

using Maitland techniques and with other physiotherapists. Balon (1984) found that a significantly larger portion of manipulative therapists had thumb problems than wrist problems. Wan (1986) in a biomechanical study of thumb interphalangeal and metacarpal joint compressive forces during Maitland mobilisation PA Grade IV techniques found that mean joint compressive forces exceeded the known values of fatigue tolerance of articular cartilage and the compressive tolerance of cancellous bone. At the time of the design phase (1996/97), this was the only evidence available to the design team, and the tool was deliberately intended to be useful as a substitute for these 'higher risk' mobilisation techniques. In our view it is unlikely that one tool will be ideal for all techniques in all body areas.

Maher, Latimer and Starkey have compared a pisiform grip and two mobilising tools during a Grade III lumbar spine mobilisation (presumably a central PA), using the outcome criteria of stiffness discriminability, stiffness perception, therapist comfort and patient comfort.

In their first study, they found equivalent ability of detecting small differences in elastic stiffness. They also found that use of both tools produced stiffness perceptions of a given stimuli that were stiffer than when sensed with the human hand alone. They also note that "...it may be possible to design manual therapy tools that actually improve the therapist's ability to judge physical parameters such as stiffness." What their data does not and cannot provide is any indication as to which perception is a closer approximation to reality.

In their second study, they found that both tools were substantially less comfortable than the pisiform grip and on this basis concluded that "neither tool, in its current form, is suitable for clinical practice". In our view it is not reasonable to reach this conclusion for the following reasons. (1) The reported comfort was measured when using a technique that is not the technique that the tool was primarily designed for. (2) The reported comfort was measured when using single mobilisation technique only. (3) The therapists in the trial had only five minutes experience with each device. Our experience is that it takes some time to acclimatise to the use of a new form of mobilisation and that with experience the technique becomes more comfortable. The protocol of this study is the same as asking therapists to rate the relative comfort of a manual technique that they have been using for 10 years with a new manual technique that they have been using for five minutes. (4) The mock patients were all physiotherapy staff and students. Both physiotherapists and patients were non-blinded and non-naive. In our view, there is a culture in manual therapy that subscribes to the notion that mobilisation with the hand is superior to other forms as it allows the capacity for greater dexterity and sensory feedback. The raters of comfort in this study are likely to have been exposed to this culture and this may have influenced their perceptions of comfort.

In our view, it is highly likely that dispersing joint compression forces from a cross-sectional area the size of the thumb joints to a cross-sectional area the size of the wrist is likely to reduce therapist risk of injury. We do not

have empirical data to support this view but this paper does not present any data that would modify this view.

We welcome Maher, Latimer and Starkey's recommendations for design changes to the Superthumb tool. There is a pressing need for strategies to reduce occupational injury in manual therapists. The Superthumb design team are happy to give all rights to this design to any team or research institution that would like to refine the design for the benefit of manual therapists.

**Rob Laird and Peter Kent**

*SuperThumb Pty Ltd*

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Wan J (1986): Biomechanical analysis of stresses in the articular structures of the inter-phalangeal and metacarpal-phalangeal joints of the thumb during performance of Maitland postero-anterior vertebral mobilization techniques. Unpublished postgraduate diploma dissertation, School of Physiotherapy, Lincoln Institute of Health Sciences, Melbourne.

### **Opinion, but no data, in support of Superthumb. (Reply by Maher et al to comment by Molnar P, and Laird R and Kent P, *Australian Journal of Physiotherapy* 48: ....)**

We cannot agree with any of the points Molnar raises. The Superthumb web page explicitly states that the device reduces hand pain and fatigue (Superthumb 2002) so the writer misleads the readers of the Journal by stating that the information provided on Superthumb only refers to thumb pain and does not mention wrist or hand pain. We are disappointed that he has done this.

The second criticism seems to presume that a different result would arise if we evaluated the thumb grip rather than the pisiform grip. This criticism is similar to the one raised by Laird and Kent. However, we would prefer to conduct research to evaluate such hypotheses rather than simply make educated guesses.

Lastly, Molnar suggests that our research has "...clouded this issue rather than helped to solve or direct further research into this problem". Such a conclusion suggests that he has not read our paper closely. On page 29, we clearly state that both devices do not interfere with the

therapist's ability to discriminate stiffness. Prior to our study, this was not known and so we have clarified rather than clouded this issue. In addition, we have clearly shown that both devices are problematic with respect to patient and therapist comfort. Again, these results provide clarity whereas in the past there was no information on this issue. We think our article will help direct further research because we have provided clear details of our methods and in the article we outline some simple strategies that may improve Superthumb comfort. The paper has generated considerable correspondence, so we feel that our work has brought attention to this important issue.

We would like to thank Laird and Kent for sharing with the readers the detailed steps they went through when developing Superthumb. We understand this process because we have also had to develop instruments, however these were for use in our research studies. The frustrating part of the process is that simple inspection of the finished product reveals none of the sweat and tears that were expended in the prototype development stage.

Having considered Laird and Kent's letter, we still stand by our original conclusion that neither tool, in its current form, is suitable for clinical practice. The only data available on the device is provided by our study and it shows quite clearly that Superthumb does not do what it is claimed to do: both patients and therapists find it less comfortable than manual mobilisation. If you ignored our data, the most optimistic appraisal possible for Superthumb is that it is of unknown value. We have a problem endorsing a product for use in clinical practice if it is of unknown value.

Laird and Kent argue that if we compared Superthumb with another mobilisation, gave the subjects more time to practise and found some naïve subjects, we would find that Superthumb is superior to manual mobilisation. However, we find arguments without data unconvincing. The most robust way to answer such hypotheses would be to conduct additional research. We are currently planning further study in this area and we will consider evaluating Laird and Kent's hypotheses at that time.

Lastly, we would like to correct any misconceptions that may have arisen from Laird and Kent's comment on our study that "What their data does not and cannot provide is any indication as to which perception is a closer approximation to reality." Because we measured both the stiffness of the physical stimuli presented to subjects and the subjects rating of perceived stiffness magnitude our data provides a very clear answer to that issue. For readers who are interested, Figure 2B in our paper shows that the Kneeshaw device allows a perception of stiffness magnitude that is a closer approximation to reality than either the pisiform grip or Superthumb.

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Superthumb Pty Ltd (2002) <http://www.superthumb.net/what.html>. Accessed on May 3, 2002.

## **The Bobath concept has changed. (Comment on Critically Appraised Paper, *Australian Journal of Physiotherapy* 48: 59.)**

We wish to comment on a Critically Appraised Paper, "Motor Relearning Program approach improves short-term motor outcomes and reduces hospital stay after stroke," published in the *Australian Journal of Physiotherapy* (Volume 48, p. 59). This paper (Langhammer and Stanghelle 2000) claims to compare two physiotherapy approaches; the Bobath approach and the Motor Relearning Program. The authors of the study attempted to standardise the two programs according to background literature by preparing a manual describing the main philosophy behind each of the methods and holding workshops to co-ordinate treatments according to the manual. The authors state that the framework of the Bobath concept is based on reflex hierarchical theory. This framework was developed by the Bobaths in the 1940s on the basis of the available understanding of neurology at that time. The Bobath concept has developed significantly over the last 50 years, together with the explosion of knowledge in neuroscience, and is now based on the systems approach to motor control, with neuroplasticity as the primary mechanism for neurological recovery. These developments have been described by Lennon (1996).

As well as being out of date on the current philosophy behind the practice of the Bobath concept, the authors appear to be unaware that the Bobath concept requires skill in its application to the neurological patient. The Bobath concept is studied around the world in short, intensive courses for postgraduate therapists at introductory, basic and advanced levels. The emphasis in these courses is on skill acquisition, both in practical sessions, analysing normal movement, and in supervised practice with clients. Successful use of the Bobath concept requires established skills in the detailed assessment of postural alignment and patterns of muscle activation in multiple motor tasks, in complex problem solving and in interventions that may require highly skilled manual handling. This level of skill can not be achieved by reading a manual and participating in workshops aimed at identifying the differences between the two approaches. We believe that an accurate evaluation of the Bobath concept requires the use of skilled practitioners. We make no apologies for the high level of skill required to practise using the Bobath concept. The ongoing demand for courses from dedicated clinicians seeking to increase their skill level supports this view. We welcome and encourage valid research endeavours investigating the practice of the Bobath concept, provided that it is recognised that a level of proficiency in the skills is necessary.

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Shauna Picard**

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Langhammer B and Stanghelle JK (2000): Bobath or Motor Relearning Programme? A comparison of two different