pain from the patient’s perspective and to refine treatment techniques in order to better tailor them to individual patients.

Co-worker: Mark Chan

New ideas on tennis elbow

Dr Helen Slater reviewed the current state of knowledge about this common musculoskeletal condition. She pointed out that “tennis elbow” was a degenerative rather than inflammatory condition involving the extensor tendon on the outer aspect of the elbow and that most forms of treatment were not curative.

In an attempt to heal the lesion in the tendon, an ingrowth of blood vessels and nerves takes place and tissues in the vicinity become hypersensitive to mechanical stimulation - a mechanism called “sensitisation”. Curiously, under experimental conditions this same hypersensitive state is found in the opposite arm.

In the experimental laboratory, Helen showed that sufferers were unable to sustain extension of their wrists while gripping.

Rational treatment options currently being investigated will combine a medication (NMDA-receptor blockers) to reduce the hypersensitivity state with physical treatment methods to restore normal movement patterns.

Acknowledgements: A/Professor Thomas Graven-Nielsen, Professor Lars Arendt-Nielsen, Professor Tony Wright.

Osteoarthritis of the knee

The final two presentations dealt with knee osteoarthritis, one of the most common causes of disability in the Western world, affecting approximately 40% of the world’s population over the age of 70 years.

Penny Moss [title??] examined the question whether mobilisation (large, slow manual oscillations) of the knee joint relieved pain. She utilized 3 groups of volunteers: the first group received this form of treatment; the second group received “hands on” without the oscillatory movement; and the third group had no hand contact. Test measures were pressure discomfort threshold to a hand-held device (algometer) and timed “get up and go” from the seated position.

Penny found that knee joint mobilisation (and, to a lesser extent, manual contact) reduced pressure discomfort thresholds both at the knee and at a distant site (the heel). There was also an improvement in timed “get up and go” in these patients.

These findings can be explained by invoking pain-modulating mechanisms within the central nervous system that are activated by the “hands on” approach to treatment.

The next steps in Penny's research will be to determine whether joint mobilisation leads to immediate changes in muscle control and whether "non-responders" to mobilisation have altered pain control mechanisms.

Co-workers?

Associate-Professor Dr Kathy Briffa then reviewed "other" (non-surgical, non-drug) treatment for osteoarthritis (OA) of the knee joint. She mentioned recent studies undertaken into the effectiveness of self-management programmes and of potentially disease-modifying agents, such as glucosamine, electrical stimulation, and electromagnetic fields.

The concept of self-management involves more than just attending an exercise class; it includes learning about the disease, pain management options, relaxation, balance and falls prevention, and the sorts of exercises to incorporate into each person's programme. From studies undertaken here in Perth, it has been shown that such a programme works - it decreases pain, improves quality of life, improves knee function and improved balance. Further studies of different formats of self-management are part of a new study being conducted at Arthritis WA.

Dr Briffa concluded her presentation by outlining a new study into pulsed electrical stimulation (PES) in OA of the knee. The available evidence suggests that PES provides short-term pain relief and functional improvement and has potential to modify the disease process through its stimulatory effects on cartilage cells (chondrocytes). Volunteers will soon be recruited to take part in this randomised controlled study.

Acknowledgements: Sophie Coleman and Robyn Fary.

Conclusion

Arthritis WA and the Bone and Joint Decade representatives wish to thank Associate Professor Briffa and her team of researchers from the School of Physiotherapy, Curtin University, whose efforts ensured the success of this Symposium.

There is clearly a great thirst for knowledge in the community and it is our intention to organise similar Symposia on an annual basis timed to celebrate World Arthritis Day.

Reporter: John Quintner.