Expert opinion

Beyond the pelvic floor: the evidence examined

In considering the evidence for pelvic floor muscle training (PFMT) in the treatment of urinary incontinence, there is Level A evidence to indicate that PFMT programs effectively treat stress and mixed incontinence. Although pelvic floor muscle training protocols vary widely in the literature, strength training protocols are the most widely reported. However, PFMT is not 100% effective and we should always be curious as to why this is so. The many risk factors and co-morbidities associated with incontinence alter the effectiveness of any intervention, including PFMT. In addition, the optimal method to achieve continence via PFMT is not known. Is it a pure isolated strength training program? Is it a motor control strategy? Is it functional re-training? Is it combined synergistic training with abdominal, spinal and respiratory patterns? To uncover the optimal strategy, different exercise programs must be compared in randomised controlled trials (RCTs).

Professor Paul Hodges in his keynote address at the 2007 National Conference on Incontinence, Thinking beyond the pelvic floor, was thought provoking and detailed in the concepts and challenges that were presented. He and his team of researchers have produced a large body of literature investigating the functional linkages between muscles of the trunk and pelvis. This body of investigative experimental science is to be applauded in the intellectual challenges it has created. As reported by Annette Innes in the last edition of this Journal, from this body of work he proposed that PFMT may be more effective when broader abdominal muscle functions are considered, as these muscles have been shown to be involved in the control of continence. However, this model of trunk and pelvic interaction has yet to be tested rigorously in clinical studies.
According to Herbert et al. 5, clinical practice should not be changed due to new theories, basic science models, or small experimental studies; but changes should be based on evidence from robust RCTs with high methodological quality and sufficient effect size to demonstrate that the intervention is worthwhile. The lowest level of evidence is consensus statement based on expert opinion and the highest level is results from RCTs or systematic reviews of high methodological quality RCTs. 1. Hence, changes to established and proven methods of treating urinary incontinence, based on clinical science models, are not advised.

And this is where a problem may arise. A well delivered and inspiring address presenting new and exciting ways to consider PFMT may be an unwitting catalyst to change of practice by an enthusiastic audience before full evidence of its effectiveness has been established. It is tempting to utilise a new and novel concept in pelvic floor training, for example, training of the deep abdominal muscles, in particular the transversus abdominis (TrA), to initiate pelvic floor muscle activity, before this concept has been tested in a RCT. It has been shown that there is altered co-contraction activity of the abdominals and pelvic floor muscles in those with and without incontinence 6,7, with incontinent women using more abdominal and less pelvic floor muscle activity during a postural task. How information such as this can be utilised in the treatment of pelvic floor, or lower urinary tract dysfunction, is as yet unknown. Until clinical trials have been undertaken, it is unknown whether back pain, respiratory changes, postural changes and altered abdominal muscle activity, along with obesity, are modifiable risk factors which can be altered to prevent incontinence, or should be incorporated into a treatment protocol.

To date there have been no RCTs investigating the effect of TrA training alone on urinary incontinence. One RCT has compared the addition of deep abdominal muscle training to PFMT 8. The deep abdominal muscle training was done in accordance with recommendations by Queensland researchers. No additional beneficial effect was observed from adding TrA training to PFMT. This study had a small sample size making it difficult to detect a difference, so the results must be treated with caution. However, it is a first step in the attempt to provide evidence for or against pelvic floor and trunk interaction in the treatment of incontinence.

One of the basic principles of muscle rehabilitation in the presence of dysfunction, is to undertake isolated muscle re-education before incorporating the particular muscle into a normal motor pattern. It is interesting to look at the body of research investigating physiotherapy management of osteoarthritis (OA) of the hip and knee in particular, and compare this with the body of research associated with physiotherapy management of incontinence. Both OA and incontinence are chronic, complex conditions which affect older adults and have their own specific risk factors. Both conditions are managed by specific muscle rehabilitation, pharmacology and surgery. The standard management of knee OA for instance has been quadriceps strengthening exercise, with wide variation in the strength training protocols reported in the literature. In studies reporting no difference between groups, there has been shown to be inadequate strengthening of the quadriceps muscle. However, recent research has begun investigating other factors such as posture, instability and muscle activation patterns. Recently it has been shown that having a very strong quadriceps increases the progression of the disease in mal-aligned knees and that neuromuscular retraining, in addition to strength training, is required 9. These retraining principles are beginning to be tested in RCTs.

Comparisons such as these can be instructive. In both conditions, there is no substitute for isolated muscle rehabilitation. A level of pelvic floor muscle strength is necessary to gain and maintain continence. However, as we learn more about the interaction between the pelvic floor and the rest of the body, new ways of incorporating this strength into whole body function may become ‘the new way forward’. But until then, this new information needs to be tested fully. So for now, do not stop intensive, supervised pelvic floor muscle strength training.

References


9. Bennell K. The Dodgy Knee. Dean’s Lecture Series, Faculty of Medicine, Dentistry and Health Sciences, 2006. The University of Melbourne.