Rehabilitation Research Review

Making Education Easy

Issue 17 – 2010

In this issue:

Welcome to the seventeenth issue of Rehabilitation Research Review.

Amongst the studies that we have selected for review in this issue, two are particularly intriguing. The first discusses how the relatively cheap and commercially available computing gaming device, Nintendo Wii, apparently augments functional outcome from conventional therapy in subacute stroke patients with moderate impairments of upper limb strength and function. Indeed - some rehabilitation units in NZ do have these facilities already.

The other paper reviewed the available clinical trial evidence regarding moxibustion during stroke rehabilitation. Popular for stroke rehabilitation in East Asian countries, moxibustion is a traditional Chinese method that uses the heat generated by burning herbal preparations containing *Artemisia vulgaris* to stimulate acupuncture points. The evidence is favourable as to the effectiveness of moxibustion as an adjunct to standard care during stroke rehabilitation, although the reviewers admit that the number and methodological quality of the primary data are too low to draw firm conclusions.

I hope the issue is of interest and I welcome your comments and feedback.

Kind regards,

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Home-based cardiac rehabilitation is as effective as centre-based cardiac rehabilitation among elderly with coronary heart disease: results from a randomised clinical trial

Authors: Oerkild B et al

Summary: This comparison of outcomes from home-based versus comprehensive centre-based cardiac rehabilitation in a cohort of 75 patients aged ≥65 years with coronary heart disease found no significant differences in exercise capacity after the interventions. Adjusted mean differences were 0.9 ml/kg/min for peak exercise tolerance (VO_2) and –18.7 m for the 6-min walk test. In addition, there were no between-group differences in the secondary outcomes of systolic blood pressure (–0.6 mmHg), LDL cholesterol (0.3 mmol/L), HDL cholesterol (0.2 mmol/L), body composition, proportion of smokers and health-related quality of life. A group of patients that did not improve with either intervention was characterised by higher age, living alone and having COPD. At 12 months' follow-up, both groups had a significant decline in exercise capacity.

Comment: I guess the most obvious result of this study is that home-based rehabilitation can be as successful as centre-based. But to me the more interesting finding is further evidence that the right amount, intensity and duration of rehabilitation are essential for good outcomes. The reality is that whilst early intervention remains a core construct in rehabilitation, for a number of populations, ongoing input is key for sustained effect. Whilst early 'one-off' packages are neat and tidy from a service provision and funding perspective, long-term cost-effectiveness for some populations requires a different approach.

Reference: Age Ageing. 2010 Sep 15. [Epub ahead of print]

http://ageing.oxfordjournals.org/content/early/2010/09/15/ageing.afq122.abstract

Lean thinking in healthcare: a realist review of the literature

Authors: Mazzocato P et al

Summary: This systematic literature review of published articles for the period January 1998 to February 2008 identified 33 empirical studies covering a wide range of lean thinking applications in healthcare. All articles reported positive results. A thematic analysis of the collected data revealed common contextual aspects that interact with different components of the lean interventions and trigger four different change mechanisms: understand processes to generate shared understanding; organise and design for effectiveness and efficiency; improve error detection to increase awareness and process reliability; and collaborate to systematically solve problems to enhance continual improvement.

Comment: I've been at a few meetings lately where Six Sigma Thinking has been referred to (as a lean thinking approach first introduced by Motorola in the early 80's but now increasingly embraced in health and social care organisations). A number of health and social care systems (funders and providers) are using these models so it probably pays to know a bit about them – breathe deep and expect lots of acronyms!

Reference: Qual Saf Health Care. 2010;19(5):376-82.

http://qshc.bmj.com/content/19/5/376.abstract

A feasibility study using interactive commercial off-the-shelf computer gaming in upper limb rehabilitation in patients after stroke

Authors: Yong Joo L et al

Summary: The feasibility of the Nintendo Wii device as an adjunct to conventional rehabilitation was examined in 20 inpatients within 3 months after a stroke with upper limb weakness. All study participants received 6 sessions of upper limb exercises via a Nintendo Wii over 2 weeks in addition to conventional rehabilitation. Of the 16 patients who completed the study, all found Nintendo Wii gaming enjoyable and comparable to, if not better than, conventional therapy. There were small but statistically significant improvements in the Fugl-Meyer Assessment and Motricity Index scores.

Comment: Whilst Nintendo studiously avoid recommending their technology as a therapeutic device, lots of researchers are exploring it as such. Indeed, some leading investigators in this field are keynote speakers at the next Rehabilitation Conference in March 2011 http://www.nzrehabconf2011.co.nz/, which has as its theme 'connecting technologies and people'.

Reference: J Rehabil Med. 2010;42(5):437-41.

http://jrm.medicaljournals.se/article/abstract/10.2340/16501977-0528

Independent commentary by Professor Kath McPherson, Professor of Rehabilitation (Laura Fergusson Chair) at the Health and Rehabilitation Research Centre, AUT University in Auckland.

Kath has been at AUT since 2004 and has been building a research, teaching and consultancy programme focused on improving interventions and outcomes for people experiencing disability.

Research Review publications are intended for New Zealand health professionals.

A multidisciplinary intensive rehabilitation programme for individuals with Huntington's disease: preliminary results from the pilot project

Authors: Piira A et al

Summary: This study assessed the outcomes of a multidisciplinary intensive rehabilitation programme on quality of life, cognitive and motor function in 12 patients aged ≥18 years with early- and middle-stage (stages I–III of the Shoulson and Fahn Rating Scale) Huntington's disease (HD). For 3 weeks, patients received up to 8 hours a day, 5 days a week, of cognitive training, speech, physical and occupational therapy, group discussions and lectures on topics such as nutrition. At baseline, patients were mostly fully independent in Active Daily Living functions, according to a mean total functional capacity score of 9 (not working and in need of light assistance), a reduced general cognitive function (mean Mini-Mental State Examination score of 24) and slight depression (mean Hospital Anxiety and Depression Scale score of 9). The mean Activities-specific Balance Confidence Scale score was 81. Following the programme, all participants showed improvement in gait, as assessed by the 6-min walking test (mean change from baseline +31.42 m; p=0.03), the 10-m walking test (mean change –0.80 s; p=0.02), the stand up and go test (mean change –1.24 s; p=0.003). Bergs Balance Scale scores were also significantly improved from baseline (mean change 2 points; p=0.03).

Comment: I was surprised (and disappointed) when I first came to New Zealand that so little rehabilitation seemed to be available for people with long-term and degenerative conditions. In part, this is of course because services necessarily develop in accord with what is funded (and a lot of rehabilitation providers in NZ have relied almost entirely on ACC funding). I've been made aware recently of a number of providers who are re-thinking what they provide and I hope we see more funding for populations that have been ill-served for a long time.

Reference: J Neurol Neurosurg Psychiatry. 2010;81:A47.

http://jnnp.bmj.com/content/81/Suppl_1/A47.2

Moxibustion for stroke rehabilitation: systematic review

Authors: Lee MS et al

Summary: This systematic review analysed all published data from randomised controlled trials that tested moxibustion as the sole treatment or as an adjunct to other treatments for stroke rehabilitation. Of the 9 trials that met the inclusion criteria, 3 reported superior effects of moxibustion plus standard care on motor function in patients with hemiplegia compared with standard care alone, according to assessment by the Fugl-Meyer Assessment or Motor Index tool (n=142; standardised mean difference 0.72; p<0.0001). Three other trials with a high level of heterogeneity failed to demonstrate favorable effects of moxibustion on activities of daily living, as assessed by the Functional Independence Measure, Barthel Index, or Modified Barthel Index (n=122; standardised mean difference 0.51; p=0.09).

Comment: I had a friend a few years ago who swore by moxibustion for all sorts of things, none of which I clearly remember. So I was somewhat amazed when I saw this review outlining just how much research has been done investigating this approach in stroke. Whilst the evidence of impact is limited (due to methodological limits of much of the research, as is so often the case sadly) it made me think about how very Western my knowledge is. It doesn't hurt to be reminded that there is a big world out there doing things differently and being aware of that is arguably less arrogant than ignoring it.

Reference: Stroke. 2010;41(4):817-20.

http://stroke.ahajournals.org/cgi/content/abstract/41/4/817

'Getting back to real living': a qualitative study of the process of community reintegration after stroke

Authors: Wood JP et al

Summary: These researchers examined the process of community reintegration over the first year following stroke, from the patient's perspective. Forty-six one-on-one semi-structured interviews were conducted with 10 participants who had sustained their first hemispheric stroke and were returning to the community following inpatient rehabilitation. Interviews were completed with participants before discharge from inpatient stroke rehabilitation and in their homes at 2 weeks, 3 months, 6 months and 1 year post discharge. Analysis of the interviews by grounded theory methods revealed how the process of community reintegration after stroke involved transitioning through a series of goals: gaining physical function, establishing independence, adjusting expectations and getting back to real living. The ultimate challenge for stroke survivors during this process of community reintegration was to create a balance between their expectations of themselves and their physical capacity to engage in meaningful roles.

Comment: Here is another study highlighting that recovery and adaptation are not one-off events but instead are dynamic, with many shifts and changes in people's goals and hopes after stroke (and just about any other condition). I personally think 'hope' warrants more consideration in research and clinical practice, as you will know from my continued referral to papers about the topic! I rather suspect that we might err on the side of 'preventing false hope' a little too far and at times in fact 'remove hope'.

Reference: Clin Rehabil. 2010;24(11):1045-56.

http://cre.sagepub.com/content/24/11/1045.abstract

Evidence of disagreement between patient-perceived change and conventional longitudinal evaluation of change in health-related quality of life among older adults

Authors: McPhail S et al

Summary: This study investigated the level of agreement between patients' perception of change in their health-related quality of life (QoL) over a 6-month period evaluated using a then test and change recorded by conventional longitudinal assessments at the start and end of the same period. The study sample consisted of 70 frail older adults (mean age 78.8 years) accessing community-based rehabilitation services; full data sets were evaluable for 62 patients. Agreement between conventional (post–pre) and patient-perceived (post–then test) change was low to moderate (EQ-5D utility intra-class correlation coefficient [ICC] 0.41; EQ-5D visual analogue scale [VAS] ICC 0.21). Neither approach inferred greater change than the other (utility p=0.925, VAS p=0.506). Mean conventional changes in EQ-5D utility and VAS were 0.140 and 8.8, respectively; patient-perceived change was 0.147 and 6.4, respectively.

Comment: I've long been fascinated by just how we conceptualise and measure QoL and we've done some work highlighting limitations in current measures (including the EQ-5D) in disabled populations. Whilst asking people to judge change in their QoL over the previous 6 months is open to recall bias, I found this paper interesting with regard to questioning just what we might be measuring with some of the outcome measures we use.

Reference: Clin Rehabil. 2010;24(11):1036-44.

http://cre.sagepub.com/content/24/11/1036.abstract

The mediating role of self-efficacy expectations and fear of movement and (re)injury beliefs in two samples of acute pain

Authors: Söderlund A, Asenlöf P

Summary: This study sought to determine the possible mediating role of self-efficacy, catastrophic thinking and fear of movement and (re)injury between pain intensity and pain-related disability in two samples of acute pain patients – 74 patients with musculoskeletal injuries and 64 patients with acute whiplash associated disorders (WAD). All were recruited at an emergency department and completed questionnaires. Analyses of the responses revealed that self-efficacy was a mediator between pain intensity and pain-related disability in the WAD group, whereas fear of movement and (re)injury was a mediator in the musculoskeletal injury group. The strength of association between variables was weaker in the musculoskeletal injury group compared to the WAD group.

Comment: Most people agree that measuring outcome is part and parcel of best rehabilitation. However – just as important is assessing factors (like health beliefs) that might impact on those outcomes. Given that everyone has health beliefs of some sort (either helpful or unhelpful) thinking about how our treatment approaches respond to, or impact on, those seems a very useful exercise.

Reference: Disabil Rehabil. 2010;32(25):2118-26.

http://informahealthcare.com/doi/abs/10.3109/09638288.2010.483036

Professional development in TBI for educators: the importance of context

Authors: Glang A et al

Summary: These US-based researchers describe current professional development efforts that incorporate features of evidence-based training to improve academic outcomes for students with traumatic brain injury (TBI). The article argues that effective staff development practices for educators must include training in evidence-based interventions, supervised practice with new skills, and continued mentoring, feedback, and consultation in the school setting. Two models currently in use – the TBI Consulting Team and BrainSTARS models – incorporate those features. Preliminary evidence suggests that these models help teachers feel more prepared and knowledgeable in working with students with TBI. The researchers conclude that given the urgent needs of students with TBI, validating these promising practices should be a high priority for the field of paediatric brain injury.

Comment: This paper is one of a series in this issue of the journal that form a special tribute to Mark Ylvisaker. Mark was a valued colleague and collaborator and as many of you know had a huge influence on challenging education (and rehabilitation) to understand the impact of contexts and routines on people post-TBI. Despite some progress, there is more to be achieved both in schools and in rehabilitation. The study Mark helped us get off the ground to test some of these concepts in goals is ongoing. Get in touch if you want to know more about it or refer a potential participant (we are recruiting people 6 months to 5 years post-TBI in Auckland, Hamilton and Wellington). Tim Feeney (who also has a paper in the special tribute journal volume) is coming to NZ next year for a conference about 'The Social Brain' http://www.assbi.com.au/.

Reference: J Head Trauma Rehabil. 2010;25(6):426-32.

http://journals.lww.com/headtraumarehab/Abstract/2010/11000/Professional_Development_in_TBI_for_Educators__.4.aspx

VINTAGE PAPER

Recovery from mental illness

Authors: Greenblatt M

Summary: This paper discusses rehabilitative efforts designed to assist patients with mental illnesses to recover and return to the community. The author details 5 principal areas in which rehabilitative efforts to assist a patient should be applied: psychological rehabilitation; the patient's vocational and educational capacities; the patient's family, and the social and recreational aspects of the community to which the patient returns. As described by the paper's author, the expectation is that under good conditions of care and treatment, 80–85% of acute cases admitted to an active treatment hospital will return to the community at various levels of improvement within a few months. At the time this paper was published (1957), 5-year follow-up data in the US showed that more than 80% were in the community and roughly half of the original number had not returned to any institution for psychiatric care.

Comment: I've been thinking about issues to do with mental health and 'work' for a number of reasons. One of these is that a colleague mentioned a research study that is soon to commence on this topic in NZ next year. Another reason is that recent data in reports from the Welfare Working Group has highlighted just how many of the out-of-work NZ'ers have a mental health problem. Given the connection between work and health, this paper is a useful reminder that a person's 'vocation' should be at the centre of their rehabilitation both as a form of therapy (if managed well) and as a desirable outcome.

Reference: Public Health Report. 1957;72(9):836-9.

http://www.jstor.org/pss/4589913