AUTUMN/WINTER 2002

Syn´apse

JOURNAL AND NEWSLETTER OF THE **ASSOCIATION OF CHARTERED PHYSIOTHERAPISTS INTERESTED IN NEUROLOGY**

JOURNAL AND NEWSLETTER OF THE
ASSOCIATION OF CHARTERED PHYSIOTHERAPISTS INTERESTED IN NEUROLOGY

www.acpin.net

AUTUMN/WINTER 2002

ISSN 1369-958X

www.acpin.net

Syn'apse

JOURNAL AND NEWSLETTER OF THE
ASSOCIATION OF CHARTERED PHYSIOTHERAPISTS INTERESTED IN NEUROLOGY

AUTUMN/WINTER 2002
ISSN 1369-958X

ACPIN's AIMS

1. To encourage, promote and facilitate the exchange of ideas between ACPIN members within clinical and educational areas.
2. To promote the educational development of ACPIN members by encouraging the use of evidence based practice and continuing professional development.
3. To encourage members to participate in research activities and the dissemination of information.
4. To develop and maintain a reciprocal communication process with the Chartered Society of Physiotherapy on all issues related to neurology.
5. To promote networking with related organisations and professional groups and improve the public's perception of neurological physiotherapy.
6. To encourage and participate in the setting of guidelines within appropriate areas of practice.
7. To be financially accountable for all ACPIN funds via the Treasurer and the ACPIN committee.

Contents

From the Chair

Linzie Bassett MCSP SRP
Chairperson ACPIN

Address for correspondence
92 Redacre Road, Boldmere, Sutton Coldfield, West Midlands B73 5EE

Here we are at the end of yet another productive year not only for ACPIN but also for the Bassett family, with the arrival of William Joseph on 14th July 2002.

My short spell in hospital 'being on the other side' was an enlightening experience unfortunately highlighting first hand some of the common complaints made by our patients. Notably: the limited resources available, the lack of information given and the poor communication between medical staff and patient. Despite this unnerving experience it was also very educational and has made me evaluate my own practice. It has certainly reinforced in my mind the need to ensure our patients are empowered and that effective communication skills are vital for successful physiotherapy intervention.

On a lighter note it is heartening to know that membership is continuing to grow each year; we currently have 1,370 members, nearly 100 more than last year. To keep in line with costs the membership fee for 2003 has increased slightly from £20 to £22.50.

A membership form for 2003 is enclosed, please remember to complete your form clearly in full to aid processing your application.

The ACPIN Private Physiotherapy Register has been a success and is a free way to advertise, but do remember that your name and details supplied will be given out to other therapists and patients.

If ACPIN is to continue to prosper, members need to support their regional groups and subsequently the National Committee. Each regional representative has written a brief report, which is located towards the back of this issue, including their programme for the coming months. Not only do the regional groups need your support but also *Synapse* being your journal requires material for it to maintain its high standard. I am sure there are some budding writers out there! Please contact Ros Wade for further information.

By the time you have received this edition of *Synapse*, Congress 2002 will have taken place. A full report of the three days and the fringe meeting are included.

The next ACPIN residential conference is on 21/22nd March 2003 at the Hilton Hotel, Northampton. The programme, entitled 'Movement Dysfunction of the Upper Limb' has been finalised and includes many eminent speakers. The theme of the conference is to explore the upper limb in more detail and merge the boundaries between neurological and musculoskeletal physiotherapy. It should be a stimulating and dynamic conference. A full programme and application form are included in this issue. The delegate fee is moderately higher than last year but in line with current courses. This is partly due to the fact that the 'Posture and Balance' conference was heavily subsidised by ACPIN, but I am sure you will agree that the cost is certainly still value for money!

Since my last report I am pleased to inform you that the programme on 'Progressive Disorders' for Congress 2003 has been accepted by the CSP.

As you can see the ACPIN Committee will certainly be very busy organising the above two events.

Applications were invited in the Spring edition of *Synapse* for the small bursary provided by ACPIN to support research and project work. At the time of going to press one request had been received. Details of who the bursary was awarded to will be announced next Spring.

During the summer I received an evidence briefing on *The Clinical and Cost Effectiveness of Physiotherapy in the Management of Elderly People Following Stroke*, written by A Forster and J Young. It is an invaluable document for all neurophysiotherapy departments and is available from the CSP.

The first consultation draft (September 2002) of the NICE *Guideline on Head Injury in Children & Adults: Assessment, Investigation and Early Management* has been circulated for comments. The publication of the final guideline is due February 2003.

Kate Duffield, Liz Self and Ann Marie Knowles have recently resigned from the National Committee as Regional representatives. We thank them for their commitment and wish them well.

Finally, I would like to thank you, our members, for your constant support and encouragement and also the dedicated and enthusiastic members of the National Committee, whom without their tireless work; ACPIN would not be such a powerful clinical interest group.

After proof reading this edition I am overwhelmed with the diverse programmes offered regionally. It is heartening to see the groups flourish and offer such educational support to their members.

President's address

Professor Raymond Tallis
MA FRCP DLitt LittD F Med Sci

At the beginning of this year, I had an extremely pleasant surprise. I received a letter from your Chair Linzie Bassett inviting me, on behalf of ACPIN, to be your President. I was not only surprised (indeed, gobsmacked) but also deeply honoured. I was also somewhat daunted at the thought of following in the footsteps of Sue Edwards, a clinician of the greatest distinction with a well-deserved international reputation in the field of neurophysiotherapy and one of the founder members of ACPIN. Even so, Linzie's invitation was an offer I could not refuse and I accepted by return of post.

There were many reasons why I was so glad to accept your invitation. For a start, I feel I have been an 'associate neurophysiotherapist' for many years. I have had the privilege of addressing many meetings of physiotherapists on topics in neurological rehabilitation. I have been enormously gratified by the turnout and the keen interest shown by the audience. I have also learned a lot myself from such meetings, especially when I have had the opportunity to watch star practitioners at work in clinical demonstrations.

Secondly, I have been particularly struck by the passionate commitment to improving one's practice that makes physiotherapists willing to turn out on a Saturday afternoon, often at their own expense, to sit in a cold and/or overheated gym in the hope of learning something new. This idealism it seems to me is the essence of what makes the profession the great force for good that it is. There is no need to dwell on contrast with some of my medical colleagues who not infrequently expect posh hotels and exotic locations and paid leave as a condition for attendance at educational activities!

And, finally, I have always felt that my own deepest interests coincide with those of neurophysiotherapists and that the ideas that have driven the development of the discipline, though not always supported by strong evidence, often seem closer to an intuition of patient's needs and of what may some day be possible than those that emanate from more conventional medical quarters.

Neurophysiotherapy, which has long been my major research interest, is also my intellectual homeland. That's why I was so pleased to be asked to be your President. I am conscious, however, that I am 'a fellow traveller' rather than the real thing. Some ACPIN members might therefore have some perfectly reasonable reservations at the thought of a b***** medic being asked to follow Sue in holding this important office in the Society. After all, the Royal College of Physicians has not as yet considered electing a physiotherapist as its President and the British Geriatrics Society – surely a natural ally of physiotherapists – does not even extend full membership to non-medics. I realise, therefore, that in my term of office I will need to justify the faith you have shown in me. I hope to compensate for my disability in not being a therapist by bringing something different to the table.

As well as being strongly supportive of, and madly enthusiastic about, the work of ACPIN, I would like to be useful in certain specific areas. Here are some that spring to mind. The first relates to the scientific basis of the art. Some of you have listened courteously while I have banged on about the deficiencies in the scientific basis and the evidence base of much of the things that all of us (doctors as well as therapists) do in rehabilitation. In fact, only a small proportion of clinical activity in all disciplines has been properly evaluated. However, as everyone knows, there are special problems in researching therapies. The need for such research and the numerous difficulties of conducting research on specific 'hands on' therapies in particular, are being recognised more widely.

The hunger for evidence-shaped practice in neurological rehabilitation now extends beyond therapists. August bodies such as the Medical Research Council (MRC) are starting to take neurological disability and what the MRC calls 'complex interventions' seriously. The Academy of Medical Sciences has, at my suggestion, established a Working Group which is looking at the interface (or lack of it) between basic neuroscience and clinical practice in neurological rehabilitation, with the aim of identifying ways that barriers between neuroscientists and practising therapists might be broken down. This is particularly timely because recent developments in neuroscience suggest how we may improve present therapeutic approaches and produce much better outcomes for our often-disappointed patients. The small Working Group includes a physiotherapist (Professor Val Pomeroy), and an occupational therapist (Dr Marianne Walker) to make sure that the neuroscientists and medics keep clinical realities in view. I shall be watching this space on behalf of ACPIN members and reporting back whenever you would like me to. In the meantime, I shall continue to argue for much greater financial support for research that addresses questions to which neurotherapists and their patients want the answers. I hope, by this means to contribute to mobilising the talented army of potential researchers you have in your ranks.

While these are exciting times for anyone involved in neurotherapy, they are also worrying ones for those of us who work for the National Health Service. The overall increase in NHS funding is gratifying but much of the new money is given on condition that we shall all 'reform' our practices. If 'reform' means working more sensibly, ironing out inefficiencies and discarding futile activities, then this is fine. If, however, it means subordinating our wider mission to meeting government targets, then it is very worrying. Governments are obsessed by waiting lists and therapists may not always contribute directly to reducing waiting lists. Moreover, target-mania combined with rising patient expectations will result in increasing emphasis on 'throughput'. Reducing length of stay will become an even more important issue. This will not be very helpful to many of our patients who above all require time - time to recover, time to gain most from the rehabilitation experience, time to adjust to the difficulties disability may force upon them, and time to make major life-changing decisions. Such time may not be available in Mr Milburn's new 'modernised' NHS.

The National Service Frameworks (NSF) may not always be helpful. For example, although the NSF for Older People has some good things in it – for example the Standard on Stroke which properly recognises the necessity for organised stroke care, the centrality of rehabilitation and the key and continuing role of specialist therapists – it also contains some less helpful elements. The emphasis on Intermediate Care, commissioned and run largely by Primary Care Trusts that have hitherto shown little interest in chronic neurological disease, threatens to fragment the profession and scatter practitioners in small isolated units.

This is hardly the way forward for a discipline that wishes to develop its science and evidence base or for individuals wishing to enhance their own skills in a career marked by lifelong learning. Moreover, things that are not 'highlighted' in NSFs get 'lowlighted' instead. The proposed liquidation of the physiotherapy service in the Oxleas Mental Health Trust, and the threatened destruction of comparable physiotherapy services - simply because physiotherapy was not identified as a 'core' service in the NSF – is a warning to physiotherapists in other areas, indeed to the physiotherapy profession as a whole: you may find, as did the therapists at Oxleas, that you do not have much of a say as to what happens to your service when managers busy chasing government targets find that they need to make cuts. I bear the scars of many hours advising the Department of Health in area in which I thought I was an expert and have discovered that there is a huge chasm between Evidence Based Practice and political imperatives and that the latter tend to win out. It will be essential for all of us rehabilitationists to keep our ears to the ground when the NSF for long term conditions starts being formulated as it will create a framework for practice for the next ten years. I intend to be one of those ears on the ground.

Just now, I mentioned physiotherapists in mental health and this connects with another of the ways in which I might be of use to ACPIN. For a long time I have been interested in the relationship between the body and the mind, more specifically the mind and the brain, from a philosophical point of view. Although I am sceptical about the idea that the mind is identical with the activity of the brain (or that the brain is the hardware and the mind is the software), I do believe that it is artificial to separate mind and body in rehabilitation. In this belief, I am not of course alone, and physiotherapists were on to this ahead of most doctors. Even so, there does seem to be an 'apartheid' within clinical professions, as a result of which the mental aspects of physical diseases and the physical consequences of mental illnesses are under-appreciated. I think there is an interesting debate to be had here, and one that is especially timely in view of the seeming commitment of the present government to destroy physiotherapy in mental health care. Physiotherapists, moreover, are perfectly placed to make those observations that may advance our understanding of the inter-relationships between body and mind in disablement and rehabilitation. I would like to help stimulate discussion in this area.

The fourth area in which I would hope to make a contribution is in fostering closer relationships between ACPIN and other professional groups. You will not be surprised that, as a consultant in health care of the elderly, I would like to see bridges with the British Geriatrics Society, built perhaps in conjunction with AGILE. There are other natural linkages for example with the emerging Stroke Nurses Group. I have always thought that there are sometimes unnecessary tensions between therapists and nurses on rehabilitation wards; nurses feel that their role as therapists is under-appreciated and therapists feel that their special expertise (and their advice) is not fully acknowledged. The (hopefully dissolving) boundaries between disciplines need to be explored. Thirdly I mentioned earlier the mind-body barrier within the profession. While it is important that a rapidly advancing profession such as physiotherapy should develop Special Interest Groups and it is important that they should flourish separately – as ACPIN most certainly has – there may again be a case for closer ties. In none of these cases should there be any loss of distinct identity but perhaps a sharing of common interests. One way forward might be joint meetings or joint sessions at the CSP Congress.

And so to the fifth and final area in which I might be of use: helping to clarify what might be called the 'conceptual framework' of neurorehabilitation. Over a dozen years or so, I have been privileged to collaborate with many physiotherapists in developing research programmes into the effectiveness of different 'hands on' techniques. One of the problems that we have run into has been to describe and classify the actually treatment regimes used – something that I know is being tackled by the Taxonomy Group within the CSP. I have been especially privileged in this respect to collaborate with Professor Val Pomeroy who headed up the Stroke Association Therapy Research Unit. During the course of countless discussions over the years, Val and I have found ourselves starting to puzzle over 'functional' therapy and of concepts such as 'motivation' and 'trying' – and their relationship to putative neurological mechanisms of recovery. We would like to widen these discussions and by this means help cast these fundamental notions in sharper relief and promote clearer thinking about the theoretical frameworks for new therapies to be developed and evaluated.

I hope that during my term of office, as President I will deliver on some of these things and those who may have had very understandable reservations about the appointment of a non-physiotherapist to this office will be won over. In short, that I will repay the generosity of your extending the presidency to an outsider. In the meantime, thank you for the honour you have bestowed on me.

References

Pomeroy VP, Tallis RC (2002) *Neurological rehabilitation: a science struggling to come of age* Physiotherapy Research International 7(2) pp76-89.

Tallis RC (2000) *Brains and Minds: A Brief History of Neuromythology* Journal of Royal College of Physicians pp563-7.

Bentley J, Tallis RC (2002) *Breaking Down the Mind-Body Barrier in Physiotherapy* Therapy Weekly August 29th.

Rehabilitation for Multiple Sclerosis: a case report outlining the role of abdominal exercise and patient motivation

Gillian Bamborough
BSc (Hons) MCSP, Lecturer Practitioner in Sports Science and Physiotherapy, City Hospitals NHS Trust, Sunderland, and University of Sunderland, Sports Science Department

Diana Jones* PhD BA MCSP, Principal Lecturer, Northumbria University, Newcastle upon Tyne

This case report examines the physiotherapy treatment of a patient (KC) with Multiple Sclerosis (MS) over the course of two years. The initial aim of the case study was to evaluate the effect of physiotherapy intervention and home exercise on balance. As treatment progressed, training of abdominal muscles and motivation were identified as important considerations for patient management. This report represents a retrospective review and analysis of the role of these two key issues in rehabilitation.

A key area to be addressed by exercise in multiple sclerosis rehabilitation is posture. Poor postural alignment and low back pain are problems commonly observed by therapists in patients' with MS referred for treatment.

Moulin (1988) identified a combination of weak and spastic para-vertebral musculature resulting from MS as a cause for mechanical back pain secondary to degenerative disc disease and facet joint deterioration.

Reduced activity of the supporting musculature is reported to result in joint instability (Gracovetsky et al 1985), and studies have linked weakness of the muscles responsible for supporting the lumbar spine with low back pain (Parnianpour et al 1988, Mulhearn and George 1999). Hodges (1999) cites ineffective abdominal muscle activity, particularly reduced activity of transversus abdominus, as a possible cause of low back pain.

The superficial abdominal muscles provide unidirectional spinal stability in order to counteract an opposing force and multi-directional stability through co-contraction (Gardner-Morse and Stokes 1998). Torque and spatial orientation are produced by phasic activity of the superficial abdominal muscles during flexion and extension of the spine, but trunk stabilisation during movement is thought to be provided by the activity of transversus abdominus (Cresswell et al 1992).

A number of studies have shown that activation of appropriate muscle groups occurs in advance of a predictable change in posture (Zarrara and Bouisset 1988). Trunk stability is required in order to counter the displacement force created by the movement of a limb. The speed of the activation of the superficial abdominal muscles has been shown to vary in response to the direction of the limb movement. However, regardless of the direction of the limb movement activation of transversus abdominus precedes all other muscle activity, including that responsible for the movement of the limb (Hodges and Richardson 1997a and b). This suggests that transversus abdominus has a primary role in providing segmental stability (Cresswell et al 1994) and specific training of transversus abdominus is recommended to address core stability (Hodges and Richardson 1999).

Many patients are asked to reinforce the changes achieved during treatment by continuing with a prescribed exercise regime at home. It is well documented that there is a high drop out rate from exercise programmes; 50% of healthy individuals who undertake an exercise programme drop out within three to six months (Dishman 1981, Robison and Rogers 1994). Twenty-two per cent of the population who have health problems fail to follow a prescribed programme of home exercises or do so only very irregularly (Sluijs et al 1993). Individuals compare the positive aspects of exercise with the perceived side effects and difficulties involved in participation. Compliance and continued participation in exercise programmes is often linked to motivation. Motivation is greatest if the disease is perceived to be severe and the benefits of rehabilitation to be high (Janz and Becker 1984).

Motivation has also been shown to increase if the rationale behind the exercises and their role in promoting recovery is explained (Meichenbaum and Turk 1987). Motivation is enhanced if an individual is allowed to retain choice of where to attempt a task and how long or how hard to work on it (Thompson and Wankel 1980). Factors which reduce compliance are high perceived barriers to carrying out a home exercise programme, eg the need to alter daily routine and the relevance of the goal of treatment to the individual's daily life (Dishman 1987). In long term conditions such as multiple sclerosis, there is a particular need to maintain exercise behaviour over a long period of time in the context of likely on-going deterioration.

CASE DETAILS

The patient

KC, a 34-year-old man in full time employment in a highly competitive and demanding job, had suffered from relapsing/remitting MS for ten years. Diagnosis was made by MRI scan following an episode of loss of vision in 1988. KC had not fully recovered motor function after more recent relapses. He found walking

increasingly tiring and had constant low back pain, which was increased by sitting for long periods at work or walking for more than five minutes. KC was referred for physiotherapy for pain relief and treatment to improve his walking pattern. Initial subjective assessment findings in relation to posture and gait are displayed in *Table 1*.

INITIAL SUBJECTIVE ASSESSMENT FINDINGS IN RELATION TO POSTURE AND GAIT	
Posture	Side flexion, concave to the left Rotation to the left Weight shifted to the right Increased lumbar lordosis Fixation through right upper limb
Walking pattern	Reduced speed Increased effort Poor walking cadence: uneven stride length, left leg brought forwards too early in the cycle Weight shift towards the right Poor weight transfer heel to toe

Table 1

follows:

- Low back pain of probable mechanical origin.
- Low postural tone in the trunk, especially lower trunk. Tone on the left side of the trunk was less than that on the right side.
- Inability to maintain extension of the left hip and knee joints during stance.
- Compensatory overuse of the right side of the trunk, cervical spine and head.
- Reduction in walking speed and increased fatigue when walking.

Initial aims of physiotherapy

Physiotherapy was aimed at increasing muscle activity (background muscle tone) providing joint stability and improving selective segmental control of the trunk and lower limbs (especially on the left). It was intended that this would improve his alignment with regard to midline, increase his balance and reduce the effort of walking.

Measurements

The outcome measures used to monitor the progress of treatment were:

- One-legged stance test (Horak 1987). The subject was asked to stand barefoot with eyes open and feet parallel to one another and slightly apart. He was asked to transfer weight towards one side and to lift the opposite foot so that it comfortably cleared the floor. The test was discontinued if the subject touched the support provided or returned his foot to the floor.
- Sharpened Romberg test (Tandem foot position: Black et al 1982). The subject was asked to stand barefoot with eyes open and one foot in front of the other such that the heel of one foot was in contact with the toe of the opposite foot. The test was discontinued if the subject moved his feet or used the support provided to maintain his balance.
- Speed and number of steps taken over ten-metre walk (Wade 1992). Timed walking tests are a simple and valid measurement of mobility. Gait speed has been shown to correlate with other measures of gait, for example cadence and stride length (Wade 1992). The subject was asked to walk a distance of 10 metres between marks at his preferred speed and with his preferred aid (a walking stick) for support. This was timed and the number of steps taken to complete the distance was noted.

Outcomes for all measures were recorded three times and a mean value calculated. Retrospective consideration of the case identified the lack of specific measures to monitor change in low back pain but KC's reports of his pain in documented notes were considered.

Treatment schedule

In this case report, KC's physiotherapy treatment from August 1998 to June 2001 was considered. During this period, there were no recorded episodes of further disease exacerbation and KC was reviewed on four occasions: in September 1999, January 2000, June 2000 and February 2001. Because of deterioration in physical condition noted during review, KC attended two courses of physiotherapy; course A from September 1999 to January 2000 and course B from June 2000 to July 2000. KC was asked to continue a programme of home exercises on both occasions. Measures were taken during review appointments.

Physiotherapy

On both occasions when treatment was provided, KC reported that walking required more effort and his back pain had increased. During treatment courses, KC attended twice weekly out patient sessions (minimum 16 sessions, maximum 28 sessions). Each session was conducted by one therapist and lasted approximately 45 minutes.

During course A, treatment aims included increasing muscle activity, providing joint stability and improving balance. Examples of treatment methods included in physiotherapy sessions are shown in *Table 2*.

Following course A, KC was asked to continue a programme of exercises at home, outlined below in *Table 3*.

KC commenced course B after review in June 2000. There was no evidence of carryover from course A. During KC's second course of treatment, the author attended a post graduate course on muscle imbalance,

EXERCISES INCLUDED IN PHYSIOTHERAPY COURSE A	
OBJECTIVE	**EXERCISE**
Hip extensor/abductor activity	Pelvic tilting in supine
	Standing from sitting (varying height of plinth)
Recruitment of abdominal muscle activity	Anterior-posterior pelvic tilting in sitting and high perch sitting
	Pelvic tilting in supine
	Upper and oblique abdominal activity in supine
	Reaching in side lying
Weight transfer in sitting	Lateral pelvic tilt in sitting and high perch sitting, independently and in response to reaching upwards to either side
Weight transfer in standing and stride standing to achieve stability through stance leg and release of swing leg	Movement of the pelvis and thorax in order to place the hip over the foot in response to instruction
	Automatic movement of the pelvis to balance in order to reach for, move or place objects
Hip and knee extensor activity	Pelvic tilt in supine
	Standing from high perch sitting
Recruitment of automatic walking pattern with increased speed and longer stride length	Facilitation of gait

Table 2

HOME EXERCISE PROGRAMME INCLUDED IN COURSE A
Pelvic tilt in supine
Double knee roll in supine
Maintaining lumbar extension in sitting
Abdominal crunches (midline and oblique)
Hip extension and hip abduction/extension in side lying
Sit to stand, maintaining mid-line
Weight transfer in standing
Stepping in standing

Table 3

followed by Continuing Professional Development sessions in which supporting literature was discussed with peer physiotherapists. As a result of this reflection on improving practice, exercises more specifically aimed at recruitment of transversus abdominus were included in KC's physiotherapy programme (Cresswell et al 1994; Gardner-Morse and Stokes 1998; Hodges and Richardson 1999) (See *Table 4*). Issues relating to type of abdominal exercises are outlined in the discussion.

During discussion about progression and home exercise programme, KC reported that he had little time to exercise and experienced difficulty in maintaining motivation to continue prescribed exercise. Therapist and client worked together to address the issue of reduced motivation, through discussion to identify the cause and the introduction of strategies suggested by the client. KC reported that the resulting programme allowed him to exercise without increasing his awareness of his movement pathology, this improved his motivation. During the second course of treatment the exercises shown in *Table 5* were added:

EXERCISES FOR SPECIFIC RECRUITMENT OF TRANSVERSUS ABDOMINUS INCLUDED IN COURSE B	
OBJECTIVE	**EXERCISE**
To recruit transversus abdominus	Selective hip movement in supine (varying combination's of flexion, abduction, adduction, medial and lateral rotation)
To stimulate automatic patterns of abdominal muscle activity	Use of upper limb activity toward and away from midline in supine, side lying, sitting and standing

Table 4

Treatment Outcomes

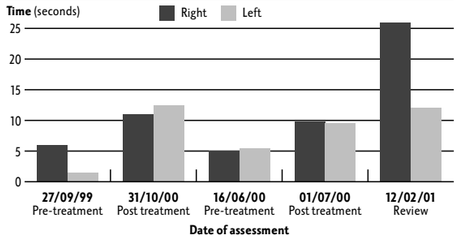
ADDITIONAL EXERCISES FOR HOME PROGRAMME – COURSE B	
OBJECTIVE	**EXERCISE**
Automatic recruitment of abdominal muscles	Hip movement (ie placing of the foot to the side and back to the middle using hip flexion, abduction and adduction) in crook lying
Automatic recruitment of abdominal muscles	Upper limb movements in crook lying and sitting
Automatic recruitment of spinal extensors	Hip extension in prone lying

Table 5

Measurement of one-legged stance, sharpened Romberg and walking times were taken at review appointments before and after both courses of physiotherapy. Following course A, KC reported reduction in low back pain and improvement in walking function but improvements were not maintained. Following course B, subjective improvements were observed again. On review after nine months, KC stated that he had continued to exercise at home and subjectively he reported less fatigue and little pain when walking. Objective measures of balance and walking speed showed similar patterns of change.

Figure 1 (overleaf) illustrates balance time in one – legged stance. KC's balance over one leg improved during the treatment phases and deteriorated during the non-treatment phases. Right leg stance time decreased between the end of course A and the begin-

Figure 1 **ONE LEGGED STANCE (R&L) MEAN VALUES**

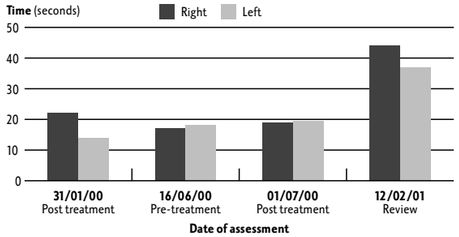


ning of course B (from mean of 11 seconds to 5 seconds, percentage change in mean value of 52%). This measurement was lower than that recorded prior to course A (mean 6 seconds). A similar percentage change in mean value was recorded over the left leg (from mean of 12 seconds to 5 seconds, percentage change in mean value of 56%).

For both legs one-legged stance improved after course B. During this therapy intervention major emphasis was placed on allowing KC to design a continuing exercise regime that would challenge and motivate him. On subsequent review the percentage change in mean value over the right leg had improved by 160%.

Sharpened Romberg test time with right leg behind

Figure 2 **SHARPENED ROMBERG (R&L LEG BEHIND) – MEAN VALUES**



(Figure 2) deteriorated between the end of course A and the beginning of course B (from mean of 23 seconds to 18 seconds, percentage change in mean value of 24%). The measurement improved minimally during treatment but continued to improve when KC undertook to exercise at home, with the mean value on review of 44 seconds compared with 19 seconds at the end of course B (percentage change in mean value 131%). Sharpened Romberg measurements with the left leg behind showed an improving trend throughout. The most marked improvement was recorded between the end of course B and final review on 12.02.01 (from mean of 20 seconds to 37 seconds, percentage change in mean value of 91%).

Ten metre walking speed and number of steps

Figure 3a **10M WALK: TIME – MEAN VALUE**

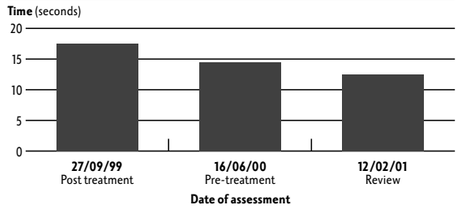
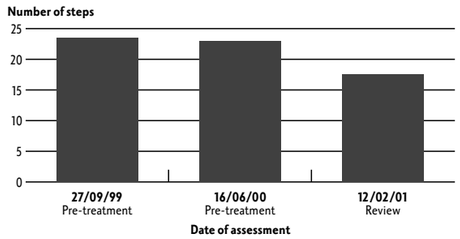


Figure 3b **10M WALK: NUMBER OF STEPS – MEAN VALUE**



taken were assessed at eight month intervals over the intervention and review period studied. A progressive decrease in time taken (from a mean of 18 seconds to 12 seconds) and numbers of steps required to cover the distance (from a mean of 24 steps to 18 steps) was seen.

Discussion and implications for practice

The initial aims of treatment for KC were to improve his trunk alignment and increase selective muscle activity of his pelvis and lower limbs. It was anticipated that this would improve his alignment with regard to midline, increase his balance and reduce the effort of walking. Objective measurement revealed that although progress was made during a course of physiotherapy, there was little carryover during the period when KC was asked to exercise independently. Changes were made in the exercise programme and two key issues were identified and addressed during a second course of treatment: training of abdominal muscles and patient motivation. Improvements in balance and gait were maintained or improved after course B. These issues are considered further below.

The exercise regime

Understanding the role of the abdominal muscles in the production of spinal stability provided a theoretical background from which to commence physiotherapy treatment planning. Increasingly the importance of understanding the contribution of muscle imbalance to lack of function in patients with neurological conditions has been recognised. Lack of activity in the deep tonic muscle groups eg multifidus and transversus abdominus may result in compensatory use of phasic muscles eg rectus abdominus and iliopsoas as trunk stabilisers (Hodges 1999). These fast twitch glycolytic muscles are not physiologically designed to act at low levels of activity for long periods of time and they fatigue rapidly contributing to postural and balance problems. For several years KC made short term improvement only with a lack of carryover with a standard home exercise programme.

Stabilising muscles should be retrained initially by working at low loads for short periods (Norris 1995). In order to reactivate the deep single joint stabilising muscles to promote postural stability, KC's treatment was refocused to build muscle endurance within inner range. The patient was asked to do small range movements of the joints immediately distal to the insertion of the stabilisers. It was anticipated that transversus abdominus would be selectively recruited to maintain segmental spinal stability (Cresswell et al 1994, Hodges and Richardson 1997a and b).

The client was also advised on a more effective technique for 'abdominal curl–up'. Evidence suggests a correlation between the number of curl-ups an individual can perform and the ability to maintain lumbar spine and pelvic position during selective movement of the lower limb (measured in crook lying). This abdominal exercise has been found to be most effective if performed at slow speed (Wolfahrt, Jull and Richardson 1993).

KC demonstrated muscle length changes, with shortening in the lumbar region and lengthening of the lower abdominals. Lengthened muscles have been shown to produce a weaker contraction force (Kendall et al 1993). Whilst able to perform pelvic tilts he was initially unable to, for example, maintain a stable pelvis and lift one leg from the plinth. With the changed emphasis on lower abdominal in addition to upper abdominal work, KC himself became aware of the ineffectiveness of these muscles and gained further understanding of the benefit of specific exercises.

Motivation

Compliance has been shown to increase if explanation is given regarding the rationale underpinning the exercise regime (Meichenbaum and Turk 1987). Outcomes related to balance demonstrate that KC improved on measures during his course of treatment but did not maintain benefits between treatment courses. He was not following up his treatment with prescribed exercises at home. On discussion he expressed concern that his movement problems were of a magnitude beyond his control. Physiotherapy involved confronting the abnormality of his movement, his increasing reliance on a walking stick and the concern that he would not be considered for promotion at work because of his obvious disability. He had exercised regularly prior to developing multiple sclerosis and was aware of the demands of a 'normal' exercise programme. Although his existing programme was obviously challenging, and his symptoms included fatigue, he felt that the prescribed regime was 'too easy'. Rehabilitation outcomes were being measured at review sessions but they did not reflect his own perception of how exercise should be measured, eg by increases in repetitions. Despite working in partnership, he felt he did not have the 'power' to change his exercises from those prescribed. Discussion identified that the key element in any changed regime needed to be a similarity with pre-morbid exercise work. However, understanding the theory behind exercises directed at transversus abdominus enabled KC to use this as a framework for constructing a challenging programme for himself.

Following this, a regime was designed which included modified versions of exercises which KC perceived as 'normal', eg more abdominal exercises were included and some of the stepping exercises were reduced. Although he was aware that the exercises had a functional aim related to balance outcomes, his preferred outcomes related to the achievement of an increased number of repetitions. By setting goals that were meaningful to KC his sense of ownership and purpose was enhanced (Haas 1993). With greater understanding of therapeutic aims, KC agreed to monitor parameters of quality of movement and fatigue and to exercise only within certain limits.

The objective measures taken do not directly examine either the effectiveness of working transversus abdominus or the effect of motivation on exercise behaviour. However, on review (12.02.01) KC reported that he had continued to exercise independently. He identified a subjective reduction in back pain and demonstrated a further increase in balance and walking speed. The author considers these interesting facets of KC's physiotherapy and areas for further work.

Conclusion

The physiotherapy management of individuals with Multiple Sclerosis involves a long-term relationship, which will include assessment and response to varying needs over the disease course. The quality of the relationship between the therapist and the individual influences the effectiveness of the intervention (Gillet et al 1993). The case study demonstrated that the outcome for the individual was enhanced by effective goal setting when both professional and individual shared the rationale for their choice of actions (Cott and Finch 1990). Therapeutic aims were met by the indi-

vidual understanding the theoretical background to the intervention chosen, and the individual's aims were addressed by increased professional understanding of the context in which the prescribed exercise regime would be undertaken.

References

Black FO, Wall C, Rockette HE, Kitch R (1982) *Normal subject postural sway during the Romberg test* American Journal of Otolaryngology 3 pp309-318.

Cott C, Finch E (1990) *Goal–setting in physical therapy practice* Physiotherapy Canada 43, (1) pp19-22.

Cresswell AG, Grundstrom H, Thorstensson A (1992) *Observations on intra-abdominal pressure and patterns of abdominal intra-muscular activity in man* Acta Physiologica Scandinavia 144 pp409-418.

Cresswell AG, Oddson L, Thorstensson A (1994) *The influence of sudden perturbations on trunk muscle activity and intra-abdominal pressure while standing* Experimental Brain Research 98 pp336-341.

Dishman RK (1981) *Health psychology and exercise adherence* Quest 34 (2) pp166-180.

Dishman RK (1987) *Exercise adherence and habitual physical activity* in: Morgan WP, Goldston SE (eds) *Exercise and mental health* Hemisphere Publishing Corporation: New York pp57-83.

Gardner-Morse M, Stokes IA (1998) *The effects of abdominal muscle coactivation on lumbar spine stability* Spine 23 pp86-91.

Gillet PA, Johnson M, Juretich M, Richardson N, Slagle L, Fankoff K (1993) *The nurse as exercise leader* Geriatric Nursing 14 (3) pp133-137.

Gracovetsky M, Farfan H, Helleur C (1985) *The abdominal mechanism* Spine 10 pp317-324.

Haas J (1993) *Ethical considerations of goal setting for patient care in rehabilitation medicine* American Journal of Physical medicine and Rehabilitation 72 (4) pp228-232.

Hodges PW (1999) *Is there a role for transversus abdominus in lumbopelvic stability?* Manual Therapy 4 (2) pp74-86.

Hodges PW, Richardson CA (1997a) *Contraction of the abdominal muscles associated with movement of the lower limb* Physical Therapy 77 pp132-144.

Hodges PW, Richardson CA (1997b) *Feedforward contraction of transversus abdominus is not influenced by the direction of arm movement* Experimental Brain Research 114 pp362-370.

Hodges PW, Richardson CA (1999) *Transversus abdominus and the superficial abdominal muscles are controlled independently in a postural task* Neuroscience Letters 265 pp91-94.

Horak FB (1987) *Clinical Measurement of postural control in adults* Physical Therapy 67 (12) pp1881-1885.

Janz NK, Becker MH (1984) *The Health Belief Model: A decade later* Health Education Quarterly 11 pp1-47.

Kendall FP, McCreary EK, Provance PG (1993) *Muscle Testing and Function* (94th edition) Williams and Wilkins: Baltimore.

Meichenbaum D, Turk DC (1987) *Facilitating Treatment Adherence: A Practitioner's Guidebook* Plenum Press: New York.

Moulin D, Foley K, Ebers G (1988) *Pain syndromes in multiple sclerosis* Neurology 38 pp1830-1834.

Mulhearn S, George K (1999) *Abdominal muscle endurance and its association with posture and low back pain: an initial investigation in male and female elite gymnasts* Physiotherapy 85 (4) pp210-216.

Norris CM (1995) *Spinal stabilisation 4. Muscle imbalance and the low back* Physiotherapy 81 (3) pp127-138.

Parnianpour M, Nordin M, Kahanovitz N, Frankel V (1988) *The triaxial coupling of torque generation of trunk muscles during isometric exertions and the effect of fatiguing isoinertial movements on the motor output and movement patterns* Spine 13 pp982.

Robison JI, Rogers MA (1994) *Adherence to exercise programmes* Sports Medicine 17 (1) pp39-52.

Sluijs EM, Kok GJ, van der Zee J (1993) *Correlates of exercise compliance in physical therapy* Physical Therapy 73 (11) pp771-782.

Thompson CE, Wankle LM (1980) *The effect of perceived activity choice upon frequency of exercise behaviour* Journal of Applied Social Psychology 10 pp436-443.

Wolfahrt D, Jull G, Richardson C (1993) *The relationship between the dynamic and static function of abdominal muscles* Australian Physiotherapy Journal 39 (1) pp9-13.

Wade DT (1992) *Measurement in Neurological Rehabilitation* Oxford University Press: Oxford.

Zattara M, Bouisset S (1988) *Posturo-kinetic organisation during the early phase of voluntary upper limb movement. 1. Normal subjects* Journal of Neurology, Neurosurgery and Psychiatry 51 pp956-965.

This case report was written up with support* following the Northern and Yorkshire Bobath Memorial Workshop, *Writing Case Reports*, July 2000

Name and address for correspondence:
Gillian M Bamborough
Physiotherapy Department
Sunderland Royal Hospital
Kayll Road
Sunderland
Tyne and Wear SR4 7TP
Telephone: 0191 515 3496
email: gillian.bamborough@sunderland.ac.uk

Setting up a circuit training exercise class in the community for People with Stroke: a treatment audit

Sara May Grad. Dip. Phys, Ad. Dip Health Service Research

'Stroke is the largest, single cause of severe disability in England and Wales, with over 300 000 people being affected at any one time' (Stroke Association web site). The cost to the National Health Service (NHS) is thought to be £2.3 billion and is set to rise in real terms by 30% by 2023, due to the raising age of the population and improved acute management.

In recent years there has been a growing interest in investigating the effects of exercise and strength training in stroke patients. Brown and Klutz (1997), Dean et al (2000), Monga et al (1988) and Potempa et al (1995) have all completed studies in this area. The current literature indicates that moderate exercise, including strength training improves stroke patients' functional ability and increases walking speed. Studies on patients following traumatic head injury also indicate that exercise improves their sense of well being, social interaction and confidence (Gordon et al (1998), Sullivant et al (1990).

Teixeira-Samela et al (1999) investigated the effects of combined training ie strength training, aerobic training and functional tasks in a circuit training type session. The results from this pilot study are encouraging and demonstrate that this type of training is effective with chronic stroke patients living in the community. It is the combined nature of the training which is thought to contribute to the positive results: specific strengthening exercises to the main muscle groups in the hip, knee and ankle to promote stability and balance; aerobic training contributing to improved exercise tolerance, and the functional tasks also have an element of specificity of training. Dean et al (2000) also investigated the effects of combined training, combining the elements of motor re-learning and task practise with muscle strength training. The authors of this paper discussed the benefits of group exercises. They noticed that in the group activities, performance improved and suggested that the competition element helped to improve performance. The authors also briefly discussed the financial implications of group treatments, commenting that classes could be efficient and economical to run. This is certainly not an area to ignore – with increasing number of stroke patients and increasing demands placed on physiotherapy services (without necessarily increasing budgets) it is important to examine cost-effective ways of working and managing the service.

In consideration of these factors a review of the local situation and a treatment audit were completed between June 1999 and January 2001 with 28 stroke patients assessing the benefits of a circuit training class once People with Stroke (PWS) had completed their individual physiotherapy. The audit results demonstrated improved walking speeds and improved functional ability in this group of patients and interestingly all patients attending the classes reported increasing levels of confidence and wished to continue to exercise. The following report outlines the process and the resulting change to service delivery.

SUMMARY OF THE LOCAL SITUATION IN CAMDEN AND ISLINGTON

In the boroughs of Camden and Islington there is limited provision for People with Stroke to access leisure facilities and exercise classes.

In Islington, a charity runs the leisure centres and gymnasiums. They provide a Prescription for Exercise scheme, as part of their commitment to providing improved access for people who may under normal circumstances find it difficult to attend a gym. They accept referrals for People with Stroke, however, anecdotal reports from our patients, suggest that the gym instructors feel ill-equipped to manage these people in the gym and patients attend a few times and then stop as they require more support to fully participate. Several stroke patients have been successful in joining the scheme, however, these tend to be patients who are functioning at a high level, can use public transport, have no cognitive or speech problems and can use the machines in the gym independently. Camden residents do not have access to such a scheme. However, Camden Social Services' Active Health Team run a series of classes, partly financed by the Health Action Zone (HAZ). These classes are accessible to People with Stroke but are primarily aimed at the over 50's age group.

The voluntary sector is active in the area. Islington has a Stroke Project, which runs a seated exercise class once a week. This is a fun class aimed at people of all levels but, due to limited space, the emphasis is on enjoyment rather then rehabilitation. Different Strokes, a charity for younger stroke survivors, also run an exercise class on a Saturday morning. This group has been successful in engaging younger, more able People with Stroke who have returned to work.

However, access is a problem, there is limited parking in the area, which therefore excludes People with Stroke who are unable to use public transport or walk long distances.

SUMMARY OF EXERCISE OPPORTUNITIES IN CAMDEN & ISLINGTON		
	CAMDEN	**ISLINGTON**
Camden Active Health Team (Camden Social Services)	For people in Camden over 50 years of age. No specific stroke focus, although does include tai-chi (balance classes)	
Leisure centres	No Prescription for Exercise Scheme – individual instructors have welcomed joint sessions	Prescription for Exercise scheme welcomes PWS, anecdotal reports suggest only very highly functioning PWS manage in this environment.
Different Strokes	Open to C&I residents, run on a Saturday morning. Several PWS have experienced difficulties with access and child-care/family commitments at weekends	
Stroke project	Not available to Camden Residents	Exercise group runs once a week – older PWS tend to attend
Ability Gyms	Two gyms in Westminster and Hoxton, but not readily accessible by public transport to C&I residents plus limited parking makes attendance difficult	

Table 1

Method

The treatment audit included 28 class participants and lasted 18 months. The circuit-training class was advertised to GPs and other therapy services in the area and referrals were accepted from Community Rehabilitation Team (CRT) physiotherapists, CRT team members, GPs and other physiotherapists from the locality.

After the participants consented to joining the class, medical consent for each subject was agreed by either their GP or from CRT Consultant following the cautions and contra-indications recommended by Potempta et al (1995). The inclusion criteria for the class included any People with Stroke referred to the programme – including recent strokes and more long-standing People with Stroke in the community, but all participants had completed their individual, conventional physiotherapy. The participants needed to be able to walk indoors without a walking aid and have adequate balance to complete the exercises without hands-on assistance. They needed to be able to make their own way to the centre without the use of London Ambulance Service. If this was not possible in the first instance, they were offered support in accessing Dial-a Ride, the Taxicard Scheme or practise with the Rehabilitation Assistant using public transport and route finding.

The following tests were completed on initial assessment and at the final appointment.

1. **Fitness Test** Sub-maximal Cycle Ergometer Exercise Test (American College of Sports Medicine)
2. **Functional Tests** to provide a baseline figure
   - Exercise bike – distance cycled in one minute (miles)
   - Shuttle runs – number of shuttle runs (six metres) achieved in one minute
   - Sit to stand – number of complete sit to stands achieved in one minute from a 46cm chair.

Following the initial assessment, a starting date was agreed with a maximum of 6 class participants attending at one time. The class ran twice a week for 6 weeks with a total of twelve sessions. Several classes had to be cancelled in July and August 1999 due to high temperatures in the gym. The classes were organised by a Senior Physiotherapist and assisted by a Rehabilitation Assistant (RA).

During the class the participants were encouraged to work at a level where they were pushing themselves. They were encouraged to improve on their own scores but not to compete with each other. If able, the class participants were responsible for noting their own scores on the sheet. This enabled them to monitor their improvement and encouraged independence in the class. The exercises were modified to the individual if necessary, eg sit to stand from a higher chair for a participant who had had a total hip replacement. Music was played during the sessions, which helped make the class more enjoyable, and has been shown to make exercise less of a chore (Seath and Thow 1995). A total of 20 minutes of circuit training was completed (Marcelino and Harms 1995). A warm-up period and cool down stretches were also included in the programme.

Results and discussion

- A total of 27 People with Stroke enrolled onto the circuit training class programme during the 18-month audit period.
- Four participants did not complete the full twelve sessions due to other health problems developing during the programme.
- One participant did not attend the final assessment session
- One participant consented to join the programme, but did not attend any of the sessions.
- A total of 21 full sets of results were therefore collected.

SUMMARY OF CLASS PARTICIPANTS		
	MALE	**FEMALE**
Average age	55	60
Average number of circuit training classes attended	9	10

Table 2

RESULTS OF FUNCTIONAL TESTS		
	INITIAL ASSESSMENT	**FINAL ASSESSMENT**
Number of sit-stand from 43cm chair (mean)	17	22
Number of shuttle runs – six metres (mean)	7	11
Exercise bike, distance cycled in one minute (mean)	0.16 miles	0.2 miles

Table 3

Following a literature search we were unable to find a specific exercise test for People with Stroke and there were several difficulties with the Sub-maximal cycle fitness test. Most participants in the study found it very difficult to maintain a steady rate of work on the exercise bike and five were unable to sustain 25 watts for the required time of two minutes. Two participants were taking beta-blocker medication making heart-rate monitoring difficult to assess. It is debatable whether class participants actually reached their training zone during the exercise class. It is recommended that cardiovascular subjects exercise at a rate of 70-85% of their maximum heart rate (Marcelino and Harms 1995) as this allows a safety margin whilst also stressing the cardiovascular system enough to increase fitness. The class participants did not monitor their heart rate between each exercise station so it is not clear whether they were exercising in their training zone. Due to the difficulties collecting the results it was felt that the results collected for this test were inaccurate and have not been included in this report.

One of the most interesting observations from running the class was how much enjoyment the People with Stroke appeared to gain from attending. Many reported improved confidence and sense of well being. This is certainly an area for future research. The class became a social focus for many attending during their six week programme and many participants expressed a wish to continue with the classes. It seemed that we had started something here! Another interesting observation noted in practise, was the resolving problem of discharging People with Stroke from the service. The class seemed to act as a halfway house, encouraging People with Stroke to take more control over their rehabilitation and take a step towards independence and away from reliance on a physiotherapist. Interestingly, only one of the patients passing through the circuit-training class programme has been re-referred for physiotherapy.

Service developments

As outlined in the review of the current situation in Camden and Islington, there is limited access to exercise groups and facilities for People with Stroke. These concerns were raised at a meeting of the Camden Activity Forum, and staff at the Camden Social Services' Active Health Team approached the Community Rehabilitation Team to look at ways of addressing this problem. It was agreed that with funding from the Health Action Zone an exercise group could be set up at the local sports centre led by a Qualified Exercise Instructor. This class would accept participants once they had completed the circuit training class at the Community Rehabilitation Team. In order to assist the transition from health services to leisure, the Physiotherapist or Rehabilitation Assistant would attend with the People with Stroke for their initial class and introduce them to the instructor. Information on language impairments or other concerns could then be directly handed over. This method of 'Assisted Referral' appears to have helped People with Stroke to make the jump from using health services to leisure services and give them the confidence that the class is appropriate to their needs. From clinical experience the Physiotherapists at the Community Rehabilitation Team have found that giving advice and information to People with Stroke about exercise facilities is not enough, these findings are also backed up in the review of physical activity promotion schemes (Riddoch et al 1998). People with Stroke need support in accessing classes or leisure centres particularly because it is more than likely that they were not using leisure facilities prior to their stroke. This is a planned area for further research and funding is currently being sort. This community class has now been running for two years, with 21 previous circuit training class participants being introduced. There are now eleven regular attendees.

Conclusion

The National Clinical Guidelines for Stroke (2000) recommend that all patients have access to advise on 'appropriate lifestyle factors (such as not smoking, regular

exercise, diet, achieving a satisfactory weight, reducing the use of added salt)'. This treatment audit demonstrates the use of putting current research into action and suggests that there are both functional and psychosocial benefits from attending such a class. It also demonstrates the importance of working with colleagues in other sectors, such as leisure, to solve problems.

APPENDIX

Circuit training Class Structure

- Five-minute warm-up
- Eight exercises completed for one minute each, with one minutes rest in-between each exercise. The circuit was completed twice. The exercises included,
  1. Exercise bike (resistance increased as a progression)
  2. Bouncer – marching on the spot and progressing to jumping
  3. Sit-stands - holding a weight as a progression
  4. Knee-rolling with orange gym-ball
  5. Shuttle-runs (six metres)
  6. Arm-raises (weight added if appropriate as a progression)
  7. Tread-mill (discontinued in November 1999) – replaced with bridging in crook lying
  8. Lunges
- Cool down period, included hamstrings, calf and quadriceps stretches.

References

Ada L, O'Dwyer N (2001) *Do associated reactions in the upper limb after stroke contribute to contracture formation?* Clinical Rehabilitation Vol 15, pp186-194.

Brown DA, Kautz SA (1997) *Increased workload enhances force output during pedalling exercise in persons with post stroke hemiplegia* Stroke, 29, pp598-606.

Dean C, Richards C, Malouin F (2000) *Task-Related Circuit training improves performance of locomotion tasks in chronic stroke: a randomised-controlled pilot study* Archives of Physical Medicine and Rehabilitation Vol 81, pp409-417.

Gordon W, Shwinski M, Echo J, McLoughlin M, Sheerer M, Meil T (1998) *The benefits of exercise in individuals with traumatic brain injury: a retrospective study* Journal of Head Trauma and Rehabilitation Vol 13 (4) pp58-67.

Macko R, Desouza C, Tretter BS, Silver K, Smith G, Anderson P (1997) *Treadmill aerobic exercise training reduces the energy expenditure and cardiovascular demands of hemiparetic gait in chronic stroke patients* Stroke Vol 28, (2) pp326-330.

Marcelino J. Harms M (1995) *Assessment of a circuit of exercises through heart rate response* International Journal of Cardiology Vol 49 pp153-158.

Marcelino J, Harms M (1992) *Heart Rate Monitoring. Reliability of the Tunturi Pulse Meter* Physiotherapy Vol 78, no 8.

Monga T, Deforge D, Williams J and Wolfe L (1988) *Cardiovascular responses to acute exercise in patients with cerebrovascular accidents* Archives of Physical Medicine and Rehabilitation Vol 69, p937-940.

Potempa K, Lopez M, Braun L, Szidon P, Fogg L and Tincknell T (1995) *Physiological outcomes of aerobic exercise in hemiparetic stroke patients* Stroke Vol 26, (1) pp101-105.

Riddoch C, Puig-Ribera A and Cooper A (1998) *Effectiveness of physical activity promotion schemes in primary care; a review* London. Health Education Authority.

Seath I, Thow M (1995) *The effect of music on the perception of effort and mood during aerobic type exercise* Physiotherapy 51, pp592-598.

Sullivant S, Richer E, Laurent F (1990) *The role and possibilities of physical conditioning programme in the rehabilitation of traumatically brain-injured persons* Brain Injury Vol 4 (4) pp407-414.

Teixeira-Salmela L, Olney S, Nadeau S and Brouwer B (1999) *Muscle strengthening and physical conditioning to reduce impairment and disability in chronic stroke survivors* Archives of Physical Medicine and Rehabilitation. Vol 80 pp1211-1218.

The Intercollegiate Working Party for Stroke (2000) *National Clinical Guidelines for Stroke* Pub. Royal College of Physicians. London.

www.stroke.org.uk/Stroke Association Webster.

Bibliography

Morton-Cooper, A (2000) *Action Research in health care* Oxford. Blackwell Science.

Sara May Grad. Dip. Phys, Ad. Dip Health Service Research is a Senior I Physiotherapist working at the Peckwater Centre. Please contact Community Rehabilitation Team, Peckwater Centre, Peckwater Street, London, NW5 2TX for further details. (sara.may@camden-pct.nhs.uk).

Acknowledgements

This project would not have possible if not for the support and help of Wolfie Smith, Clinical Specialist at the Peckwater Centre and Jill Grainger and Martin Thompson at Camden Social Services' Active Health Team – thanks for all their help setting up the class at Kentish Town.

Articles in other journals

ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION

2002 Vol 83, No 1

• Brock K, Goldie P, Greenwood K, *Evaluating the effectiveness of Stroke Rehabilitation: Choosing A Discriminative Measure* pp92-99.

2002 Vol 83, No 2

• Hyndman D, Ashburn A, Stack E, *Falls Events among People With Stroke Living in the Community: Circumstances of Falls and Characteristics of Fallers* pp165-170.

• Pierce S, Buxbaum L, *Treatments of Unilateral neglect: A Review* pp256-268.

2002 Vol 83, No 3

• Eng J, Kim M, MacIntyre D, *Reliability of Lower Extremity Strength Measures in Persons with Chronic Stroke* pp322-328.

2002 Vol 83, Supp 1

• McKinley W et al, *Spinal Cord Injury Medicine 2. Medical Complications After Spinal Cord Injury: Identification and Management* pp S58-S64.

• Gittler M et al, *Spinal Cord Injury Medicine 3. Rehabilitation Outcomes* pp S65-S71.

• Steins S et al, *Spinal Cord Injury Medicine 4. Optimal Participation in Life After Spinal Cord Injury: Physical, Psychosocial, and Economic Reintegration into the Environment.*

2002 Vol 83, No 4

• Behrman A et al, *Is The Functional Reach Test Useful for Identifying Falls Risk Among Individuals With Parkinson's Disease?* pp 538-542.

• Perennou D et al, *Understanding the Pusher Behaviour of Some Stroke Patients With Spatial Deficits: A Pilot Study* pp570-575.

2002 Vol 83, No 5

• O'Dell et al, *Functional Outcome After Inpatient Rehabilitation in Persons with Subarachnoid Haemorrhage* pp678-682.

• Sullivan K, Knowlton B, Dobkin B, *Step Training With Body Weight Support: Effect of Treadmill Speed and Practice Paradigms on Poststroke Locomotor Recovery* pp683-691.

2002 Vol 83, No 6

• Heruti D et al, *Rehabilitation Outcome of Elderly Patients After a First Stroke: Effect of Cognitive Status at Admission on the Functional Outcome* pp742-750.

• Reker D et al, *Postacute Stroke Guideline Compliance is Associated With Greater Patient Satisfaction* pp750-756.

• Pohl M et al, *Effectiveness of Serial Casting in Patients With Severe Cerebral Spasticity: A Comparison Study* pp784-790.

2002 Vol 83, No 7

Brunt D et al, *The Effect of Foot Placement on Sit to Stand in Healthy Young Subjects and Patients With Hemiplegia* pp924-929.

• Nuyens G et al, *Reduction of Spastic Hypertonia During Repeated Passive knee Movements in Stroke Patients* pp930-935.

• Yavuzer G, Ergin S *Effect of an Arm Sling on Gait Pattern in Patients With Hemiplegia* pp960-963.

• New P, Rawicki B, Bailey M, *Nontraumatic Spinal Cord Injury: Demographic Characteristics and Complications* pp996-1001.

• Teasell R et al, *Clinical Characteristics of Patients with Brainstem Strokes admitted to a Rehabilitation Unit* pp1013-1016

AUSTRALIAN JOURNAL OF PHYSIOTHERAPY

2002 Vol 48, No 1

• Moseley A et al, *Evidence of physiotherapy Practice: A survey of the Physiotherapy Evidence Database (PEDro)* pp43-50.

BRAIN

2002 Vol 125, Part 7

• Pantano P et al, *Cortical motor reorganization after a single clinical attack of multiple sclerosis* pp1607-1615.

2002 Vol 125, Part 9

• Bjoertomt O, Cowey A, Walsh V, *Spatial neglect in near and far space investigated by repetitive transcranial magnetic stimulation* pp 2012-2022.

BRITISH JOURNAL OF THERAPY AND REHABILITATION

2002 Vol 9, No 3

• Hargreaves J, Hewison, *A Lecturer practitioners in physiotherapy: what do they do and why?* pp96-100.

2002 Vol 9. No 5

• Bandyopadhayay S et al, *Conductive education-based physiotherapy in Parkinson's Disease* pp176-179.

• Kelly S, Meredith P, *Does articulation affect standing balance? A pilot study* pp180-183.

2002 Vol 9. No 6

• Childs L, Kneebone I, *Falls, fear of falling and psychological management* pp225-231.

CLINICAL REHABILITATION

2002 Vol 16, No 1

• Page SJ et al, *Stroke patients' and therapists' opinions of constraint-induced movement therapy* pp55-60.

• Greener J, Langhorne P, *Systematic reviews in rehabilitation for stroke: issues and approaches to addressing them* pp69-74.

• Rossier P, Wade DT, *The Guy's Neurological Disability Scale in patients with multiple sclerosis: a clinical evaluation of its reliability and validity* pp75-95.

2002 Vol 16, No 2

• Tyson SF, Chissim C, *The immediate effect of handling technique on range of movement in the hemiplegic shoulder* pp137-140.

• Laufer Y, *Effects of one point and four-point canes on balance and weight distribution in patients with hemiparesis* pp141-148.

• Petterson R, Dahl T, Wyller TB, *Prediction of long-term functional outcome after stroke rehabilitation* pp149-159.

• Lettinga AT et al, *Pitfalls in effectiveness research: a comparative analysis of treatment goals and outcome measures in stroke rehabilitation* pp174-181.

2002 Vol 16, No 3

• Turner-Stokes L, Jackson D, *Shoulder pain after stroke: a review of the evidence base to inform the development of an integrated care pathway* pp276-298.

• Donkervoort M, Dekker J, Deelman B, *Sensitivity of different ADL measures to apraxia and motor impairments* pp299-305.

• Green J, Forster A, Young J, *Reliability of gait speed measured by a timed walking test in patients one year after stroke* pp306-314.

2002 Vol. 16, No 4

• Kroon JR et al, *Therapeutic electrical stimulation to improve motor control and functional abilities of the upper extremity after stroke: a systematic review* pp350-360.

• Butler JA, *How comparable are tests for apraxia?* pp389-390.

• Behrman AL, Light KE, Miller GM, *Sensitivity of the Tinetti Gait Assessment for detecting changes in individuals with Parkinson's disease* pp399-405.

2002 Vol. 16, No 5

• Lombardi F et al, *Sensory stimulation of brain injured individuals in coma or vegetative state: results of a Cochrane systematic review* pp464-472.

• Pollock AS et al, *The effect of independent practice of motor tasks by stroke patients: a pilot randomized controlled trial* pp473-480.

• Watkins et al, *Prevalance of spasticity post stroke* pp515-522.

PHYSIOTHERAPY THEORY AND PRACTICE

2001 Vol 18, No 1

• Williams R et al, *Journal writing to promote reflection by physical therapy students during clinical placements* pp5-16.

• Bjeremo B et al, *The effect of two different arm positions on body weight distribution when rising from sitting to standing in stroke patients* pp33-42.

2001 Vol 18, No 2

• Carr J, Ow J, Shepherd R, *Some biomechanical characteristics of standing up at three different speeds: Implications for functional training* pp47-54.

PHYSICAL THERAPY

2002 Vol 82, No 5

• Wagenaar R. *Effects of Duration of Upper-and Lower-Extremity Rehabilitation Sessions and Waking Speed on Recovery of Interlimb Coordination In Hemiplegic Gait* pp432-449.

• Tappan R, *Rehabilitation for Balance and Ambulation in a Patient With Attention Impairment Due to Intracranial Haemorrhage* pp473-484.

• Suteerawattananon M, Macneill B, Protas E, *Supported Treadmill Training for Gait and Balance in a Patient With Progressive Supranuclear Palsy* pp485-495.

2002 Vol 82, No 6

• Martin M et al, *Gait Initiation in Community-Dwelling Adults with Parkinson Disease: Comparison With Older and Younger Adults Without the Disease* pp566-577.

2002 Vol 82, No 7

Field-Fote E, Tepavac D, *Improved Intralimb Coordination in People With Incomplete Spinal Cord Injury Following Training With Body Weight Support and Electrical Stimulation* pp707-715.

THE AMERICAN JOURNAL OF OCCUPATIONAL THERAPY

2002 Vol 56, No 3

• Ma H, Trombly CA, *Synthesis of the Effects of Occupational Therapy for Persons With Stroke, Part 11: Remediation of Impairments* pp260-274.

2002 Vol 56, No 4

• Fasoli S et al, *Effects of Instructions on Functional Reach in Persons With and Without Cerebrovascular Accident* pp380-390.

THE BRITISH JOURNAL OF OCCUPATIONAL THERAPY

2002 Vol 65, No 3

Whalley Hammell K, *Informing Client-Centred Practice through Qualitative Inquiry: Evaluating the quality of Qualitative Research* pp175-184.

2002 Vol 65, No 5

Dickson M, *Rehabilitation of Motor Control following Stroke: Searching the Evidence* pp269-274.

ACPIN news

ANNUAL REPRESENTATIVES CONFERENCE 2002

Elizabeth Self
Regional Representative

I attended ARC this year on the 21st and 22nd of May this year. This year ACPIN submitted two motions one was accepted on the primary agenda and the second was on the secondary agenda to be discussed only if there was sufficient time which unfortunately there was not. I am glad to report that the motion below was carried and hopefully the CSP will act to address this problem.

This conference believes that the CSP should immediately lobby trust executives to ensure provision of appropriate and accessible working rehabilitation space in view of the current emphasis on acute bed resources and length of stay statistics.

An increasing number of ACPIN members are reporting cases of trust management executives assessing current rehabilitation space with a view to reducing or closing such environments to accommodate further acute departments. This reflects the unfortunate but significant degree of short sightedness and poor understanding of rehabilitation as an integral part of recovery, which begins on day one of a patient's stay. Without an appropriate therapeutic area, skilled therapists will find it increaingly difficult to ensure relevant treatment is given too early/acute, intermediate and long term rehabilitation patients and this may impact directly on length of stay.

I thoroughly enjoyed the experience of ARC and have now gained a good insight into how topic's that effect all of us are brought forward for discussion in the form of motions from CIG groups, stewards health and safety reps, assistants, students and many more. Once the floor has voted the motion is either carried, failed or remitted to CSP Council. If the motion is carried the council has to act on our behalf to the motion.

If any of you have the opportunity to go I would strongly recommend you do.

REPORT FROM THE CLINICAL INTEREST GROUP LIAISON COMMITTEE

Louise Gilbert
CIGLC Representative for ACPIN

Time Off Survey

The time off survey produced a 72% response rate and initial analysis has identified the need to undertake further research and the committee has made several recommendations. The themes identified are around

- Promoting CI/OG membership
- Developing information about the role of CI/OGS – as this could be used as a marketing tool for managers and the wider CSP membership
- Defining the support required by CI/OGs
- Developing CI/OGs political awareness to ensure that groups are informed of the changing context in which physiotherapy is being delivered as are able to adopt a proactive role in informing policy development.

CI/OGs and their relationship to council

There has been recent discussion about the CI/OG network and its relationship to CSP council. In order to influence and inform council CI/OG's are encouraged to use the CIGLC more productively to raise issues of concern.

The CIG liaison committee has access to council via the Profes-sional Practice committee. Views and concerns are voiced via the committee's summary to council quarterly. The CIG/OGs are also represented by members on this and other CSP committees. The chair of council attends CIGLC meetings on a regular basis and is prepared to act as an intermediator of issues/information.

Setting the Agenda – Electronic network system

The Northern and Yorkshire regional members of ACPIN are involved in the pilot of a web-based communication and networking system for physiotherapy. The service allows free access to over 40 clinical, professional and other networks. Members would benefit from the project as it gives easy access to regional and national issues of interest to physiotherapists and allows member contact and information exchange. The content of this electronic network is managed and coordinated by named moderators. At present the pilot which has been extended until March 2003 is not being promoted to the general membership outside the Northern and Yorkshire region. For further information about this project contact Nigel Senior at the CSP.

NICE guidelines/Outcome measure network

The NICE guidelines are a standing agenda item and CI/OG members are encouraged if they are not already, to be involved in guideline development.

Guidelines/Guidance topics for which the Society will register with NICE as a stakeholder include:

1. Service guidance for tumours of the brain and central nervous system.
2. Clinical guideline for the management of Parkinson's Disease
3. Head Injury in Children and Adults- assessment, investigation, and management.
4. Multiple Sclerosis

Any member who would like to help the society with consultation on these guidelines are invited to contact Ralph Hammond, Professional Adviser, Research and Clinical Effectiveness Unit at the CSP.

The new CSP outcome measures network has now been established and Sue Mawson will be representing ACPIN. Sue will be informing members about the network and the nature of its work via *Synapse.*

ACPIN INSURANCE

ACPIN have insurance arranged with St Paul International under a Master Policy of Clinical Interest Groups Associated to the Chartered Society of Physiotherapy. Details are given below.

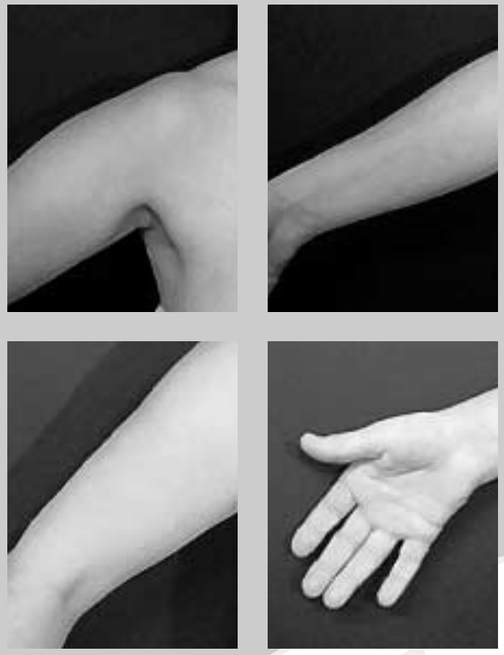
- **Master policy number** UC PMH 3443737
- **The period of cover** This extends from January to December each year.
- **Section1** *Material loss or damage* This covers property up to £10,000, including any item of stock, equipment, fixtures or fittings, owned, leased, hired or borrowed in connection with the Group's activities or for which they are responsible.

  Special terms:
  - Excludes first £100
  - Excludes theft of property left unattended unless within locked premises
  - Excludes mechanical and breakdown of equipment or failure of parts.
- **Section 2** *Loss of money*

  Special terms:
  - Excludes first £100
  - Only money of the Group is covered

ACPIN RESIDENTIAL CONFERENCE 2003

MOVEMENT DYSFUNCTION IN THE UPPER LIMB



can we manage it?

including ACPIN AGM

21ST-22ND MARCH 2003

HILTON HOTEL, NORTHAMPTON

An exciting two day residential conference at the Hilton Hotel, Northampton. We are delighted to welcome many eminent speakers from several different fields, to enhance our understanding of upper limb deficits and give their insight into treatment or management approaches.

We have lectures reviewing the functional anatomy of the upper limb and motor control, as well as considering pain and its implications. An afternoon session will look at reaching and manipulation with Dr Paulette van Vliet presenting the importance of 'cognition' and Dr Jon Marsden the 'Visuomotor control'.

The second day will focus on treatment intervention and clinical reasoning. We are delighted to have Jacqui Clark, a kinetic control expert from New Zealand speaking on 'Scapula humeral relationships'. She will be joined by Catherine Cornall, Bobath tutor, discussing the problems of abnormal tone and movement patterns, and Dr Jill Ramsay on proprioception. Alex Morley will present a review of the evidence for managing the low toned, subluxed shoulder. ACPIN are also pleased to welcome two clinical specialist occupational therapists, who will consider the analysis of washing and dressing, and the big question 'why do arms take so long to recover'?

For a registration form please contact:
Jo Tuckey
Superintendent Physiotherapist
RNRU
Homerton Hospital
Homerton Row
London E9 6SR
Tel: 0208 510 7449

or download from the ACPIN website: **www.acpin.net**

ACPIN news (*continued*)

- **Section 3** *Employers liability* Limit of indemnity £10 million
- **Section 4** P*ublic/products liability* Limit of indemnity £1.5 million in any one claim. Excludes first £250
- **Section 5** *Professional liability* Limit of indemnity £1.5 million in any one claim (including legal costs and expenses)
  Special Terms:
  - Treatment risks included providing they are provided as part of training, demonstration activities etc.
  - Members of the Group or anyone engaged to represent the Group must hold their own Professional and Medical Liability insurance if acting on the Group's behalf in a professional capacity (eg Instructor, lecturer, medical practitioner etc)
- **Claims** In the unfortunate event of an incident which may give rise to a claim under the policy, please notify the CSP's Insurance Brokers below quoting the Group name (Neurology) and Master Policy number:
  Graybrook Insurnace
  15-17 Reeves Way
  South Woodham Ferres
  Essex CM3 5XF
  t: 01245 321185
  e: administrator@graybrook.demon.co.uk

Research forum

Having started this research page in the last issue of *Synapse*, we are continuing this issue with an introduction to Research Governance and two features, *STATS NOTE* and *WEBSOURCE*, which we plan to continue in subsequent issues. We would like to hear your views so, if there are topics you would like us to consider in future issues of *Synapse*, or if you want to communicate with your colleagues on particular issues, do get in touch.

Don't forget about the ACPIN research bursary. It offers a small sum of money to help you with your research. The next submission deadline is the 31st March. Details were published in *Synapse* Spring 2002 or can be obtained from Mary Cramp, School of Health and Biosciences, University of East London, Romford Road, Stratford, London E15 4LZ or email mary.cramp@talk21.com.

Research Governance – Opportunity or Obstacle?

All NHS organisations and their employees should be familiar with the concept of governance[1] through the national and local development plans for clinical governance[2] and controls assurance which form part of the modernisation programme to establish the New NHS as 'modern' and 'dependable'[3]. The principles of governance are to create frameworks to guide and assist practice to ensure safety, effectiveness and efficiency for both patients and staff. These should be developed within a positive learning culture of openness, transparency and reflection, which offers the opportunity for all to share knowledge and skills.

One of the seven components of the Clinical Governance reviews conducted by the Commission for Health Improvement is *Research and Effectiveness*. The focus for their assessment is on access to and availability of evidence to support practice, the organisational relationship between audit and research, examples of research that has improved patient care, adherence to NICE guidance and participation in research networks. The CHI review process examines organisations' strategic approach to research, the ethical review process and policies relating to consent but does not assess the quality of research undertaken or the management processes to undertake and monitor research activity.

In an attempt to address this, the most recent addition to the Department of Health's review and reform of existing practices is the introduction of research governance. Adopting the core principles of clinical governance and controls assurance, the aim is to set standards for research practice, define mechanisms to deliver those standards and to establish systems for assessment and monitoring of research practice. The outcome should be to improve the overall quality of health care research and safeguard the public by 'enhancing ethical and scientific quality, promoting good practice, reducing adverse incidents and ensuring lessons learned and preventing poor performance and misconduct'.

In order to assist NHS organisations in reviewing or creating the appropriate structures and process to guide and govern research, the Department of Health published the *Research Governance Framework for Health & Social Care* in March 2001[4]. Research governance applies to all those who host, conduct, participate in, fund or manage health and social care research, regardless of level of seniority. The framework requires clear definition of the management processes and the roles and responsibilities of all those involved with research in six domains:

1. **Ethics** Protection of dignity, rights, safety and well being of participants. To include informed consent, data use and protection, retention of organs, user involvement in design, conduct, analysis and reporting of research, respect for diversity, identification and management of risk, use of animals in research
2. **Science** Ensuring quality of research to contribute to existing knowledge base. To include systematic reviews, peer review to ensure rigour, adherence to guidance from relevant agencies eg Medicines Control Agency, Medical Devices Agency, data retention for appropriate period of time
3. **Information** Free access for public to information on research being conducted and research findings. To consider availability of information for patients, users care professionals and general public, opportunity for critical review, protection of intellectual property
4. **Health and Safety** Ensuring safety of participants & researchers. To examine safe management of potentially dangerous or harmful equipment, substances, organisms or procedures.
5. **Finance** Probity in the management of assets. To ensure financial probity in the use of public funds, provision of financial compensation in the event of neglect and appropriate management of intellectual property.
6. **Quality Research Culture** promoting excellence & governance. To promote a culture which demonstrates strong research leadership, expert management and enables understanding and application of standards in research practice.

Following the model used for the implementation of clinical governance, all NHS organisations were required to complete a baseline assessment of compliance with the standards set out in the *Research*

[1] *A First Class Service: Quality in the New NHS* Department of Health 1998
[2] *Clinical Governance: Quality in the New NHS* Department of Health 1998
[3] *The New NHS. Modern. Dependable* Department of Health 1997
[4] *Research Governance Framework for Health and Social Care* Department of Health 2001

WEBSOURCE

Resources
- www.chi.nhs.uk
- www.doh.gov.uk
- www.doh.uk/research

Funding
- Association of Medical Research Charities www.amrc.org.uk/
- Digest of Health Related Research Funding & Training Opportunities http://rdinfo.org.uk
- There is also a CSP information paper on *Sources of funding for Post-Qualifying Education*. Number CPD 12.

10101010101010101010 STATS NOTE 10101010101010101010

Probabilities and the P value?

Researchers often find themselves wanting to determine if one variable has an affect on another. For instance: Does stretching decrease tone? However, when performing an experiment, there is always an element of error or chance within the calculations. Researchers want to reduce the probability of the results being due to chance as much as possible, this probability is represented by the p value. They can then suggest the results are due to the variable they are testing (ie stretches). Researchers set a level at which they will accept that the probability of results being due to error or chance is negligible. The most common level is if p is less than or equal to 0.05. So remember: **The smaller the p value the smaller the probability that random error or chance factors have caused the results of the experiment.**

Governance Framework for Health & Social Care by May 2001. Further to this, individual development plans were required from each organisation, indicating how and when compliance with standards would be achieved. A clear timetable for the national implementation of the framework has been set out and the target date for full compliance in all research active NHS organisations is March 2004, unless well-documented evidence of a longer timetable is presented.

All active researching health care organisations should have their research strategy and implementation plans available for all staff. These should include clarification of the processes for undertaking research, identification of training opportunities and personnel, information and financial resources available in addition to an inventory of current research activity.

The *Research Governance Framework* views the key elements of a quality research culture as respect for participants' dignity, rights, safety and well-being; valuing diversity within society; personal and scientific integrity; leadership; honesty; accountability; openness and clear & supportive management. A quality research organisation should therefore consider and demonstrate all of these and seek to actively recruit and support staff to undertake rigorous, inclusive research to assist in the provision of relevant evidence to support practice.

A thesaurus offers replacement words for governance such as regulation, restriction and limitation, portraying a very negative perspective to what should be viewed as a very positive development. Clinicians should welcome this opportunity for a systematic rethink of the structures and processes that have existed for some time, the chance to erase the grey areas of ambiguity and history in relation to roles and responsibilities of organisations and the individuals who work within them. The new research governance frameworks should facilitate and engage the novice researcher, sustain and reassure the established investigator and ensure that rigorous clinical research can continue and develop within a supportive, well-structured and safe environment which services the needs of patients, clinicians and researchers alike.

Postgraduate courses

Alex Morley MCSP SRP

A large number of universities, which offer postgraduate courses for physiotherapy related to neurology were contacted, and each was given the opportunity to give a summary of relevant courses, duration, cost etc. Those who responded are featured in this section.

UNIVERSITY OF BRIGHTON	
Course title	**Key Issues in Neurological Rehabilitation**
Contact	Bernhard Haas b.m.haas@brighton.ac.uk
Institution address	School of Health Professions, Robert Dodd Building, 49 Darley Rd Eastbourne BN20 7UR t 01273643771
How long has the course been running?	Since 1997
Mode of delivery and assessment	This is a single module at masters level delivered intensively over one week attendance with pre- reading and post attendance assessment. The assessment is a 3000 word essay.
Brief content overview	Neuroanatomy, neurophysiology Current theories of movement control and neuro rehabilitation. Mechanisms of neuroplasticity and muscle plasticity. Pathophysiology of major neuropathologies (e.g. stroke, multiple sclerosis, Parkinson's disease, traumatic brain injury, Guillain-Barre syndrome, spinal injury). Rehabilitation implications of direct clinical relevance for patients with impairments of perception, sensation, behaviour, speech and language. Muscle strengthening, aerobic fitness and and treadmill walking. Environment for rehabilitation, adapting programmes to home. Rebalancing occupations
Cost	£350
Duration	1 week
Award	20 masters level CATS points

LEEDS METROPOLITAN UNIVERSITY	
Course title	**MSc in the Bobath Concept**
Contact	Liz Mackay, Senior Lecturer in Physiotherapy t 0113 2832600 ext 5820 e l.mackay@lmu.ac.uk
Institution address	School of Health Sciences, Calverley Street, Leeds LS1 3HE
How long has the course been running?	1 year
Mode of delivery and assessment	Part time. Most modules are taught over weekend workshops.
Brief content overview	A modular M level course for either full or part-time attendance. The course comprises of nine modules, each of 20 credit points. The course is made up of core modules together with a final extended project. **Course modules** RESEARCH STRATEGIES To understand the qualitative and quantitative aspects of research design and the application to practice, through development of research skills and knowledge by the critical evaluation of both recent research publications and the current evidence-base for practice. The creation of new research proposals that are linked to a practice and ethical framework will be encouraged. Comparing and contrasting different research methods that have been used to develop and support current practice and that contribute to enhancement of protocol-based practice. THE BOBATH CONCEPT: A THEORETICAL UNDERPINNING To develop understanding of the Bobath Concept in the Treatment of Adult Hemiplegia. It will develop knowledge, understanding and skills of three key themes, Neurophysiology, Normal movement and patient assessment and treatment. It will also review skills of reflection and evaluation and encourage a critical approach to consideration of the theoretical base. AN INTEGRATED SYSTEMS BASED APPROACH TO MOVEMENT To deepen understanding of the Systems and how they lead the practice of the Bobath Concept. It will explore how they control and influence movement, posture and balance both as individual and interacting components. Key systems will be reviewed and applied to theory and to patients' problems. AN INTEGRATED AND HOLISTIC APPROACH TO BALANCE AND MOVEMENT To deepen the understanding of the factors which provide, influence and destroy balance. It will consider balance as the central theme to the Bobath Concept and apply knowledge and skills to practice. OUTCOME MEASUREMENT To deepen understanding of outcome measures and their application within the area of neurology. It develops the skills required to analyse and evaluate specific outcome measures. It will also encourage the participant to apply their learning through the use of real case studies and evaluate their suitability and possible modification. INDEPENDENT STUDY To provide an opportunity to select a topic that reflects individual learning needs. Participants will be expected to negotiate the nature of the proposed study and the form of assessment. This will be presented as a learning contract that states the individual aims and outcomes of the study. EXTENDED STUDY The MSc Course will be completed by means of an extended and in-depth study in the form of one of the following: • Systematic Review • Dissertation • Work-based Study
Cost	£333 There are nine modules
Duration	2-5 years
Award	PG Certificate/PG Diploma/MSc

LEEDS METROPOLITAN UNIVERSITY

Course title	**MSc in Rehabilitation (Neurology)**
Contact	Liz Mackay, Senior Lecturer in Physiotherapy t: 0113 2832600 ext 5820, e: l.mackay@lmu.ac.uk
Institution address	School of Health Sciences, Calverley Street, Leeds LS1 3HE
How long has the course been running?	1 year
Mode of delivery and assessment	Part time. Most modules are taught on Wednesday afternoons or evenings. Some modules are taught over weekend workshops.
Brief content overview	**Current Perspectives in Neurological Physiotherapy** (MSc Core module) The purpose of this module is to raise the participant's awareness of current research in the area of Neurological Rehabilitation. The areas will be critically reviewed and debated and the link to the participant's current and future practice will be discussed. **Measuring Outcomes in Neurological Physiotherapy** (MSc Core module) The purpose of this module is to deepen the participants understanding of outcome measures and their application within the area of neurology. It intends to develop the skills required to analyse and evaluate specific outcome measures. It will also encourage the participant to apply their learning through the use of real case studies and evaluate their suitability and possible modification. **Research Strategies** (MSc Core module) The aims of this module are to further the understanding of qualitative and quantitative aspects of research design and the application to practice. This will be achieved through the development of research skills and knowledge by the critical evaluation of both recent research publications and the current evidence-base for practice. The creation of new research proposals will be encouraged that are linked to a practice and ethical framework. The participants will be asked to compare and contrast different research methods that have been used to develop and support current practice and that can contribute to enhancement of protocol-based practice. **Leadership in Practice** (MSc Core module) The module introduces participants to advanced level concepts and debates in Management and Leadership and draws critical distinctions between the two in Theory and Practice. Taking NHS and general management perspectives, the module enables participants to explore issues in both management and leadership in their own organisations by focusing on the personal clinical, team, and overall performance and efficiency. Current policy drivers in the NHS will be considered allowing the participant the opportunity to reflect on the strategic and practical implications of these changes. Participants will appraise their own management and leadership roles and develop skills for both effective and efficient performance. Leadership requirements within their own clinical area or profession will enable the student to actively engage in personal development on a continuous basis. **Information for Health Improvement** (MSc Core module) This module will focus on locating and using evidence to guide best practice and on evaluating the effectiveness, cost effectiveness and equity of services. Participants will also examine the role of protocols and consider the implications of health on formation initiatives for developing practice. **The MSc Course will be completed by means of an extended and in-depth study in the form of one of the following:** • Systematic Review • Dissertation • Work-Based Study **Participants may select one Option module from:** • Clinical Education for Health Professionals • Management of Feeding and Swallowing Disorders in Children and Adults • Quality Assurance for the Health Professions • Independent Study • Health Care Ethics • Acupuncture (Extended Practice) • Advanced and Extended Scope Practice in Physiotherapy • Management of Pain Further Details and application forms are available from:
Cost	£333 per module. There are nine modules
Duration	2-5 years
Award	PG Cetificate/PG Diploma/MSc

MANCHESTER SCHOOL OF PHYSIOTHERAPY

Course title	**Evidence Based Approach to Neurological Rehabilitation**
Contact	Hilary Chatterton hilary@msop.cmht.nwest.nhs.uk
Institution address	Manchester Royal Infirmary, Oxford Rd, Manchester, M13 9WL
How long has the course been running?	The course will run for the first time from December 2002 to January 2003.
Mode of delivery and assessment	• Group tutorials • Peer group presentations and debate • Lectures • Literature appraisal: individual peer group • Directed study time • Clinically based written report (4000 words).
Brief content overview	Interpretation and evaluation of current literature with respect to the following areas: • Current theories of movement control. • Concepts of neuroplasticity and muscle plasticity. • Environments for rehabilitation. • Rehabilitation implications for patients with impairment of perception, sensation, behaviour, speech and language (in addition to motor control). • Outcome measures in current use.
Cost	£300
Duration	5 full day sessions
Award	15pg credits

QUEEN MARGARET UNIVERSITY COLLEGE

Course title	**MSc in Physiotherapy**
Contact	Dr Marie Donaghy mdonaghy@qmuc.ac.uk
Institution address	Leith Campus, Duke Street, Edinburgh EH6 8HF
How long has the course been running?	Since 1996
Mode of delivery and assessment	Learning at distance and block attendance one week in October, two weeks in January and one week in April.
Brief content overview	As clinical evaluation becomes increasingly important in physiotherapy, this course will provide an in-depth understanding of the relationship between clinical assessment and the evaluation of therapeutic intervention. This course attracts physiotherapists from all over the world. The challenging programme encourages you to re-examine your professional convictions and to be sceptical of current physiotherapy practice. The learning experience encourages physiotherapists to become leaders in their field You will develop innovative and evaluative skills, providing you with the knowledge and drive to implement positive change in the workplace. **Core modules** The awards of the PgDip and MSc in Physiotherapy require you to study one of the following • Neurological Physiotherapy: assessment outcomes and effectiveness of interventions. • The scientific rationale of musculoskeletal practice • Paediatric physiotherapy: advancing specialist knowledge and practice. For the award of PgDip Physiotherapy you must study • Research methods 1 In addition for the awrd of MSc in Physiotherapy you must study • Research methods 2 • Research dissertation Elective modules include • Measurement and assessment of pain and its effects • Analysis of human movement • Applied exercise science • Work-based learning
Cost	Home and EU fees Single modules £300 double modules £600 Full MSc in Physiotherapy £3,000
Duration	Minimum of three years for the MSc two years for the PgDip and one year for the PgCert.
Award	MSc in Physiotherapy also PgDip in Physiotherapy and PgCert

SHEFFIELD HALLAM UNIVERSITY

Course title	MSc Neurological Physiotherapy
Contact	Dr S Mawson S.J.Mawson@shu.ac.uk
Institution address	School of Health and Social Care, Collegiate Crescent, Sheffield Hallam University S10 2BP ℡ 0114 2255555
How long has the course been running?	4 Years
Mode of delivery and assessment	Part time. This course follows a flexible modular pattern. Modules run over two semesters a year, with week blocks and days of teaching depending on the unit.
Brief content overview	Core modules include: **Neurological Rehabilitation** (30 M level credits). This module provides the learner with in depth knowledge of neurophysiology underlying recovery in the central nervous system (CNS). Emphasis is placed on the application of this new knowledge to students own clinical practice. **Science of Movement** (15 M level credits). Provides the opportunity to extend students understanding of muscle imbalance and normal movement. **Clinical Decision Making** (15 M level credits). This module encourages the student to investigate reflective practice and its role in change management. **Research** (15 M level credits). Investigates research design with relevance to health care practitioners **Measurement in health care** (15 M level credits). This module teaches students fundamental measurement theory and includes sessions on the critical appraisal of outcome measures used in neurological rehabilitation **A range of other optional units**. Accreditation of prior experiential learning also available. **Dissertation** (60 M level credits). Students are required to complete a research project to achieve the masters qualification
Cost	Core units £260/15 credits Dissertation £555
Duration	Masters flexible up to 5 years
Award	Postgraduate Certificate in Neurological Physiotherapy (60 credits) Postgraduate Diploma in Neurological Physiotherapy (120 credits) MSc Neurological Physiotherapy (180 credits)

UNIVERSITY COLLEGE LONDON

Course title	Neurophysiotherapy
Contact	Margaret Mayston For more information: www.archway.ac.uk/Activities/Departments/SHHP/prospect/Neurophysiotherapy.htm
Instutition address	Gower Street, London WC1E 6BT
How long has the course been running?	2 years
Mode of delivery and assessment	Modular. Full time or part time. Lectures, tutorials, seminars, practicals, clinical placements, individual research project.
Brief content overview	**Core modules**: Control of movement, Development of motor control, Pathophysiology of motor control, Neuroscience, Interprofessional Practice, Research Methods, Neurophysiotherapy Skills, Research Project. Plus Clinical Education in Neurophysiotherapy, comprising two of the following: A. Clinical and theoretical aspects of paediatric neurophysiotherapy; B. Clinical problem solving in paediatric neurophysiotherapy; C. Clinical management of stroke; D. Clinical aspects of rehabilitation in the neurologically impaired adult; E. Evidence-based practice in clinical neurophysiotherapy. A number of modules are based on courses run at the Bobath Centre, London. **Option modules** (2-3 required): Muscle and Exercise Physiology, Pain, Biomechanics, Outcome measures and their analysis, Sport for the disabled.
Cost	£4,120 (Home/EU); £13,375 (Overseas, non-EU)
Duration	One calendar year full time or 2-5 years part time
Award	M Sc Physiotherapy

UNIVERSITY COLLEGE LONDON

Course title	Neuroscience
Contact	Prof. Claudio Stern c.stern@ucl.ac.uk and Dr Frances Edwards f.a.edwards@ucl.ac.uk For more information: http://www.physiol.ucl.ac.uk/courses/msc/
Institution address	Gower Street, London WC1E 6BT
How long has the course been running?	5 years (in its present form)
Mode of delivery and assessment	Full time. Lectures, seminars, journal clubs, research project
Brief content overview	The course concentrates on exposing students to a wide range of contemporary neuroscience and the methods and approaches used to undertake such research. The lecture/seminar course comprises introductory lectures plus 3 x 90 min seminars per week from neuroscientists talking about their own research. In addition students present and discuss research papers in a 'journal club' format. Subjects include cellular and molecular neuroscience, synaptic transmission, systems neuroscience, developmental neuroscience and some clinical neuroscience. Students write three essays and take three exams in relation to the taught course. In addition to the taught course the students undertake a research project which runs throughout the year; two days a week for the first six months in parallel with the taught course and then full time. This project culminates in a thesis and a viva. Research progress talks on the projects are also given during the year.
Cost	£2,805 (Home/EU); £13,375 (Overseas, non-EU)
Duration	1 calendar year full time
Award	MSc Neuroscience

UNIVERSITY OF EAST LONDON

Course title	MSc Physiotherapy
Contact	Fiona Coutts ℡ 020 8223 4476 ℮ F.C.Coutts@uel.ac.uk School of Health and Bioscience,
Institution address	Romford Road, Stratford, London E15 4LZ
How long has the course been running?	Since 1991
Mode of delivery and assessment	The course is modular based and structured on a semester basis. Each semester has 12 teaching weeks with a further week before submission of assignments. Students normally start the programme in September but it is possible to start the part-time programme in February. Each module of study takes one semester and modules are offered on Tuesday and Thursday afternoons (1-4pm) and evenings (5-8pm). To gain the MSc, students must complete six modules and a research dissertation. In exceptional circumstances and with agreement of the course tutor, students may complete four modules and a major dissertation. Each module is designed with an assignment that allows you to focus the subject of this work in an area of your choice. This means that the course is suitable both for those who already specialise in a particular area of physiotherapy and wish to pursue this area in greater depth and for those who wish to take a more eclectic approach. **Entry requirements for MSc Physiotherapy**: BSc or Diploma in Physiotherapy and normally at least 2 years post-qualification clinical practice.
Brief content overview	The central focus of this modular Masters programme is the evaluation of physiotherapy practice. It has been designed to meet the needs of practising physiotherapists and is delivered with a student-centred approach, acknowledging that students bring with them a wealth of experience which is valued and built upon. The modular framework offers a flexible route for study both in subject matter and mode of study. In conjunction with the course tutor you can plan your own programme based on your individual requirements. **Modules on offer include**: Research Process, Basis of Human Movement, Theory in Practice, Clinical Reasoning, Analysis of Human Movement, Education in a Practice Setting, Management of Health Care and Current Directions in Health Policy. A feature of the programme is the multidisciplinary nature of some of the modules. The MSc Physiotherapy programme runs alongside MSc programmes in Occupational Therapy and Health Promotion. The sharing of knowledge and perspectives of members of different health care professions will add a breadth of vision and understanding.
Cost	Full-time: £3,200. Part-time: £400 per module
Duration	The course can be completed full-time (one calendar year) and part-time (2-5 years)
Award	MSc Physiotherapy Postgraduate certificate or Diploma on completion of three and six modules respectively. Research degrees are also available

UNIVERSITY OF SURREY, ROEHAMPTON	
Course title	**MSc or Postgraduate Diploma in Clinical Neuroscience**
Contact	Dr J. Opacka-Juffry J.Opacka_Juffry@roehampton.ac.uk
Institution address	Whitelands College, School of Life Sciences, West Hill, London SW15 3SN t +44 (0)20 8392 3562/3524 f +44 (0)20 8392 3527
How long has the course been running?	From 1994, revalidated 1998
Mode of delivery and assessment	Attendance-based, taught programmes with interactive lectures, seminars and practicals. Assessment through unseen examinations, essays (most modules), project proposal and oral presentations.
Brief content overview	**MSc/Postgraduate Diploma in Clinical Neuroscience** programme offers a comprehensive study of modern neuroscience with a focus on clinical implications. It gives an insight into neurobiological mechanisms of brain disorders and modern methods of brain imaging, with emphasis on recent advances in neurosciences and their relevance to neurological diseases. The development of research skills is central and a research project is a core for the full MSc training. The postgraduate diploma option is particularly suitable for health professionals who are interested in updating their knowledge without conducting a research project. Guest lecturers and external collaborators from well-known medical schools contribute to these programmes. The MSc/Postgraduate diploma courses are of interest to graduates in Life Sciences, Psychology and Health-related disciplines. Applications are also welcome from health professionals with appropriate qualifications. Programme details can be found at: Programme Overview: Health Sciences Programmes www.roehampton.ac.uk/acprog/m/healthrelatedintroduction.html
Cost	Academic year 2002/03, MSc full time: £3798 UK/EEC £7272 overseas For detailed information please contact: enquiries@roehampton.ac.uk or phone School of Life Sciences Office: 020 8392 3562/3524
Duration	One year full time, two years part time; start in early October each year, with registration in September
Award	Master of Science degree or Postgraduate Diploma; Awarding body: University of Surrey

UNIVERSITY OF SURREY, ROEHAMPTON	
Course title	**MSc or Postgraduate Diploma in Clinical Neuroscience and Immunology**
Contact	Dr O. Westwood e-mail: O.Westwood@roehampton.ac.uk
Institution address	Whitelands College, School of Life Sciences, West Hill, London SW15 3SN t +44 (0)20 8392 3562/3524 f +44 (0)20 8392 3527
How long has the course been running?	From 1994, revalidated 1998
Mode of delivery and assessment	Attendance-based, taught programmes with interactive lectures, seminars and practicals. Assessment through unseen examinations, essays (most modules), project proposal and oral presentations.
Brief content overview	**MSc/Postgraduate Diploma in Clinical Neuroscience and Immunology** provides a comprehensive study of immunology; a background in immunological techniques is supplemented by a review of recent advances in cellular and molecular immunology and their applications to neurological diseases. The development of research skills is central and a research project is a core for the full MSc training. The postgraduate diploma option is particularly suitable for health professionals who are interested in updating their knowledge without conducting a research project. Guest lecturers and external collaborators from well-known medical schools contribute to these programmes. The MSc/Postgraduate diploma courses are of interest to graduates in Life Sciences, Psychology and Health-related disciplines. Applications are also welcome from health professionals with appropriate qualifications. Programme details can be found at: Programme Overview: Health Sciences Programmes www.roehampton.ac.uk/acprog/m/healthrelatedintroduction.html
Cost	Academic year 2002/03, MSc full time: £3798 UK/EEC £7272 overseas For detailed information please contact: enquiries@roehampton.ac.uk or phone School of Life Sciences Office: 020 8392 3562/3524
Duration	One year full time, two years part time; start in early October each year, with registration in September
Award	Master of Science degree or Postgraduate Diploma; Awarding body: University of Surrey

ACPIN programme at the CSP Congress 2002

Affecting change

A DELEGATE'S PERSPECTIVE

Jeannie Oakey MCSP SRP
Neurological Private Practitioner
South West ACPIN

Liz Britton
Clinical Specialist Stroke
North Bristol NHS Trust

We are 'veterans' to Congress after attending the last two out of three. The preceding two had given us high expectations of ACPIN's programme and there was no doubt that the organising committee had a hard act to follow to match previous line-ups.

As abstracts by each of the speakers are included here, we will not attempt to summarise each lecture, but rather provide readers with a flavour of the event and thereby give them a desire to attend next time!

The venue
The ICC Birmingham has hosted the new style Congress since its inception a few years ago. It is sited in a lively part of the city with a good selection of bars and restaurants from Pizza Express to a good Thai restaurant within just a couple of minutes walk. The Novotel, ACPIN's chosen hotel, is less than 5 minutes walk from the ICC.

The ACPIN programme
We were delighted that ACPIN invited international speakers to the conference. Professor Carolee Winstein from University Of Southern California took the platform on Friday afternoon and linked the science behind the practice of motor control and learning. She was able to give a second lecture on constraint-induced therapy.
The presentations in the rest of the programme were of a consistently high standard. We were delighted that Professor Winstein and Dr Nadler took differing aspects of constraint-induced therapy and were able to give complementary talks without repetition.

ACPIN fringe meeting
ACPIN evening events are always thought provoking and the session led by Prof. Ray Tallis and Prof. Val Pomeroy was no exception. The session began with Val presenting a view of 'Evidence-free practice to evidence Tinged practice.' Should we clinicians embrace each new treatment concept before the area has been researched in depth? Or should we not 'throw the baby out with the bathwater'. Perhaps rather than dismissing long established (if not scientifically proven) treatment concepts, wait for more robust evidence of the effectiveness of the more recently proposed 'treatments' such as treadmill training and constraint induced movement therapy?

This opened up the floor for a wide-ranging discussion and at times heated discussion. Audience opinion was mixed, discussion was lively, but as can be imagined, there was no definitive answer.

Free paper sessions
The free paper sessions provide an opportunity to hear the latest research. Careful planning is needed as there is chance to move from hall to hall and hear papers in eight differing halls.

We elected to stay in the 'ACPIN hall' and listened to a wide range of papers. Jeanette Mitchell (a University Of West Of England lecturer and wonderful South West ACPIN committee member) presented her work on vertebral artery blood flow before and after cervical spine rotation. After her presentation we began to worry if even sleeping prone was bad for you!

Sarah Tyson presented some exciting work on a new hierarchical balance scale named 'the Brunel Balance Scale.' One of the aims of the new scale was to be sensitive to change due to therapy and suitable for a wide range of abilities. We all wanted to try it by the end.

The keynote speech
Saturday morning began with the keynote speech from Brian Keenan. He gave an emotional speech regarding his days in captivity.

Poster exhibition
The Posters were displayed both in the main hall and on the balcony. They had been written both by acknowledged experts in their field, and by relatively newly qualified Physiotherapists. Therefore well done to Claire Morrison, who was a student on placement with Jeanie just a couple of years ago, and now works in Edinburgh.

Trade exhibition
The trade exhibition was as enjoyable as ever, with Exhibitors from small and large companies demonstrating equipment as diverse as weight supporting treadmill systems, to PhysioTools. We always find this exhibition is an excellent opportunity to make links with suppliers, and even to get free samples. This year Jeanie managed to get a promise for a store cupboard of knee braces, on a sale or return basis.

Catering
When Congress first adopted its new format a few years ago, there were many complaints about the standards of catering and the long queues to get a hot drink. This year the queues were manageable and plates of hot food [vegetable or chicken stir fry] were served on Saturday lunchtime.

The solo delegate
The thought of attending Congress on your own could be daunting. However it is not an issue. There were many people who appeared to have attended on their own, but because of the format of the days it is relatively easy to link up with other people at coffee time and thereby on into the evening. It is a very relaxed and 'united' atmosphere!

What did we gain from attending and 'the best bits'

- More knowledge about current available evidence or lack of it
- The opportunity to put a face to the name of experts within our field, and the chance to discuss with them their experiences and views, and to draw on their knowledge, over a glass of wine or two
- Many of the people who presented stayed for much of the conference and thus added to the questions following presentations
- Seeing people we knew from student days, (Jeanie) from Bobath courses (Liz) and Bristol colleagues and friends (Liz and Jeanie).
- For Jeanie meeting students she had trained, who were now in their own right finding the evidence to change our clinical practice
- ACPIN full programme with a wide range of speakers. We were delighted that ACPIN is looking at international speakers for events such as this one.
- The free papers – keeping an eye on new research.

The disappointing bits
These are only small gripes!
1. The Conference organisers who

removed the wine from ACPIN's evening session and where did all the nibbles go?
Several dedicated ACPIN members did attempt to stop the ICC staff but without success. However, ACPIN have had a 50% discount off the bill.

2. The price! We were disappointed to hear at the AGM that the CSP made a profit on Congress last year we feel that the Congress is one event that all physiotherapists should be able to access.

3. One disappointment this year was that ACPIN did not arrange a meal for the Saturday evening, as they had done a couple of years ago. This had certainly been a very easy way for ACPIN delegates to mix and socialise.
This does however, take a lot of extra work and the Fringe meeting was our alternative this year.

After an exciting, thought-provoking and completely exhausting three days we had learned much, talked plenty and maybe had drunk too much! We now have to go and assimilate it and pass on our new knowledge to colleagues and patients.

We are now looking forward to ACPIN's residential conference in Spring 2003 and if we have any energy left to Congress 2003.

Many thanks to all of the ACPIN committee who once again worked hard to put together such an excellent programme.

The abstracts from each speaker are included here with a brief overall summary from the evaluation forms which were completed.

Abstracts and biographies

FRIDAY 11 OCTOBER

WHAT IS EVIDENCE?

Dr Neville Goodman

According to the dictionary, evidence is 'information indicating whether a belief or proposition is true or valid. As in any other sphere of life in which evidence is thought important, the difficulty in medicine (which I use as an all-inclusive description of medical and paramedical interventions) is deciding what information counts as evidence under what circumstances, and how reliable that information is. This pre-supposes that the belief or proposition under test is sensible or applicable, whether or not it is true. Even if sensible and true, politics or economics may still mean that it is ignored. There are also large areas of medicine in which there is no or insufficient information, so evidence is lacking, and is likely to remain so for the foreseeable future. Healthcare workers must find some way of working with the inevitable uncertainties of their practice.

ACPIN evaluation summary

'*A very thought provoking talk relating evidenced-based medicine to clinical application. Dr Goodman set the scene for the rest of the programme in a very lively and entertaining way. It was a great opening lecture*'.

MOTOR CONTROL AND LEARNING FOR NEUROLOGIC REHABILITATION: EMBRACING THE SCIENCE BEHIND THE PRACTICE

Carolee Winstein PhD, PT
Associate Professor, Biokinesiology and Physical Therapy, University of Southern California

As we enter the 21st century, we reflect on the growth and development of neurologic rehabilitation driven initially by practical concerns rather than scientific knowledge. The future holds many challenges, opportunities and necessities driven by several major medical advances such as mapping the human genome, creating artificial organs, and understanding how the brain works. To move our profession forward, we must recognize that first and foremost is the integration of the science with our practice. We must develop, explore, test and synthesize the rationale for our practice and determine efficacy for what we do. This symposium highlights the challenges and opportunities this raises for education, clinical research, and in particular, the practice of physical therapy for the neurologic patient.

What does 'embracing the science', mean?

What does it mean to 'embrace the science'? Does it mean that we have to give up the cherished 'art' of physical therapy? Absolutely not! But rather we must learn to balance the art and science of our practice. In the broadest sense, the purpose of science is to serve mankind and to provide solutions to problems that are important to society. Indeed, science is the systematic study of nature with the goal to understand the various phenomena present in our universe.

What is the science of neurologic physical therapy?

The purpose of science for physical therapy is to serve our patients by providing solutions to movement problems that are necessary for rehabilitation/recovery from disability or pending disability (ie prevention). Therefore, the science of neurologic physical therapy consists of the application of the scientific understanding to account for the movement behaviour and to predict the behaviour in future situations.

There is a balance between the art and science of neurologic physical therapy

The art of physical therapy consists of knowing when to let nature take its course and when to 'nudge' (intervene) the system from the outside to facilitate the rehabilitation process. The science of neurologic physical therapy concerns the timing and nature of the intervention. This aspect must be based on some understanding of how the system works (eg how the neuromuscular system works). It is that understanding that comprises the science of our practice. Some might argue that having an understanding of how the system works is for the scientist, but not the clinician … or is it? This is the challenge for physical therapy. This symposium will address the question: why is an understanding of how the system works important to the practice of neurologic physical rehabilitation?

First and foremost, we contend that the clinician's perspective on how the system works directly influences how one prioritises and implements a treatment to fix the system when it malfunctions. So, if your perspective on how the brain works is that there is a little handyman inside the head who plugs in the various cables that have become disconnected, then your 'treatment' might involve the handyman! Humor aside, we will address three areas of science that can have a profound impact on the practice of neurologic physical rehabilitation.

Embracing the science: Three cases

- The case of **locomotor retraining** in spinal cord injury and stroke
- The case of **patient learning** during medical rehabilitation
- The case of **brain plasticity** and task practice for rehabilitation and recovery after stroke and Parkinson's disease

For each case, we will present the science by addressing the question of how the system works. This will be followed by a description of how the practice (physical therapy) that emerges out of that understanding is conducted either using video clips or a description. A description of how embracing the science might change the current practice in each case will summarise each topic.

Locomotor retraining

The science of the central pattern generator (CPG) is described along with the sensory information that is known to regulate the step cycle (specifically hip flexor stretch). This information (understanding) is used to develop the body-weight supported treadmill training (BWSTT) procedure now used for patients with incomplete spinal cord injury and stroke (Edgerton et al, 2001). A series of video clips will show the difference between the traditional locomotor training that uses a front walker and the CPG derived BWSTT method. The final clip shows the same patient walking over ground with lofstrand crutches. In this case, embracing the science suggests that the results of a 'voluntary' muscle test provide only a poor prediction of the locomotor capability in this case of incomplete spinal cord injury. Further, exploitation of the CPG for locomotion and the sensory cues that regulate the CPG were useful in facilitating locomotor recovery.

ACPIN President Ray Tallis with Carolee Winstein one of the main speakers in ACPIN's programme

Patient learning during medical rehabilitation

'Although patient learning is widely acknowledged to be an integral part of many medical rehabilitation practices, it has been the subject of little systematic research' (Fuhrer & Keith 1998). Here, we focus on a working model for the science of patient learning that has at its top level the acquisition of novel skills through practice. The sub-systems serving this goal consist of motor learning, procedural (implicit) learning, and learning-dependent plasticity. We contend that therapeutic interventions that exploit these forms of learning will be the most successful. The psychological science of the procedural and declarative learning systems are described with the revelation that most perceptual-motor skills (tasks) can be considered procedural or implicit in nature. The science of implicit learning is described through a unique experimental paradigm (continuous tracking task) in which learning occurs without awareness (implicit learning). Two groups of subject with stroke are described—one with unilateral basal ganglia stroke and the other with unilateral cerebellar stroke. In the case of the basal ganglia stroke, explicit information (declarative) about the task interfered with the implicit learning while for the cerebellar stroke group, explicit information facilitated the implicit learning in those with basal ganglia stroke.

Brain plasticity in neurological rehabilitation

Evidence of brain plasticity in the adult brain is described. In addition, the science of use-dependent cortical reorganization is reviewed. Evidence of the long-term effects of unilateral upper extremity deafferentation is described along with the seminal work of Randy Nudo that suggests that rehabilitative therapy (forced use) prevents further losses (after stroke) of the hand area of the monkey motor cortex in the adjacent intact tissue and may direct the intact tissue to 'take over' the damaged function (Nudo et al 1996). If time permits, we will also describe a recent set of findings from Tim Schallert's laboratory in which physical therapy may be beneficial in Parkinson's disease for reasons of use-dependent plasticity. In this case, embracing the science suggests that brain plasticity can occur well into old age; positive brain plasticity accompanies the acquisition of novel skills (new movement strategies) and task practice of the affected limb can facilitate plastic changes in the cortical representations that are not evidenced without practice or therapy. Further, exploitation of this capacity for brain plasticity can facilitate recovery from brain damage in the case of stroke and Parkinson's disease. Video clips are used to highlight these changes in chronic stroke.

Summary/conclusions

In summary, we must accept the challenge if we are to move the practice of neurologic rehabilitation into the 21st century. Without substantial scientific bases, our practice will stagnate and our patients will suffer. We have provided the evidence in three areas of neurologic rehabilitation (locomotor retraining, patient learning, brain plasticity) where what we do could be at the very least, enhanced, and at the most, drastically different if based on an understanding of how the system works (the science). As our scientific understanding changes, so must our practice in neurologic rehabilitation. Embracing this challenge is no longer optional; it is a necessity for neurologic rehabilitation to flourish.

THE APPLICATION OF CONSTRAINT-INDUCED MOVEMENT THERAPY FOR PATIENTS WITH STROKE: A SKILL LEARNING PERSPECTIVE

Carolee Winstein PhD, PT
Associate Professor, Biokinesiology and Physical Therapy, University of Southern California

The concept of making patients with stroke use their more impaired upper extremity by constraining use of the less impaired limb is gaining profound interest in the rehabilita-

tion community. This procedure was originally referred to as 'forced use' and more recent refinements in the approach have resulted in a family of interventions called 'constraint induced' or 'CI' movement therapy. Success in using this procedure has been reported by investigators in several laboratories and clinics where the target group has been predominantly patients with long-standing or chronic stroke. This presentation is designed to review the etiology of learned non-use, a term developed by Dr Edward Taub to describe what happens to the upper extremities of many patients after cerebrovascular insult. The evolution of CI therapy as well as evidence for use-dependent cortical reorganization resulting from intense practice will be presented. Fundamental principles of motor learning and how they relate to both the concepts of learned non-use and skill acquisition with practice will be presented. We will also describe the current application of CI therapy to patients with sub-acute stroke in the NIH funded National Clinical Trial-EXCITE and include video demonstrations of the changes following CI therapy, demonstrations of outcome measures, such as the Wolf Motor Function Test, the Motor Activity Log, and how patients are trained using CI therapy.

Carolee J Winstein, PhD, PT
After 10 years of clinical practice as a physical therapist specializing in neurological rehabilitation at Rancho Los Amigos National Rehabilitation Center in Downey, California, she initiated doctoral research training in the area of motor control and learning at the University of California-Los Angeles. She continued as a post-doctoral fellow for two years at the University of Wisconsin at Madison in behavioral neuroscience studying automatic grasp control in humans. Currently, Dr. Winstein is Associate Professor of Biokinesiology and Physical Therapy at the University of Southern California (USC). At USC, she teaches in the areas of neuroscience, behavioral motor control and learning and directs the Motor Behavior Laboratory. Dr Winstein's research interests and publications are in the brain-behavior relationship as it relates to the recovery and rehabilitation of procedural motor skills after neurologic injury. In addition and currently, she is conducting clinical trials research on the efficacy of rehabilitation interventions to enhance recovery after stroke.

ACPIN evaluation summary

'*Both lectures were clear in their message and linked back to the need for us to look at the effect of physiotherapy as well as constraint therapy. Professor Winstein managed to put the evidence base for this into a clinical context very well with assistance from a rather slick video presentation. It was nice to hear such a well read author present in person and to have the opportunity to prolong discussions with her over the weekend*'.

SATURDAY 12 OCTOBER

PHYSIOLOGICAL MECHANISMS AND ASSESSMENT OF MUSCLE DYSFUNCTION

Professor Maria Stokes PhD MCSP
Director of Research & Development, Royal Hospital for Neuro-disability, London

- Physiological investigations of muscle dysfunction help to determine the causes of impairments and aid the development of treatment techniques.
- Muscle weakness has different causes, which may influence the effectiveness of treatment and can co-exist. Determining their relative contributions can assist the selection of appropriate treatment.
- Muscle fatigue may also influence effectiveness of treatment according to its causal mechanism ie central fatigue or peripheral. For example, peripheral fatigue is a limiting factor in neuromuscular electrical stimulation and optimal treatment parameters and protocols have yet to be determined.
- Muscle imbalance, which involves biomechanical and neural factors, is thought to contribute to musculoskeletal instability and abnormal movement patterns. Research and treatment approaches to managing instability are evolving.
- Physiological investigative techniques can also aid clinical assessment, selection of treatment and evaluation of effectiveness, and provide biofeedback. These include: diagnostic ultrasound imaging (1) to measure muscle size; dynamometry to test strength, power and endurance; mechanomyography (MMG) to record muscle sounds, which reflect mechanical activity (2).
- Clinical assessment and management also need to consider the impact of these impairments on a patient's life in terms of function and participation.

References

International Classification of Functioning, Disability and Health (2002)
Available on the World Health Organisation website www.who.int/icidh/ (Formerly: International Classification of Impairments, Disabilities & Handicaps)

Ultrasound Imaging of Skeletal Muscle
Stokes MJ, Hides JA and Nassiri D (1997) *Musculoskeletal ultrasound imaging: diagnostic and treatment aid in rehabilitation* Physical Therapy Reviews 2 pp73-92.

Muscle Strengthening in Neurological Rehabilitation
American College Of Sports Medicine (1995) *Guidelines for Exercise Testing and Prescription* Williams and Wilkins, Baltimore.

Fowler EG, Ho TW, Nwigwe AI et al (2001) *The effects of quadriceps femoris muscle strengthening exercises on spasticity in children with cerebral palsy* Physical Therapy 81 (6) pp1215-1223.

Haas B and Jones F (2003) *Physical activity and exercise in neurological rehabilitation In: Physical Management in Neurological Rehabilitation.* Eds M Stokes and A Ashburn Elsevier Science Ltd, UK, In Press.

Teixeira-Salmela LF, Nadeau S, Mcbride ID et al (2001) *Effects of muscle strenghtening and physical conditioning training on temporal, kinematic and kinetic variables during gait in chronic stroke survivors* Journal of Rehabilitation Medicine pp33:53-60.

Toole T, Hirsch MA, Forkink A et al (2000) *The effects of a balance and strength training program on equilibrium in Parkinson's disease: a preliminary study*. NeuroRehabilitation 14 pp165-174.

Mechanomyography – Muscle Sounds
Orizio C (1993) *Muscle Sound: bases for the introduction of a mechanomyographic signal in muscle studies* Critical Reviews in Biomedical Engineering 21(3) pp291-243.

Stokes MJ (1993) *Acoustic myography: applications and considerations in measuring muscle performance* Isokinetics and Exercise Science 3 pp4-15.

Stokes MJ and Blythe Gm (2001) *Muscle sounds – in physiology, sports science and clinical investigation: applications and history of mechanomyography* Medintel Publicaitons, 6, Fords Close, Oxford OX33 1RX. IBSN:0-9540572-0-1
www.oxmedic.com

Muscle Fatigue and Electrical Stimulation
Hales JP and Gandevia SC (1988) *Assessment of maximal voluntary contraction with twitch interpolation: an instrument to measure twitch responses* Journal of Neuroscience Methods 25 pp97-102.

Mellor R and Stokes MJ (1992) *Detection and severity of low frequency fatigue of human skeletal muscle* Journal of the Neurological Sciences 108 pp 96-201

Callaghan MJ, Oldham JA and Winstanley J (2001) *A comparison of two types of electrical stimulation of the quadriceps in the treatment of patellofemoral pain syndrome. A pilot study* Clinical Rehabilitation 15pp637-646.

Rankin R and Stokes MJ (1992) *Fatigue effect of rest intervals during electrical stimulation of the human quadriceps muscle* Clinical Rehabilitation 6 pp195-201

Rutherford OM and Jones DA (1988) *Contractile properties and fatiguability of the human adductor pollicis and first dorsal interosseus: a comparison of the effects of two chronic stimulation patterns* Journal of the Neurological Sciences 85 pp319-331.

Stokes MJ and Cooper RG (1989) *Muscle fatigue as a limiting factor in functional electrical stimulation.* Physiotherapy Practice 5 pp83-90

Reflex Inhibition
Iles JF, Stokes M and Young A (1990) *Reflex actions of knee joint afferents during contraction of the human quadriceps* Clinical Physiology 10 pp489-500.

Stokes M and Young A (1984) *The contribution of reflex inhibition to arthrogenous muscle weakness* Editorial Review. Clinical Science 67pp7-14.

Instability and Muscle Imbalance
Comerford MJ and Mottram SI (2001a) *Functional stability re-training: principles and strategies*

Professor Maria Stokes is the Director of Research & Development at the Royal Hospital for Neuro-disability in London and a Visiting Professor at King's College London (Physiotherapy Group) and Southampton University (School of Health Professions and Rehabilitation Sciences).

The main theme of her research has been physiological mechanisms of muscle weakness and fatigue, initially in musculoskeletal disorders and also, more recently, in neurological disorders. An important part of the work has involved developing investigative techniques and adapting some for use in clinical assessment. These include: ultrasound imaging of muscle, diagnostic electrical stimulation and mechanomyography (recording of muscle sounds).

She has published extensively in these areas and has also published two books (on neurological rehabilitation and muscle sounds).

Her current research interests focus on neurological rehabilitation and include studies of musculoskeletal dysfunction and treatment, and brain computer interfacing (driving computers by thought alone).

ACPIN evaluation summary

'*This was on enormous topic and a lot to cover in one session. Maria spoke with great enthusiasm. It was an inspired lecture*'.

STRENGTH TRAINING FOR STROKE SURVIVORS

Dr Mary Cramp PhD MCSP
School of Health Sciences, University of East London

Strength training for stroke survivors is a topical issue in stroke rehabilitation. With growing recognition that significant and persistent muscle weakness contributes to motor dysfunction after stroke, strength-training/physical exercise programmes have been advocated for stroke survivors to enhance physical recovery and improve functional ability.

Focusing on programmes devised for lower limb musculature/function, experimental evidence shows that strength training and physical exercise leads to improvements in muscle strength, cardiovascular function, and functional performance with no detrimental effects on muscle tone or motor performance.[1 2 3 4] The format of training utilised in these studies has ranged from resistance training provided by isokinetic machines to individual and group exercise programmes using minimal, low-cost equipment.

Our research has explored the application of group strength-training programmes for early (3-12 months post-onset) stroke patients. Key results will be presented from study of a hospital based strength training programme and a community-based exercise programme run by leisure officers with physiotherapy support. In both studies, an A1-B-A2 (baseline – training - post-training) design was utilised and key measures recorded included strength of knee musculature and timed 10m walk. Issues arising from these studies include how and where programmes should be delivered, monitoring response to programmes, and long-term need/accessibility to exercise for stroke survivors.

Strength training/physical exercise programmes provide a means of improving persistent muscle weakness following stroke and experimental evidence supports the use of such programmes. The challenge for physiotherapists is to integrate exercise programmes within their practice and address the issues raised above.

Research reported was funded by The Stroke Association

References

1. Sharp SA & Brouwer BJ (1997) *Isokinetic strength training of the hemiparetic knee: effects on function and spasticity* Archives of Physical Medicine and Rehabilitation, 78 pp1231-1236.

2. Duncan P et al (1998) *A randomised controlled pilot study of a home-based exercise program for individual with mild and moderate stroke* Stroke 29 pp2055-2060.

3. Teixeira-Salmela LF et al (1999) *Muscle strengthening and physical conditioning to reduce impairment and disability in chronic stroke survivors.* Archives of Physical Medicine and Rehabilitation 80 pp1211-1218.

4. Engardt M et al (1995) *Dynamic muscle strength training in stroke patients: effects on knee extension torque, electromyographic activity.* Archives of Physical Medicine and Rehabilitation, 76 pp419-425.

Mary Cramp is currently employed as Senior Lecturer in the School of Health Sciences, University of East London. A graduate of Trinity

College, Dublin, Mary completed her PhD at the University of East London in 1998 and subsequent worked as Research Fellow in the Human Motor Performance Laboratories at the University with grant support from The Stroke Association. Her research interests include neuromuscular physiology, motor control and neurological rehabilitation and her recent research has focused on recovery and retraining of neuromuscular function after stroke. Mary is the incumbent Honorary Research Officer of ACPIN.

ACPIN evaluation summary

'*An excellent lecture that was clinically very relevant and very well explained. It was commented that it was nice to see how much progress had been made in the research. Keep up the good work*'.

EVALUATING THE BOBATH CONCEPT IN STROKE REHABILITATION

Dr Sheila Lennon
Rehabilitation Sciences Research Group, University of Ulster at Jordanstown, Northern Ireland

This presentation provides an overview of three studies, which explored current Bobath practice in the area of gait re-education. The first study, a focus group design, identified five key themes underlying current Bobath practice: recovery, the analysis of normal movement, the control of tone, and the facilitation of movement and function.[1]

The second study, a national survey, identified an expert consensus of significant theoretical beliefs underlying the Bobath concept according to these themes: recovery (neuroplasticity as the basis of recovery, the integration of biomechanical literature into theory), normal movement (key points of control as a basis for treatment); tone (the need to facilitate movement as well as the importance of normalising tone); the facilitation of movement (a preference for automatic activity rather than cognitive guidance and the need to work distally as well as proximally to facilitate distal recovery) and function (the need to delay patients from walking to avoid promoting abnormal movement patterns).[2]

The last study verified the application of current practice using a three-dimensional motion analysis system (CODA) in 11 patients following acute stroke.[3,4]

In this study, therapists did not achieve their aim of restoring more normal movement patterns to the kinematics of the affected leg within the gait cycle. There were changes in the timing of the loading response and single support time of the affected leg, and the single support time, peak dorsiflexion during stance and the hip flexor moment of the unaffected leg. Using clinical scales, there were significant changes at the impairment level in dynamic standing balance, selective control of the lower limb as well as at the level of disability and handicap. Functional walking ability improved in all patients.

These studies highlight several theoretical beliefs for debate within the physiotherapy profession: the detrimental effects of using walking aids, orthotics or early practice of independent walking on motor recovery, the automatic translation of movement components into function, the facilitation of movement on an automatic basis, carry-over and practice outside therapy, and the need to integrate motor learning literature into current theory. It is suggested that Bobath therapists need to question the amount of emphasis that is placed in therapy on preparation for function rather than task specific practice, as emerging evidence suggests that task specific training is more effective at improving performance in gait parameters and functional walking than Bobath therapy.

References

1. Lennon S, Ashburn A (2000) *The Bobath concept in stroke rehabilitation: a focus group design of the experienced physiotherapists' perspective* Disability and Rehabilitation 22 pp665-674.

2. Lennon S, Baxter GD, Ashburn A (2001) *Physiotherapy based on the Bobath concept in stroke rehabilitation: a survey within the United Kingdom* Disability and Rehabilitation 23 pp254-262.

3. Lennon SM (2000) *Gait re-education based on the Bobath concept in adult patients with hemiplegia following stroke* PhD, University of Ulster, Northern Ireland.

4. Lennon S (2001) *Gait re-education based on the Bobath concept in two patients with hemiplegia following stroke* Physical Therapy 81 pp924-934.

Dr Sheila Lennon qualified in physiotherapy from McGill University in Canada in 1979. She has worked in neurorehabilitation since 1982 in Canada, Switzerland and England. She moved to UUJ in 1992 to lecture in physiotherapy from her Superintendent Physiotherapist's post in neurorehabilitation, at Guy's Hospital. Her research has focused on stroke rehabilitation since 1995. Shiela has an MSc in Cognitive Neuropsychology and a PhD awarded in 2000 on the evaluation of the Bobath concept. She represents the CSP and ACPIN on the National Clinical Guidelines for Stroke, which are to be updated in 2003.

ACPIN evaluation summary

'*An excellent presentation, provoking a lot of thought and a very lively discussion. Comments were received on how good it was to show that neuro physiotherapy is really moving forward. Sheila's project was a very valid attempt to rationalise the 'magic hands' approach that is much needed. It was controversial but done in a very sensitive and non-threatening way*'.

SUNDAY 13 OCTOBER

CORTICAL CHANGES FOLLOWING CONSTRAINT INDUCED MOVEMENT THERAPY; EXAMINING THE NEUROPHYSIOLOGICAL EVIDENCE

Dr Martine Nadler PhD MCSP SRP

Constraint-induced movement therapy (CIMT) is an approach which combines forced use of the stroke-affected upper limb with restraint of the non-stroke arm. A small number of trials have shown that this may produce sustained improvements in hand and arm function in the stroke limb.

Recently, various neurophysiological tools have been employed to investigate cortical changes which may accompany functional improvement following CIMT. Using transcranial magnetic stimulation (TMS) Liepert et al (1998) have shown that after two weeks of CIMT, the number of active cortical sites and area representation of the abductor pollicis brevis thumb muscle is increased and shifted on the stroke-affected hemisphere. These cortical map changes were shown to accompany functional improvements (Liepert et al 2000), and occurred after CIMT was carried out in addition to conventional therapy, rather than after conventional therapy alone (Liepert et al 2001). The authors hypothesised these cortical representation changes were due to increased cortical excitability. This may result from decreased activity of local inhibitory interneurones enabling unmasking of existing synaptic connections and/or increased strength of existing connections. A small functional magnetic resonance imaging study of two stroke patients has shown changes in activation patterns following CIMT (Levy et al 2001).

Findings from rat experiments have raised concern about the use of CIMT in humans. Following an experimentally induced focal lesion to the motor cortex, restraint of the unaffected forelimb using a plaster cast, thereby forcing the use of the affected forelimb produced an increase in lesion size and the rat performed worse on behavioural motor tests (Bland et al 2000; Humm et al 1998; Koslowski et al 1996). The behavioural pressure to use the affected limb may result in increased glutamate release and secondary cell death via NMDA-mediated processes (Humm et al 1999). Given that rats are quadrupeds, the affected forelimb is used both, for manipulating food and locomotion, thereby resulting in greater behavioural pressure compared with restraint of a sound upper limb in a biped.

In primates, cortical mapping can be more accurately performed using invasive micro-stimulation electrodes implanted into a highly localised focal area of the motor cortex. Nudo and colleagues showed that, following an experimentally induced focal lesion to the motor cortex, lack of hand training of the affected forelimb produced a further loss of cortical tissue, whereas rehabilitative training preserved neural tissue surrounding the lesion (Nudo et al 1996a&b). A combination of training the affected hand and restraining the unaffected one produced an increased area of cortical representation but use of a restraint alone (without training) did not produce these effects (Friel et al 2000; Nudo et al. 2001).

At present, it is not yet known which aspect of the CIMT approach, either the use of a restraint, or the duration and intensity of therapy, is responsible for producing the functional improvements in humans. Future research is therefore needed to establish which component of CIMT enhances functional improvement post-stroke and then to establish what drives the neurophysiological changes in the sensori-motor cortex.

References

Bland ST, Schallert T, Strong R, Aronowski J, and Grotta JC (2000) *Early exclusive use of the affected forelimb after moderate transient ischaemia in rats* Stroke 31 pp1144-1152.

Friel KM, Heddings AA, and Nudo RJ (2000) *Effects of post lesion experience on behavioural recovery and neurophysiologic reorganisation after cortical injury in primates* Neurorehabilitation and Neural Repair 14 pp187-198.

Humm JL, Kozlowski DA, James DC, Gotts JE, and Schallert T (1998) *Use-dependent exacerbation of brain damage occurs during an early post-lesion vulnerable period* Brain Research 783 pp286-292.

Humm JL, Kozlowski DA, Bland ST, James DC, and Schallert T (1999) *Use-dependent exaggeration of brain injury: is glutamate involved?* Experimental Neurology 157 pp349-358.

Kozlowski DA, James DC, and Schallert T (1996) *Use-dependent exaggeration of neuronal injury after unilateral sensorimotor cortex lesions* Journal of Neurosciences 16 pp4776-4786.

Levy CE, Nichols DS, Schmalbrock PM, Keller P, and Chakeres DW (2001) *Functional MRI evidence of cortical reorganisation in upper-limb stroke in hemiplegia treated with constraint-induced movement therapy* American Journal of Physical Medicine and Rehabilitation 80 pp4-12.

Liepert J, Miltner WHR, Bauder H, Sommer M, Dettmers C, Taub E, and Weiller C (1998) *Motor cortex plasticity during constaint-induced movement therapy in stroke patients* Neuroscience Letters 250 pp5-8.

Liepert J, Bauder H, Miltner WHR, Taub E, and Weiller C (2000) *Treatment-induced cortical reorganization after stroke in humans* Stroke 31/6 pp1216.

Liepert J, Uhde I, Graf S, Leidner O, and Weiller C (2001) *Motor cortex plasticty during forced-use therapy in stroke patients: a preliminary study* Journal of Neurology 248 pp315-321.

Nudo RJ, and Milliken GW (1996a) *Reorganization of movement representations in primary motor cortex following focal ischemic infarcts in adult squirrel monkeys* Journal of Neurophysiology 75 pp2144-2149.

Nudo RJ, Wise BM, SiFuentes F, and Milliken GW (1996b) *Neural substrates for the effects of rehabilitative training on motor recovery after ischemic infarct* [see comments]. Science 272 pp1791-1794.

Nudo RJ, Plautz EJ, Frost SB (2001) *Role of adaptive plasticity in recovery of function after damage to motor cotex* Muscle & Nerve (August) pp1000-1015.

Dr Nadler qualified in 1987 at the Queen Elizabeth Hospital School of Physiotherapy, Birmingham and then moved to London, working at Charing Cross, St Bart's, Atkinson Morley's Hospital and the Wolfson Rehabilitation Centre.

She read for an MSc degree in the department of Anatomy at UCL and carried out a project investigating constraint induced movement therapy in stroke patients in 1996. She then moved to the Physiology department at UCL and completed a PhD last year investigating neurophysiological changes in central nervous system pathways following stroke and in healthy people following motor training. She currently combines part-time clinical work at the Bobath Centre for adults with Neurological Disability with part-time lecturing.

ACPIN evaluation summary

'*This lecture was helpful for people who were not at congress on Friday as Martine was recapping on some of the contents of an earlier lecture, before highlighting the neurophysiological evidence. It was a very well presented and well delivered lecture*'

MOTOR RECOVERY IN ADULTS FOLLOWING SEVERE TRAUMATIC BRAIN INJURY.

Martin J Watson MSc MCSP SRP
Senior Lecturer, at the School of Occupational Therapy & Physiotherapy (OPT), University of East Anglia, Norwich

Severe traumatic brain injury (severe TBI) is a serious and frequently disabling condition with major and long-standing consequences, both for the patient and his/her therapy services. A significant proportion of adult sufferers will sustain physical problems, which will likely require physiotherapy input. Knowledge of the effectiveness of that physiotherapeutic input, as well as of the likely patterns of physical recovery that may ensue, is clearly of importance. Based primarily on research work that the author has been involved in over the last ten or more years, this presentation will cover three themes:

- Do patients with severe TBI benefit from physiotherapy? A review of the evidence. Work based primarily on a review undertaken as part of the 2001 CSP Clinical Effectiveness Bulletin on Neurology.
- Motor recovery following severe TBI: is there a recognisable pattern? A summary of several different projects which have attempted to elucidate the likely patterns of motor recovery.
- Later stage motor recovery following severe TBI: is it feasible? A summary of primary and secondary research that attempts to answer aspects of this question.

The presentation will conclude with suggestions for future work in these areas, with an emphasis on research to which clinicians could readily contribute.

Martin Watson trained at Leeds School of Physiotherapy, qualifying in 1983. Since that time he has worked as a physiotherapist in

Leeds, Doncaster, Mexborough, Southampton and Norwich. During 1987-1988 he studied for an MSc in Rehabilitation Studies at Southampton University, supported by a Department of Health Research Training Fellowship. From 1989-1991 he was a research Fellow at Southampton University, working on the MRC Head Injury Assessment Project. Since 1992 he has been employed in the School of Occupational Therapy and Physiotherapy at the University of East Anglia, where he is currently a senior lecturer. His main areas of interest are quantitative research and adult neurological disability, with a special interest in brain injury in adults. He is currently chairperson of the Physiotherapy Research Society.

ACPIN evaluation summary

'*Although not necessarily 'new' information, it was useful to have reviewed some of the more recent literature, and there were some relevant points raised*'.

OUTCOME MEASURES AND MOVEMENT ANALYSIS

Dr Brian Durward

Existing outcome measures for neurological physiotherapy are predominantly subjective in nature and are based on ordinal measurement scales. As a consequence these scales are characterised by inherent weaknesses such as an inability to measure across the full range of a behaviour or dimension. This presentation will explore the potential for using objective measures of human movement and how the data derived can be processed to form useful outcome measures for neurological physiotherapy and rehabilitation.

The presentation will draw on the research work undertaken by postgraduate research students who have been supervised by the presenter. Examples will be given of balance performance measurements that incorporate upper limb function, as well as a range of functional movements analysed using displacement data recorded by a video process. Techniques for deriving outcome measure data from the ratio level data will be explained with examples from stroke patients receiving physiotherapy across the different stages of rehabilitation.

Brian Durward qualified from Glasgow Royal Infirmary School of Physiotherapy in 1977. Specialising in neurological physiotherapy he worked in various Glasgow hospitals and his final clinical appointment was as Superintendent in the Institute for Neurological Sciences at the Southern General Hospital, Glasgow. His first academic position was Lecturer in Physiotherapy in Queen Margaret University College, Edinburgh where he subsequently reached the position of Head of Department. He has recently returned to Glasgow, where he is now Dean of the School of Health and Social Care at Glasgow Caledonian University.

Dr Durward's research interests are in the areas of neurological physiotherapy and the development of outcome measures for physiotherapy and stroke rehabilitation. He has supervised a number of PhD students who have undertaken research in these areas. He is joint editor of the textbook "Functional Human Movement: Measurement and Analysis" and has published in a number of other physiotherapy texts related to neurological physiotherapy.

ACPIN evaluation summary

'*A very interesting and thought provoking lecture which demonstrated the possibilities of objectives measures in a clinical setting. Despite the difficult time of the presentation; just prior to the closing address, delegates remained inspired by a presentation that was delivered clearly and presented well*'.

FEEDBACK FROM YOU TO ACPIN

Collated by **Rowena Wright**

ACPIN had produced an evaluation form for their specific programme. Although a large number were given out, only 60 were returned. However, the feedback has been collated and overall was very positive about the whole programme. For nearly all the lectures, the content was scored as being at about the right level with a deviation of only 2% who thought the level was too low; one lecture was considered by 6% to be 'too high', and for one lecture 43% felt the level was 'too low'. In terms of the presentation, all speakers were scored as 'good' or 'very good', with Dr Goodman and Professor Winstein as the two speakers who scored virtually 'top marks' from you all.

From the evaluation forms received, these comments were noted or summarised and included after the abstracts.

Organisational Comments

- 'Very good, excellent, superb, fantastic, were words frequently used. Up to the usual standard'.
- 'Very full programme, fabulous, great quality speakers, great having international names'.
- 'Fringe meeting fantastic, great idea (shame about the clash with the AGM)'.

However, we would like to point out that the CSP had agreed to the day and time of this meeting, and perhaps the reason that there was a 'clash' was more to do with the concern around issues at the AGM that had become apparent to the CSP in the days prior to Congress taking place.

One of the delegates asked that we organise another ACPIN supper. *This was considered, but takes a great deal of extra organisation and was not particularly well supported previously.*

Professor Melzaks lecture clashed with an excellent ACPIN speaker which made it difficult to choose which to attend.

ACPIN are asked to submit a full programme and it is not known during the planning stages what other speakers will be present. Obviously, there is always a degree of personal preference over which speaker you would like to hear, and there will have been other lectures over the weekend which people may wish to have attended. At the end of the day – you just have to make your choice!

These and your other comments will be fed back to the CSP.

So, again, ACPIN want to thank all the speakers for helping us produce such an excellent programme, with such high quality information and presentations. We also want to thank Nicola Hancock and Jackie Newitt for their work in co-ordinating the programme and liasing with the CSP – not an easy task when you are working full-time!

ACPIN have a programme accepted for Congress 2003, with a focus on the management of progressive neurological disorders, the planning of which is already underway.

Reviews

C DIAGNOSIS AND DRUG THERAPY FOR PARKINSON'S DISEASE AND PARKINSONISM

Study Day review
17 July 2002
Ipswich Hospital
Course tutors: Dr Hadi Manji and Helen Williams

Waldi Ertl MCSP SRP
ACPIN East Anglia

The East Anglian branch of ACPIN organised a study afternoon at Ipswich Hospital on a very hot July day. Twenty four multidisciplinary participants from across the region attended. Local speakers Dr Hadi Manji and Helen Williams discussed the topics of diagnosis and drug therapy for Parkinsons Disease (PD) and Parkinsonism. Dr. Manji is a consultant neurologist at Ipswich Hospital with a special interest in PD. He elaborated on the differential diagnosis of akinetic rigid syndromes with their four main symptoms of tremor, akinesia, rigidity and postural instability. This was brought to life by practical demonstrations and the 'real-life' experiences of two patients with PD, who kindly agreed to partake. One of the patients demonstrated his apomorphine pump, which had improved his quality of life tremendously. Dr. Manji gave a very up-to-date account on causes, drug treatment and current research into future treatments and invited questions from the audience. He was followed by Helen Williams with a short introduction to her role as a specialist nurse for PD, which included information and advice, especially after initial diagnosis, continued support and monitoring, coordination and education of the multidisciplinary team and assessment of drug therapy. She sees patients in their own home and can video them in their normal environment. This allows her to feed back to the neurologist any changes in function or gait, often eliminating the long wait for a consultant appointment. Participants had many questions, which were promptly answered, and went home with up-to-the minute knowledge of akinetic rigid syndromes.

C PARKINSON'S DISEASE

Course review
22 January 2002
Glaxo Medical Centre, Liverpool
Course tutors: Dr Plafyer; Beverley Webster Walsh; Jan Leeson; Louise Hogan; Joanne Clayton; and Heather Cameron

Amanda Stiles BSc MCSP
ACPIN committee member

The ACPIN committee in response to the survey carried out last year organised the first of several day lectures for 2002.

The topic chosen was Parkinson's Disease. Six speakers were invited to present at the course these included; Dr Plafyer, consultant Physician; Beverley Webster Walsh, PD Specialist Nurse; Jan Leeson Senior I PT; Louise Hogan Senior I OT; Joanne Clayton SALT; and Heather Cameron PT Specialist in Neuromodulation. The course was held at the Glaxo Neurological Centre in Liverpool, an ideal venue due to its central location for people attending from the region, including North Wales.

Beverley Webster Walsh started the afternoon with a presentation of her role within the PD team within the Royal Liverpool University Hospital. This was followed by Dr Playfer who spoke at length on Parkinson's Disease, atypical PD and causes of secondary Parkinsonism's. The presentation was excellent, generating a lot of discussion and questions from the audience. Jan Leeson had the hard job of following Dr Playfers presentation. However she rose to the challenge and presented the guidelines for Physiotherapy Practice in Parkinson's Disease. This lecture had plenty of supporting references for the audience to review.

After the coffee break Louise Hogan discussed the aims for the OT involved in this client group and the types of assessment and intervention used. Louise also updated the group on the current national survey into OT and PD. Joanne Clayton discussed the communication and swallowing difficulties related to this population, and the ways to help facilitate communication and an effective swallow. Heather Cameron completed the programme with a very informative discussion of the role of Neurosurgery in the treatment of Parkinson's Disease. The use of the sub-thalamic stimulators to treat movement disorder provoked a lively discussion. With several of the comments on the feedback form asking for this particular presentation to be expanded upon.

The course received a lot of positive feedback and with approximately 50 people attending it was considered a success. The majority of people reported that the half-day was a good compromise to meet clinical pressures and that they would be keen to attend other half-day courses. All the speakers were also well received with the audience, although some people stated that the inclusion of case studies would have been useful. The constructive criticism was taken on-board by the committee for future courses.

A WALKING TRAINING OF PATIENTS WITH HEMI-PARESIS AT AN EARLY STAGE AFTER STROKE; A COMPARISON OF WALKING TRAINING ON A TREADMILL WITH BODY WEIGHT SUPPORT AND WALKING TRAINING ON THE GROUND

Lena Nilsson, Jane Carlsson, Anna Danielsson, Axel Fugl-Meyer, Karin Hellstrom, Lena Kristenson, Bengt Sjolund, Katharina Stibrant Sunnerhagen, Gunnan Grimby
Clinical Rehabilitation 2001, 15
pp515-527

Emma Forbes, **Donald McLean**, **Ann Williamson**, **Jenny Lingenhult**
Scottish ACPIN

Treadmill walking as a means of gait rehabilitation following stroke is an area where we have noted more and more research is being published. This research can be dated back to at least 1995 and most suggest treadmill walking with body weight support (BWS) as an adjunct to more traditional physiotherapy.

This study was a randomised controlled experimental study aiming to compare walking training on a treadmill with BWS with walking training on the ground. Previous studies have been carried out treadmill walking by Hesse 1995, Visintin 1998, and Hesse 1999, which support its efficacy in late stage stroke. This study looked at early stage stroke. The literature reviewed by the authors covered six research articles published within the last five years.

Seventy-three patients under 70 years of age with a residual hemiparesis following their first stroke were recruited. Presumingly to demonstrate a recognised reduction in function, only patients taking 10 seconds or more to complete a 10m-walk test were recruited, but this was not fully explained. The type of brain lesion was noted but it

may have been more significant to consider the area and size of lesion. There was no clinically significant difference between the two groups and the beginning of the study.

The methodology of the treadmill-walking group was extensively documented and could be easily replicated. However, other details such as specific physiotherapy carried out by the control group and group therapy carried out by both groups has been omitted. Therefore, this could not be replicated and introduces additional influences to the results. Further inconsistencies are found in the length of treatment and when the treatment commenced. The control group started treatment five days prior to the treatment group and treatment lasted between 3-19 weeks. With the final assessments taking place at ten months post stroke, some subjects would have received treatment for longer than others which again may influence the results.

Five established and validated outcome measures were used for assessment of input. These were all referenced. The subjects were assessed one to two days post admission to the rehabilitation unit, again on discharge and at ten months following onset of the stroke. All assessors were blinded.

The methods of statistical analysis are well explained however discrepancies in the p value occur between the text and table. In the text it is quoted as $p<0.05$ but in the table as $p<0.01$.

The results show treadmill walking with BWS significantly improved all values of outcome measures. The results also showed no significant difference between the treatment group and control group at discharge or ten month follow up. The results are shown in tables but are not clearly readable with the values of one outcome measure, Functional Ambulation classification, completely omitted from the ten-month assessment.

The discussion clearly states that the study did not demonstrate any significant difference in walking ability, balance or sensiomotor performance between walking on a treadmill with BWS or walking training on the ground. The authors state these findings are comparable with a previous study by Grimby et al (1996). However some results of studies quoted have not been taken into consideration. The authors state that the treadmill group could train more intensively but 'evidently did not influence the outcome'. This conclusion does not agree with Richards (1993) who states the intensity of training is most important. The authors conclude by stating, based on the results, treadmill walking with BWS would result in significant improvement in walking ability. Only once did the authors make reference to the possibility of spontaneous recovery and did not appear to consider the significance of additional physio or group therapy. Further recommendations for research were not discussed.

The results did appear to show a significant improvement but not significantly better than walking training on the ground. So from this article treadmill walking would be considered as an effective adjunct to traditional physiotherapy but not as a replacement. Further reading would be required before a full clinical judgement could be made however this article does stimulate thought and documents good methodology of treadmill walking with BWS to allow the possibility of further comparable research to be carried out.

References

Grimby G, Gudjonsson G, Rodhe M, Stibrant Sunnerhagen K, Sundh V, Ostensson M-L (1996) *The functional independence measure in Sweden; experience for outcome measurement in rehabilitation medicine* Scandanavian Journal of Rehabilitation Medicine 28 pp51-62.

Hesse S, Konrad M, Uhlenbrock D (1999) *Treadmill walking with partial weight support versus floor walking in hemiparetic subjects* Archives of Physical Medicine and Rehabilitation 80 pp421-427.

Hesse S et al (1995) *Treadmill walking with partial body weight support compared with physiotherapy in nonambulatory patients* Stroke 26 pp976-981.

Richards CL et al (1993) *Task specific physical for optimisation of gait recovery in acute stroke patients* Archives of Physical Medicine and Rehabilitation 74 pp612-20.

Visintin M, Barbeau H, Korner-Bitensky N, Mayo N (1998) *A new approach to retrain gait in stroke patients through body weight support and treadmill stimulation* Stroke 29 pp1122-1128.

A WHAT IS THE FUNCTIONAL OUTCOME FOR THE UPPER LIMB AFTER STROKE?

Bronwyn K Williams, Mary P Galea and Adele T Winter

Australian Journal of Physiotherapy 2001, 47 pp19-27

Gary Jones BSc Hons MCSP SRP
Birmingham and Solihull NHS Trust

The study was undertaken at the Neurological Rehabilitation Centre, Caulfield General Medical Centre, Melbourne, Australia The author's are physiotherapists.

Overview

The article provides a profile of upper limb recovery in subjects from a non-surgical stroke population. Measurements of impairment and disability were used to indicate the improvement in upper limb function.

CRITICAL REVIEW

Abstract

The abstract summarizes the method implemented in the study and states clearly the findings. Critically, the results are stated as 'significant' yet on further reading of the article this is somewhat misleading. However, from reading the abstract the reader feels encouraged to continue review the relevance of the paper on neurorehabilitation.

Introduction

The background to the study is highlighted with a discussion of the relevant literature, in particular the paucity of research focusing on the recovery of motor function in the upper limb and the number of different outcome measures that have been used in other studies. The two particular indicators that are used in this study are outlined. They are:

1. **The Motor Assessment Scale** (MAS) – concerned with motor recovery and function, and which combines impairment and disability.
2. **The Functional Independence Measure** (FIM) – measures the functional consequence of impairment at a personal level, but focuses only on disability.

With the chosen measurement tools in situ the aims of the study were clearly stated:

- To examine the difference between the admission and discharge MAS scores (upper arm function, hand movements and advanced hand activities) and the FIM score (upper body dressing).
- To examine the relationships between the admission, discharge and change MAS scores for the upper limb and the FIM score for upper body dressing to determine the degree to which recovery of movement of the hemiplegic upper limb is reflected in the performance of functional tasks.

Method

The structure is clear and methodical. It was a retrospective audit undertaken over a period of two years. One hundred and fifty subjects were recruited who were non-surgical stroke patients and very specific inclusion and exclusion criteria were stated.

There is a comprehensive explanation of the two measurement tools that are used:

1. **Motor Assessment Scale** (MAS) is based on work undertaken by Carr and Shepherd (1985) and considers eight items of motor function, which are scored from 0-6. In this study those concerned with upper limb function are only considered (Item 6 – Upper Arm Function, Item 7 – Hand Movements and Item 8 – Advanced Hand Activities) with each item comprising a number of tests. It is a validated test and it is stated that the physiotherapists that collected the MAS data (the number is not indicated) 'demonstrated good interrater reliability'. It would have been useful to the reader if a copy of the complete MAS assessment was included, as an appendix, as the reader would have been able to gain a greater understanding of it, and its suitability for this study.
2. **Functional Independence Measure** (FIM) consists of eighteen items, including physical and cognitive abilities and other issues such as level of continence. It 'assesses a person's need for assistance of their burden of care'. A seven-point scale is used to gain a score (I = Total Assistance, 7 = Independent). In this study the total FIM scores are compared at admission and discharge and the relationship between the FIM score for Upper Body Dressing (UBD) is compared to the MAS data. The validity of this scale is questioned by the author's as somewhat misleading, as a high score of function can be obtained when significant neurological impairment remains. Although it has demonstrated as reliable in previous studies, reliability could be questioned in this research as not all of the staff who were trained in the use of the FIM were tested for reliability.

Questions must also be asked regarding the process of data collection. It is stated that patient's received treatment either once or twice per day based on their individual needs and that an 'eclectic approach to treatment, drawing on the principles of the Bobath treatment approach and the Movement Science approach' was implemented by the physiotherapists involved. However, the author's admit that there was 'no attempt to standardise treatment' and this creates contentious issues such as that regarding the skill of the treating therapist and consistency and content of treatment from admission to discharge.

Little criticism can be made about the methods chosen for data analysis. There was a very comprehensive level of statistical and descriptive analysis implemented, though some explanation of the statistical tests used would have been useful in considering their relevance to this study.

Results

Findings were summarised under three headings:

- **Subject demographics** A clear, concise table outlined the key information. Some potential criticisms for generalisation of the results of this study are that the majority of strokes were due to infarcts (80%) as opposed to haemorrhage. Previous studies have shown a variation in rehabilitation outcomes dependent on the pathology involved. Also, there was a diverse range of waiting times prior to admission for rehabilitation (2-218 days) and this could have had an effect on the individuals' potential for rehabilitation. Finally there appeared to be some confusion over the presentation of the data, in that for the total admission FIM score the mean had been used, yet for the total discharge FIM score the median was documented.
- **Changes in MAS and FIM scores during rehabilitation** It is stated that a significant improvement occurred for the MAS and FIM scores during rehabilitation. This was determined by using the 'Wilcoxon's Signed Rank Test' and the data was presented by using 'scatter plots'. On first impressions these charts were difficult to interpret but the information that they provided was extensive. With regard to the MAS scores, (39%) scored a six on items 6-8, but what this involved is not made evident. However, there was a clear table that indicated the amount of people that achieved either the minimum (0) or maximum (6) MAS scores on admission and discharge, indicating no improvement during rehabilitation. A scatter plot for the FIM score for upper body dressing showed that most subjects improved, yet there was no indication of the exact number.
- **Relationship between the MAS and FIM scores** The 'Spearman's Correlation Co-efficient' found that there was a moderate statistical relationship between the MAS scores for upper limb function and the FIM score for upper body dressing. However, this is contradicted by the scatter plots, which indicate that no true relationship existed.

Discussion

It was interesting to note that in concluding the article, the author's state that 'significant improvements were identified for all the upper limb outcome measures … when compared with previous studies…' yet the opening paragraph of the discussion states 'that this improvement might not be clinically significant'. The author's deserve praise for stressing the importance of why they used the MAS and the FIM and for their comparison with previous studies, although in my opinion, a sense of bias towards Australian literature is apparent. The limitations of the study are recognised, which included the population of the study being solely from the non-surgical stroke population; the insensitivity of the MAS to high level function, and high FIM scores being achieved whilst neurological impairment remained. Ideas for further research are clearly stated and include suggestions for the need for the objective measurement of pain, tone, sensation and neglect on upper limb recovery and motor function. Additionally, a more standardised measurement procedure such as implementation of measurements at specified timescales during the rehabilitation process may be more effective. The article was clearly presented, with a well-structured, clear layout.

Conclusion

A succinct summary of the findings, the limitations of the study and their relevance to the field of physiotherapy were evident. With a clear title, concise aims and a well-structured layout the article provides 'early promise'. However, a myriad of tables and charts (that provide a vast amount of information) indicating improvements in upper limb function are, in my opinion, made to look somewhat futile as though it is stated that the results were significant, it is contradicted in the discussion. I do not feel the article convincingly answers the aims of the study, so although the findings are useful (ie the need for standardised, clinically appropriate outcome measures that consider impairment and disability), they are not novel and will not serve to further change or develop physiotherapeutic practice in this field of rehabilitation.

Regional reports

EAST ANGLIA

Louise Dunthorne
Regional representative

East Anglia's committee has flourished with ten members from all over our region joining us at the last committee meeting, and others willing to be 'communication links' with major hospitals in our region. This should help dissipate information between our members, and be a useful information exchange network. Regional membership stands at forty eight, showing a steady increase over recent years.

We continued organising four main courses each year. 2002 began with a talk from Kilverstone Mobility Assessment Centre, on the adaptations available and the assessment process for people with disabilities to relearn to drive.

In June Dr. Manji, Consultant Neurologist, treated us to an update on Parkinson Syndrome. This had a strong MDT relevance, and was well received by the audience.

November sees our three day splinting course run by Sue Edwards. Then in December Martin Watson is revisiting outcome measures in a study day entitled 'Measuring a rose with a tape measure'. Further details are available from our secretary Waldi Ertl on (01473) 704150.

We hope to arrange further courses on the application of the Swiss Ball for neurological patients, and a Bobath workshop during the early part of 2003. Details will be sent to regional members and appear in *Frontline* nearer the time.

We welcome anyone else interested in being more involved in their local branch. Contact our chairperson, Louise Kenworthy on (01473) 702072 for more information.

KENT

Janice Champion
Regional representative

In March of this year a study day on Multiple Sclerosis was held at the Royal Victoria Hospital in Folkestone. This day was well attended and everyone came away with many new ideas.

We held our AGM in March at the William Harvey Hospital in Ashford where Lorna Hills, team leader in the Physiotherapy department spoke about Parkinson's Disease and her recent study into the use of ultrasound for the treatment of the nodules caused by the drug infusion pumps.

In July Nigel Lawes came to Medway Maritime Hospital and led a day on Postural Control. This was an excellent day, packed full of information with a useful handout. Allergan sponsored the day and provided lunch for us.

Our aims for the forthcoming year are to improve the networking of the 'neuro-physios' in the region and to support the professional development of our members by providing informative and thought provoking meetings and study days. This year we have a new chairperson, Nicky Guck, and we are looking for interested members to join the Committee and help us to plan future meetings.

This years programme is still in the planning stage, however we hope to hold a day course on dizziness and vestibular problems and the GBS support group are talking at our March 2003 AGM.

For further information contact Kent regional representative, Janice Champion at Medway Maritime Hospital Tel: 01634 833959.

LONDON

Anne McDonell
Regional representative

London ACPIN has continued to have a successful year. The Committee is strong, although can always use any new blood! We have continued to have an evening lecture once a month and a day or half a day course every six months. We have recently had lectures on neglect, positioning the neurologically impaired adult and outcome measures. We are compiling an exciting programme for 2003 and the first few months have been finalised.

Please contact any of the London Committee or look in *Frontline* for details closer to the time.

Programme for early 2003

- **14 January 2003** Medical ITU Nurse from National Hospital for NHNN *Epilepsy, management and implications for treatment* The National Hospital for Neurology and Neurosurgery
- **11 February 2003** Philippa Carter *The effect of general exercise training on the effort of walking in clients with MS* Kings College Hospital
- **11 March 2003** Dr Jeremy Rees *Brain Tumours* The National Hospital for Neurology and Neurosurgery
- **12 April 2003** Study half day Dr Jane Burridge *FES and The upper limb* The National Hospital for Neurology and Neurosurgery

MANCHESTER

Louise Rogerson
Regional representative

This year has been a difficult year for the Manchester ACPIN committee. We have had a major re-shuffle due to individual circumstances, and this has disrupted our work some what. We now have a new chairperson – Sue Pattison, a private practitioner from Bury, and a new secretary – Colin Green, also a private practitioner from Oldham. The committee now has a diverse range of neurophysiotherapists, we have private practitioners, NHS physiotherapists, and a lecture/practitioner. This range within the committee will hopefully help us represent all our members in the area, and bring together a wide range of viewpoints.

The lectures in 2002 have been generally well attended, and we would like to thank all speakers and venue organisers for their valuable contributions. We would also like to thank all those who attended the lectures for completing the evaluation forms, and for passing on ideas for future lectures.

Programme for 2003

- **January** *MND*
- **February** *Tai Chi and Neuro*
- **March** *SCI – management and workshop*
- **April** *EMG and biofeedback*
- **May** *Botox – a clinicians view*
- **June** *Motor relearning approach*
- **July** *Vertigo/vestibular rehabilitation*
- **September** *Kinetic control*
- **October** *Ankle and foot instability*
- **November** *Painful/subluxed shoulder*

This programme is provisional, and the committee are still confirming speakers, dates and venues.

MERSEYSIDE

Regional representative (post vacant)

Firstly I should like to thank Elizabeth Self for all her hard work as Regional representative over the last two years – as you read this she will be enjoying the the far sunnier climbs of Bermuda and we all wish her good luck with this new venture.

The new format of study afternoons and evening lectures adopted for our 2002 lecture programme has continued to prove successful. In May, over 44 attended the Study afternoon on Gait with lectures on The Developmental Stages, Central Control, Gait Analysis, the Gait Lab, Muscle Imbalance and FES resulting in a very interesting and informative programme - many thanks to all our speakers. In July, the practical workshop facilitated by Sharon Williams was similiarly well attended and we are indebted to Sharon for her continuing support. On a less positive note, we were forced to cancel a Neurodynamics Course planned for September due to lack of numbers. However we hope to reschedule this in a future programme. An evening lecture on Neuromodulation given by Mr Varma and Heather Cameron completed our 2002 programme.

For 2003, we already have a study afternoon on Head Injuries scheduled for 21st January with a provisional programme including talks on Acute Management, Respiratory Care, a Head Injury Algorythm and Splinting given by a variety of speakers. Another definite date for your diaries is 24th June 2003 when we shall be hosting a course on Vestibular Rehabilitation given by Pam Mulholland. Other suggested topics for the forthcoming year are Movement Science, Constraint Induced Therapy, Spasticity and Ataxia, however dates for these have yet to be finalised. As ever we are always keen to receive ideas from our members and will do our very best to incorporate these into the lecture programme.

Membership of Merseyside ACPIN currently stands at 34 – a drop from recent years and we would ask you to continue to support us and look forward to seeing you all (old and new!) at the aforementioned events. Our committee numbers eleven, with all posts filled, nevertheless, but we are always on the look out to recruit new members and were pleased to welcome Helen Everatt onto the committee, her presence boosting representation from the Wirral.

NORTHAMPTON

Jan Matthew
Regional representative

After a faltering start we are now in full swing, with an exciting year's programme nearly finalised.

Northampton is in the heart of England and can include areas such as Rugby, Market Harborough, Milton Keynes, Bedford, Wellingborough and Kettering. Please let anyone you know in these areas that there is now access to a local ACPIN group.

The committee is undergoing some changes and major life events. However we have a strong core and we always welcome new committee members.

This year we enjoyed an interesting evening on rebound therapy, exploring its possible efficacy with neuro patients. A study day on gait and treadmill training also was held in Northampton and we thank Jon Graham for his continued excellent patient workshops and demonstrations

Programme for 2003 – most dates to be finalised

- **Late October** *Pilates evening* Northampton
- **8 February** *Study Day at MS Centre (including AGM)* Bedford
- **March** *Patient Workshop/ Demonstration* Northampton

Also coming up-Cannabis trial update and Vestibular/Balance evenings, and a half day on Spasticity and Botulinum Toxin.

NORTHERN REGION

Julia Williamson
Regional representative

We have had an interesting six months or so. A Movement Science course in April was well received as was a weekend Gait Workshop with Linzi Meadows in May. A Stereognosis course with Mary Lynch-Ellerington was held in July and was enjoyed by all. By the time this goes to press we will also have spent a day learning about Muscle Imbalance with Dave Fitzgerald and had some evening lectures on diverse topics such as 'Reflexology' and 'The Role of the MS Nurse'.

Julia McKenzie has retired from the committee after stalwart service, during which time she has held at one time or another, every post. Julia is staying in close contact with the committee as she is heavily involved with the pilot 'interactive' CSP website. We also say goodbye and thank you to Jan Waddington. Heather Hunter has taken over as Chairperson and we have been joined by new committee members Nina Lishman, Janet Nesbitt and Anna Marritt so a big welcome and thank you to them. Membership is strong at present with seventy-nine names on the list, however if anyone in the North-East or Cumbria hasn't yet renewed there is always time.

The next six months are looking busy. We are running the ever-popular Introductory Bobath Weekends after Christmas. Dates have not yet been finalised with Linzi Meadows yet and we await the deluge of applications their announcement usually brings. Lectures from Nigel Lawes will make our AGM, one not to be missed and plans are afoot for more evening lectures. With all this, who needs telly?

NORTHERN IRELAND

Siobhan MacAuley
Regional representetive

Northern Ireland ACPIN has had a successful year to date, with a steady membership of approximately 45 members and a consistent attendance at the lecture programme. We would like to welcome our new chairperson Pauline Glenfield and thank our out going chair person Heather Fair who worked tirelessly during her term. We would also like to welcome the other new committee members and as usual encourage anyone else with an interest to come forward.

Throughout the year we had lectures from local physiotherapists and neurologists on a range of topics eg reports from congress, neuroradiology, neurophysiology, report on the CAMS trial, some practical evenings, and evening on The forgotten face with the speech therapist as well as a practical weekend course on Gait.

In the autumn we had planned lectures on progressive neuro-muscular disorders, incomplete spinal injuries and we have Liz McKay coming to do two courses on the low tone patient and on the shoulder so it will be a busy time for the next few months. As always the committee are keen to have any suggestions for evening lectures. The lectures will continue to take place in the city hospital on approx third Tues of the month, if anyone would like further information feel free to contact me.

NORTH TRENT

Alex Morley
Regional representetive

The North Trent ACPIN group have had a successful 2002 with an increase in membership resulting in 65 members in August 2002. The committee is healthy with eleven members but attendance at committee meetings has been variable. Attendance at meetings to provide input from all around the region is extremely valid.

Programme for 2003
Plans include:

- *Parkinson rehabilitation* with Bhanu Ramaswamy
- *Posture and locomotion in health and neurological dysfunction* with Jon Marsden
- *Strength Training in Neurological Rehabilitation* Speaker to be confirmed

- *Using Pilates in Neurological Rehabilitation* with Karen Cheek
- *Literature evidence for the use of Botulinum Toxin in Spasticity* with Sue Mawson
- *Treatment of Vestibular problems* Speaker to be confirmed

Many thanks to all members who have worked hard to deliver a successful programme of lectures in 2002.

OXFORD

Annabelle Cooper
Regional representative

Oxford ACPIN has had a variable year. A committee crisis in early 2002 was resolved by the saving grace of a new Chairperson, Claire Guy, a new Treasurer, Georgina Bruce (thankyou to Alison Richards who recently resigned as treasurer), and a new committee member, Meredith Newman. At the AGM members opted to continue a programme of evening lectures for the coming year with the addition of a day course, planned to replace the May/June lecture. The committee also agreed it was time CPD documentation was encouraged in meetings and self-evaluation forms should now be available for members to help themselves to at lectures.

With a current membership of 57, we have had a good year. Attendance was good at lectures about; The cannabis trials, Shoulder impingement related to neuro patients, Robotic arm therapy research, Effects of foot mobilisation on standing balance and gait in stroke patients and Rehabilitation of vestibular disorders. A big thankyou to all the speakers. Plans for 2003 are now coming together. Watch out for confirmation of dates.

Programme for 2002/3

- **November 2002** *Postural management and seating for the Neuro. patient – a problem solving exercise* Oxford Centre for Enablement.
- **January 2003** Still to be confirmed but hopefully *a talk by a representative from the Guillian-Barre Syndrome support group* Reading - Battle Hospital.
- **February** *Constaint induced therapy* Oxford Centre for Enablement.
- **March** *Neuropsychology* – to be confirmed. Reading, Battle Hospital.
- **April** *AGM and Neurosurgery update* Oxford Centre for Enablement.
- **May/June** *Day course: Neuroplasticity and it's application to clinical practice* Tutor: Martine Nadler, Oxford Centre for Enablement.

And as always … any ideas for lectures/courses are welcomed any time of year and the committee can always benefit from more committee members (especially those of you from further a field, so that we can bring more lectures to venues in YOUR area!). Please contact myself or Claire Guy on 01865 737372/5 for any further details.

SCOTLAND

Emma Forbes
Regional representative

The year started in April with our first study day and AGM. Debbie Strang (Trainee Bobath Tutor) took a half day practical course on Foot Mobilisation at Stirling. This was excellent and prompted great discussion. As ever it was over subscribed, so much so we have arranged a second running of this course in November.

The AGM saw a new member joining. Cassie Gibson works at the Western General in Edinburgh. Paula Cowan has taken over the role of membership secretary. Our membership is now at 88 and the renewal of membership from 2001 to 2002 was 100%.

Since the AGM Wendy Juner has resigned and Catherine Graham is taking over the role of treasurer. We continue to require two further members to make up the full compliment of the committee. Please contact Sarah Davidson – Chairperson, if you wish to join.

Two further study days are happening in November – Foot Mobilisation and a Multiple Sclerosis information day. Discussions are also currently being held to hold a Spasticity Study Day later in 2002 or early 2003.

Programme for 2003

Topics that are being pursued for the 2003 programme are Movement Science, Measurement in Neurology, Gait, Upper Limb, Brain Injury and Splinting and Mobilisation of the Foot.

SOUTH TRENT

Linda Cargill
Regional representative

South Trent ACPIN has had a busy year so far with a variety of evening lectures and day/weekend courses. Many thanks to all the speakers who have contributed.

The committee has seen several changes over the last year. Leela Duari has stepped down as chair person (post still vacant) and Suzanne Freeman has stepped down as treasurer. Many thanks to both Leela and Suzanne for all their hard work.

We are delighted to finally have a representative from Leicester and enjoyed the AGM in Leicester where Dr Tom Robinson spoke on recent developments in the medical management of stroke.

We are very keen to recruit more members to the committee, particularly from Nottingham, Leicester and Mansfield areas. We hope that with a good programme combined with the contribution towards CPD and the opportunity to meet regularly with other therapists working in the area will help to expand the committee.

SOUTH WEST

Gina Sargeant
Regional representative

So far we have had a busy year, over the last few months the committee has been working hard on next years programme, looking at holding a combination of 'big name' lectures, evening talks and home grown workshops as these appear to have been popular this year. For next year we are putting together a new format AGM with a series of workshops on current 'and much talked about' clinical topics, Constraint Therapy, Treadmill Training and Oral Facial Tract Therapy.

This year we published a card programme for the members, this was popular and we hope to do the same next year, only release it earlier. Anyone wanting a copy of this year's please contact any committee member.

Programme for 2003/4

- **5 April 2003** *AGM*
- **May** *MS Update*
- **June** John Rothwell Day course *Changes following Neurological Damage*
- **September** Lecture *Muscular Dystrophies in Adults*
- **October** *Research*
- **November** – Diana Farragher Day course *Developments in Trophic Stimulation, EMG and Biofeedback for Neuromuscular Disease*
- **January 2004** *Gymball workshop*
- **February 2004** *Chronic Fatigue lecture*

SURREY & BORDERS

Sally de la Fontaine
Regional representative

Surrey & Borders ACPIN has started well in this their first year and are hoping to learn from other groups to ensure lectures remain stimulating and attendance remains good.

To date we have held evening lectures but are looking to run half day and one day courses in the future.

We will be holding our AGM on the 5th February2003 within the Physiotherapy department at Frimley Park Hospital, after a case presentation by Anna Hamer.

We are hoping to run a day course in April/May on Spasticity and will advertise in *Frontline* once dates/venue have been confirmed.

As always we welcome any suggestions for the future programme, which we are currently planning.

SUSSEX

Naomi Wells
Regional representative

For the past six months (since April 2002), Sussex ACPIN has had a relatively quiet period with only a one day event in June on the 'Sensory control of movement' by Jon Marsden. This was well received by a large attentive group, provoking much thought and discussion both on the day and subsequently.

Other plans, such as Exercise Therapy and Motor re-learning did not unfortunately take place due to problems with contacting the speakers. However, we are still keen to incorporate these into the programme.

Programme for 2002/3

- **25 November 2002** 7.30pm *Parkinsons research*, Bernard Haas, Princess Royal Hospital, Haywards Heath
- **February/March 2003** *AGM and Spinal study day* – details to be confirmed
- **May 2003** *Bobath workshop* Helen Constantine – details to be confirmed

From October the regional representative post will be taken over by Susie Collins-Howgill, but otherwise the committee remains the same. They continue to work hard to keep Sussex ACPIN on its feet! Our current membership is 32 – please do support us.

WESSEX

Ros Cox
Regional representative

This year has been a busy time for the committee with five courses to organise which were all well attended We welcomed Lou Eckett to the committee as our new secretary and thank her for all her help.Our membership for this year so far stands at 70 which has increased from last year which is excellent.

Provisional programme for 2003

- **January** *A joint ACPIN and NANOT evening forum on issues regarding local neurology services*
- **February** *The effects of decondtioning on function in neurology lecture*, Steve Wooton
- **March** *Intervention with early strokes study day*
- **10 April** *Posture management study day*
- **May** *Update on MS research lecture*
- **June** *Botox study day*
- **September** *Falls in Parkinson's Disease*
- **October** *Guillain Barre Society lecture*
- **November** *Splinting course*

For this programme we will be using local speakers to increase awareness of local expertise and experience to improve links between departments in the Wessex region.

Thank you to all our members for their continuing support. If anyone would like to join the committee or has ideas about lectures/ study days please contact Jo Nisbett (Chair 02380 293636) or Ros Cox (Regional Representative 01202 665511 bleep 0294)

WEST MIDLANDS

Regional representative (post vacant)

West Midlands has enjoyed another successful year in 2002. Our committee remains very strong with 13 members and regionally we have over 80 members. The committee has continued to work hard to produce a varied mix of theoretical and practical courses over the year and to promote ACPIN within our region.

In April 2002, our chairperson Katie Marsland resigned after many years' service to the committee and region. Helen Lindfield was elected as our new chairperson.

Courses for 2002 have included Muscle Imbalance with Liz Mackay, Acupuncture in Neurology with Val Hopwood and an Advanced Neurological Workshop with Lynne Fletcher. These courses were well attended and all received very positive feedback. The committee would like to thank all our tutors and speakers.

Unfortunately, half day courses on motor relearning and gait lab. analysis had to be postponed due to a low response.

Programme for 2003

- **February 2003** *Proprioceptive Neuromuscular Facilitation*, Leamington Spa
- **March** *FES* with Christine Singleton
- **June** *Pilates*, Heartlands Hospital
- **September***Driving Assessments*

Our regional representative post is currently vacant following the resignation of Kate Duffield. If there are any queries regarding our course programme, the region or joining the committee then please contact Zoe Hurley (0121 424 2494) or Jo MacBean (0121 424 1779).

YORKSHIRE

Caroline Brown
Regional representative

Yorkshire ACPIN has had a generally successful summer. We now have over one hundred members, with ten on the commitee; including three new recruits following the resignation of Anne-Marie Knowles and Louise Parker. On behalf of the committee and region I would like to thank them for all their hard work.

Our AGM in Spring was combined with a very informative day course on Dyspraxia by Therese Jackson, which received excellent feedback. We then ran an evening lecture on the Pathophysiology of Spasticity and the use of Botulinum Toxin by Dr Bhakta. This preceeded a two day Splinting in Neurology course by Sue Edwards.

For the next six months we plan to continue this selection of evening lectures, study days and short courses. The programme is still being finalised, but includes an evening on Stroke Guidelines, an MS update lecture and a handling study day by Linzi Meadows.

As always details of Yorkshire ACPIN events will be sent to each Yorkshire ACPIN member and also advertised in *Frontline*. However, if anyone has any ideas for future lectures/courses or general comments on how ACPIN can help, please don't hesitate to contact one of the committee members. We look forward to hearing from you.

Letters

Compensatory fixing

Dear Colleagues,
I would like to congratulate Louise Rogerson for her excellent article in *Synapse* Spring 2002. She has expertly managed to demonstrate that 'Compensatory Fixing' can indeed be a causative factor to both low tone and associated reactions.

There needs to be much more work and research into the nature of compensation. I was much distressed to read The Royal College of Physicians (2002) report on *National Clinical Guidelines for Stroke* and find the word 'Compensation' was not mentioned once in the literary references.

Louise Rogerson's article has set a good example. Let us hope the relevant research bodies take heed to this advice and move the physiotherapy profession forward.

Jackie Wright
Wymondham, Norfolk

Botulinum toxin

Dear Colleagues,
I am an Occupational Therapist working in a neuro-rehab unit. I would like very much to hear from Occupational Therapists and Physiotherapists who are working with patients with neurological conditions who receive botulinum toxin injections to the upper limb. I am particularly interested to hear from those who do and do not splint the upper limb post injection.

Jane Worsley
Marie Therese House, Trelissick Road, Hayle, Cornwall TR18 2DS
Tel: 01736 758891
Emai: janeworsley@yahoo.com

Multidisciplinary working

Dear Colleagues,
I have just finished reading the letter from The Chair in Spring 2002 edition of *Synapse* and found the paragraph outlining the need for multidisciplinary working very interesting. I may be cynical, but in my experience, multidisciplinary working is something many professions pay lip service to but infrequently action. Certainly, I have been party to many exclamations by physiotherapists and occupational therapists of, 'that's my job not theirs' and in fact have begun to wonder whether the therapies need their heads banging together. As a physiotherapist, I would happily pass on the job of issuing a walking stick or frame to an assistant, but woe betide the OT who does a stairs assessment without a physiotherapists agreement. On the flip side, are OT's or their assistants, the only ones capable of fitting a toilet seat? Personally, I feel professional boundaries have gone mad. Surely as intelligent professionals, we have the ability to recognise each others areas of expertise such as cognitive assessment or movement analysis. With an emphasis on improved patient care and performance, would it not be more effective and efficient to embrace our generic skills and enhance our specialist skills. Can I not benefit from learning from those more skilled than I just because my profession does not fit?

What I'm getting at is that each profession has skills that we can all benefit and learn from. In true multidisciplinary teams, skills are shared and progressed. A nurse that specialises in Parkinson's disease can instruct a physiotherapist in the basics of a patient's drug regime where relevant. The physiotherapist is then better able to offer advice of a basic nature if needed, but is able to use her professional judgement as to when the experts need to be called back. Does this not provide a more efficient service to the clients and does it not make for a more integrated team approach to rehabilitation?

Whilst I appreciate there are often difficulties in working together, progression of our services will not allow us to do otherwise. I'm not saying that we should all become generic therapists, but there is room to appreciate the generic skills that we can pass on, whilst still retaining our own specialist areas of knowledge and skill. Is it not time we took a closer look at the realities of our current and future practices and stopped confining ourselves and our patients to our nice little professional labels?

Terri Taylor
Senior I, Hexham General Hospital, Northumberland

*The Chair referred to LEO (Leading an empowered Organisation) in her article and it was in this context the comments on multidisciplinary working were made (*Therapy Weekly, *February 7 2002 Vol 28 no 30 pp1). In the information published on LEO it is acknowledged we are 'already working in multiprofessional teams and multi agency settings, with a crucial role in reducing waiting times, tackling key priorities and helping patients recover independence'. The LEO training is 'based on principles of respect, dignity and empowerment … to promote change in the organisation'. The emphasis from the Chair was to highlight the need for stronger multidisciplinary working in order to 'develop and support strong healthy leadership behaviours and create strong empowered organisations'. If we remain in a small uni-discplinary group we will miss the opportunities to effect change.*
Ros Wade *Synapse Administrator*

Secondary prevention for CVA

Dear Colleagues,
I am a Senior I Physiotherapist working for Lanarkshire Primary Care Trust in the Cumbemauld area. I predominantly work with neurological patients in a community outpatient department, where most of my caseload is CVA patients.

As part of our service development, I am keen to look at secondary prevention for CVA and in particular, promoting the uptake of physical activity in this patient population. I am hoping to develop an exercise based class, much along the lines of many of the cardiac rehabilitation programmes for appropriate stroke patients.

I am curently looking for information regarding similar projects already in existence or in the planning stages. In particular, information regarding selection criteria, baseline measurements and length of duration of programmes would be helpful.

Any information would be gratefully appreciated!

Susan Wilson
Senior I Physiotherapist, Kenilworth Medical Centre, Kenilworth Court, Cumbemauld, Glasgow G65 1BP

Guidelines for authors

FOR AUTHORS IN *SYNAPSE*

Synapse is the official newsletter of ACPIN. It aims to provide a channel of communication between ACPIN members, to provide a forum to inform, instruct and debate regarding all aspects of neurological physiotherapy. A number of types of articles have been identified which fulfil these aims. The types of article are:

Research report
A report which permits examination of the method, argument and analysis of research using any method or design (quantitative, qualitative, single case study or single case design etc).

Audit report
A report which contains examination of the method, results, analysis, conclusions and service developments of audit relating to neurology and physiotherapy, using any method or design.

Review paper
A critical appraisal of primary source material on a specific topic related to neurology.

Treatment report/case studies
A report of the treatment of a patient or series of patients which provides a base line description of established treatments, or a new insight into the techniques or treatment of people with a specific problem.

Service development quality assurance report
A report of changes in service delivery aimed at improving quality.

Abstracts
Abstracts from research projects, including those from undergraduate or higher degrees, audits or presentations. They should be up to 300 words and where possible the conventional format: introduction, purpose, method, results, discussion, conclusion.

Technical evaluation
A description of a mechanical or technical device used in assessment, treatment, management or education to include specifications and summary evaluation.

Product news
A short appraisal of up to 500 words, used to bring new or redesigned equipment to the notice of the readers. ACPIN and *Synapse* take no responsibility for these assessments, it is not an endorsement of the equipment. If an official trial has been carried out this should be presented as a technical evaluation.

Points of view
Articles discussing issues of contemporary interest and any other matters relating to neurological physiotherapy.

Letters to *Synapse*
These can be about any issue pertinent to neurological physiotherapy or ACPIN. They may relate to material published in the previous issue(s) of *Synapse*.

Copy should be:
- typed or printed
- double spaced
- on one-sided A4 paper with at least a 1" margin all round
- consecutively numbered
- include the name, qualifications, current position, and contact address of the author(s).
- Ideally, a disk copy of the material should also be included. Documents preferred in Microsoft Word for Macintosh or Windows.

References should use the Harvard system. In the text quote the author(s) surname and date (Bloggs 1994). At the end of the article give the full references with the first author/editors name in alphabetical order, eg:
Bloggs A (1994). *The use of bandages in the treatment of people with head injuries* Physiotherapy 67, 3, pp56-58.

Tables and figures should be given appropriate titles and numbered consecutively as they appear in the text. Each should be presented on separate sheets of paper after the text.

Any **photographs** and **line drawings** should be in black and white, in sharp focus with good contrast and at least 5" x 7".

Two copies of each article should be sent to:
Ros Wade
Synapse Administrator
7 Dawlish Park Terrace
Courtlands Lane
Lympstone
Exmouth
Devon EX8 5AA
email:
roswade@compuserve.com

Note: all material submitted to the administrator is normally acknowledged within two weeks of receipt.

The Editorial Board reserves the right to edit all material submitted. Likewise, the views expressed in this journal are not necessarily those of the Editorial Board, nor of ACPIN.

Inclusion of any advertising matter in this journal does not necessarily imply endorsement of the advertised product by ACPIN.

Whilst every care is taken to ensure that the data published herein is accurate, neither ACPIN nor the publisher can accept responsibility for any omissions or inaccuracies appearing or for any consequences arising therefrom.

ACPIN and the publisher do not sponsor nor otherwise support any substance, commodity, process, equipment, organisation or service in this publication.

ACPIN Regional representatives

EAST ANGLIA
Sesa Ishaya
2 Heath Cottages
The Heath
Tattingstone
Ipswich
Suffolk IP9 2LX
t: (w) 01483 702072

KENT
Janice Champion
Coniston
Grain Road
Lower Stoke
Rochester
Kent ME3 9RE
t: 01634 270 198
e: jchampion@tesco.net

LONDON
Anne McDonnell
Physiotherapy Department
National Hospital for Neurology and Neurosurgery
Queen Square
London WC1
t: 020 7837 3611
e: anne.mcdonnell@ uclh.org

MANCHESTER
Louise Rogerson
Hollingee
Farm Cottage
Burleyhurst Lane
Mobberley
Cheshire WA16 7LR
t: 0773 6039817

MERSEYSIDE
Jo Jones
19 Coronation Drive
Liverpool L14 7NT
t: (w) 0151 220 5050
(h) 0151 282 6827
e: jojones19@hotmail.com

NORTHAMPTON
Tim Meads
42 Denmark Road
Northampton NN1 5QS
t: (w) 01604 544254
(h) 01604 634265
e: tj.meads@virgin.net

NORTHERN
Julia Williamson
15 West View
Clara Vale
Ryton
Tyne & Wear NE40 3SR
t: 0191 273 8811 bleep 1913

NORTHERN IRELAND
Siobhoan Mac Auley
Physiotherapy Department
Belfast City Hospital
Lisburn Road
Belfast
t: 028 9032 9241 ext 2545

NORTH TRENT
Alex Morley
School of Health & Social Care
Sheffield Hallam University
Collegiate Crescent
Sheffield S10 3BD
t: (h) 02890 669609

OXFORD
Annabelle Cooper
134 Dere Road
Headington
Oxford
OX3 7EG

SCOTLAND
Emma Forbes
Area Rehab
Stirling Royal Infirmary
Stirling
Scotland
t: 01786 473499

SOUTH TRENT
Linda Cargill
176 Mansfield Road
Derby
DE1 3RB
t: (h) 01332 290973
e: LindaPofty@aol.com

SOUTH WEST
Gina Sargeant
Frenchay Centre for Brain Injury Rehabilitation
Frenchay Park Road
Bristol BS16 1UU
t: 0117 956 2697
e: gina.charlie@lineone.net

SURREY & BORDERS
Sally de la Fontaine
Field View Cottage
Bailes Lane
Normandy
Surrey JU3 2AX
t: 07711 936952

SUSSEX
Naomi Wells
Rehabilitation Department
Newhaven Downs House
Newhaven
East Sussex
t: 01273 513 441 ext 139

WESSEX
Ros Cox
1 Pascoe Close
Ashley Goss
Poole
Dorset BH14 0NT
t: 01202 665511 bleep 0294

WEST MIDLANDS
Vacant
Contact: Zoe Hurley (Secretary)
t: 0121 424 2494

YORKSHIRE
Caroline Brown
1 Beaverdyke
Clifton
York YO30 5ZG
t: 01904 725747

Syn'apse

Administrator
Ros Wade

Editorial Advisory Committee
Members of ACPIN executive and national committees as required.

Design
kwgraphicdesign
t: 01395 263677
e: kwgraphicdesign@btclick.com

Printers
MF Barnwell & Sons, Norwich

Address for correspondence
Ros Wade
7 Dawlish Park Terrace
Courtlands Lane
Lympstone
Devon EX8 5AA

f: 44 (0)1395 263 677
e: roswade@compuserve.com