Should we change practice?

When a well-credentialed article such as Scianni et al (2009) is published, what changes should we make in our clinical practice? In recent years we have been using strength training increasingly as a part of our clinical practice when managing children with cerebral palsy. Should we now abandon this trend?

This review highlights the lack of strong evidence for strength training in this population. More high quality randomised controlled trials are clearly needed. As there is some evidence (albeit less rigorously controlled) indicating that strength training in children with cerebral palsy is beneficial and has been shown not to be harmful, and many clinicians have found strength training to be effective in individual cases, it seems sensible to hesitate before abandoning this practice.

As recognised by the authors in their discussion, the reasons for the poor demonstrated response to strength training may be that the programs used were not of sufficient duration or intensity, or were not progressed appropriately. Of the five trials included in the meta-analysis, two used electrical stimulation (ES) as the sole intervention for strengthening. In both of these studies, ES appears to have been applied without any active participation required by the subject. This is not how ES would be applied in our clinical practice, as it is generally considered that ES is more effective in the cerebral palsy population when used to augment volitional effort (De Kroon et al 2005, Carmick 2002). In addition, there is a similar paucity of high quality evidence investigating the use of ES to increase strength in cerebral palsy and, as such, its efficacy as a strengthening tool has not been clearly established in this population (Kerr et al 2004).

In restricting their criteria to randomised or quasi-randomised controlled trials, Scianni et al have excluded evidence from uncontrolled trials while including evidence from randomised controlled trials of poor quality. Three of the five studies scored five or lower on the PEDro scale, and included some with non-blinded assessors and one pilot study with a sample size of only 12 participants (Engsberg et al 2006). While the authors adhere to strict inclusion criteria in an attempt to base their recommendations on the highest level of evidence available, the shortcomings of some of the studies included in this systematic review reduce its implications for clinical practice, in the light of contradictory evidence.

While other systematic reviews with broader inclusion criteria do not reach the same conclusions as Scianni et al (Darrah et al 1997, Dodd et al 2002, Mockford and Caulton 2008), all systematic reviews on this subject agree on one point: that the quality of existing evidence is poor and that more rigorously conducted studies are needed. However, lack of evidence is not proof that an intervention is ineffective, as the title of this systematic review would suggest. To establish best clinical practice, the findings of Scianni and colleagues should not be considered in isolation, but in conjunction with previous research published on this subject, the opinion of experts in the area, and our own clinical judgement. As clinicians we need to look at the type of strengthening programs we are prescribing for these children and analyse their impact, so that further research can confirm or deny these findings.

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References
Integrate research results and clinical judgement

Systematic reviews, such as ours, of strengthening interventions for children with cerebral palsy, raise important clinical questions. We would certainly not suggest abandoning the recent interest in strength training in children with cerebral palsy. At the moment, however, the evidence which does exist shows that strengthening is not effective and we have yet to find the most effective method of improving strength in children with cerebral palsy. The trials we reviewed were of moderate to high quality. Therefore, ignoring the results in favour of uncontrolled trials would be unwise. Using evidenced-based practice means integrating individual clinical expertise with the best available external clinical evidence from systematic research (Sackett et al 2000). So how should we use the current information to guide practice?

First, it is useful to examine the characteristics of the participants in the trials. In our review, the participants were independent walkers either with or without aids. This means that they were probably already strong enough to carry out activities. However, we know little about the effect of strengthening with children who are very weak. Therefore, if clinical assessment suggests that a child with cerebral palsy is very weak, clinical judgement will decide whether strengthening specific muscles could be useful.

Second, the intensity of strength training in these trials was not always consistent with accepted recommendations for young adults (American College of Sports Medicine, 2002). Although, the exact intensity of a strengthening intervention for children is not known, it is important that it should be at a high enough level for substantial strength gains to be achieved. If clinical assessment suggests that strengthening in a child with cerebral palsy who is mildly weak could be useful, then at the very least, the intensity and duration of the intervention should be more than was applied in the studies we reviewed.

Systematic reviews offer a snapshot of the evidence at a particular point in time and therefore, raise important issues for future directions. In this case, would strengthening interventions be of more value in weaker participants? And, would studies with higher intensities of strengthening interventions show more effect? If questions raised as a result of our review lead to randomised trials being designed to meet these challenges, then we may see a different result in future meta-analyses.

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References