Peninsula Cerebra Research Unit
PenCRU Childhood Disability Research

What's the Evidence?

Advanced Biomechanical Rehabilitation for children with cerebral palsy and/or learning disability

Key findings

- Advanced Biomechanical Rehabilitation (ABR) is a 'hands-on' manual therapy similar to deep-tissue massage which targets fascia connective tissues around and between muscles.
- ABR involves training parents to treat their children; it requires a significant financial investment and time commitment for the child and family.
- There are no peer-reviewed published studies providing evidence for the effectiveness of ABR. This means that the claims have not been verified by independent assessment.

Published November 2015

What were we asked?

We were asked about the effectiveness of Advanced Biomechanical Rehabilitation (ABR) for children with cerebral palsy and/or learning disability.

What did we do?

First we undertook a general Internet search to learn about ABR, how it is described and potential outcomes to work out search terms. We also contacted ABR Scotland to ask about ongoing research. Then we searched NICE, Cochrane, PubMed and TRIP databases for research studies evaluating the effectiveness of ABR.

What did we find?

What is Advanced Biomechanical Rehabilitation?

ABR was previously called Advance Neuromotor Rehabilitation until 2002. ABR is a 'hands-on' manual therapy that is similar to deep-tissue massage. It focuses on fascia; a type of connective tissue found around and between muscles.

Children with cerebral palsy commonly have altered muscle structure affecting how they function. This can mean their muscles are often weaker and tighter than other children.

ABR claims to 'stimulate' fascia by applying a repetitive motion using a tool called a Pneumatic Lens™. This is a dome shaped hand-held device made from soft fabrics.

The therapy is suggested to improve motor functions (e.g. head/trunk control, sitting, crawling, walking) by improving skeletal alignment, muscle tone and mass, particularly in the chest, abdomen and pelvis.[1]

Parents are trained to deliver the therapy and the child is a passive recipient. Children are treated for 20 hours a week (each treatment is usually an hour).

Following an individual assessment of a child, their parents attend 4 half-days of training and the child attends two of these sessions. The family are then offered ongoing assessments and supervision by attending an ABR centre. From the websites we looked at, it is not clear

what qualifications providers of ABR have to undertake these assessments.

In Scotland, an annual assessment and three training sessions in a year cost £5,300.[2] ABR is not provided by the NHS so is an 'alternative therapy'. As it is provided privately, the costs will need to be met by families.

"ABR does not support using splints or any 'deformation-correcting' device, since their approach is no forceful intervention, no harm to the anyhow already weakened CP body, but adding and giving him what he needs in a peaceful way"[3].

It is difficult to tell the difference between ABR and other manual therapies which focus on fascia tissue, such as Myofascial Structural Integration (MSI/Rolfing). The many different terms and descriptions for manual therapies make it difficult to search for and compare the evidence.

What does the evidence tell us?

- We did not find any research studies that have evaluated the effectiveness of ABR for children with cerebral palsy and/or learning disability.
- The ABR Scotland website refers to initial results from a study finishing in 2012 [4] but we didn't find these results published in a peer-reviewed journal.
- ABR websites offer testimonials from families who have seen positive results but the results might be dissimilar or even opposite for another child.
- A Norwegian study considered the cost-effectiveness of four therapies including ABR. A high drop-out rate was found which the authors suggest is likely to be due to the intensity which can be exhausting for families, with many not finding any outcomes achieved worth the effort. However, only 1 of 14 patients received ABR in this study[5].

What do we think?

- The claim that ABR improves motor functions is unproven by research to date.
- The lack of support for using splints and orthotics in the ABR approach appears to be a philosophical stance. Families need to be cautious starting or stopping any therapy which is contrary to medical advice.
- Controlled studies with adequate sample sizes are needed to determine effects and clarify the characteristics of children who might benefit.
- ABR requires a substantial financial investment and time commitment from the child and the families.

Signposts to other information

- The National Center for Complementary and Integrative Health (NCCIH) in the USA have a guide regarding Children and Complementary Health Approaches: https://nccih.nih.gov/health/children
- Scope have a list of questions to ask before starting a therapy: http://www.scope.org.uk/support/families/therapies/faqs
- For information on treatments for cerebral palsy: http://www.nhs.uk/Conditions/Cerebral-palsy/Pages/Treatment.aspx

We would like to hear your feedback on this summary – please email us at pencru@exeter.ac.uk if you have any comments or questions.

Published November 2015

References

1. Advanced Bio-mechanical Rehabilitation website [last accessed Aug 2015) http://www.blyum.com/ABR_objective.html

2. ABR Scotland website [last accessed Aug 2015]: http://www.abrscotland.com/Pages/Fees2014.aspx

3. Sommer, K.M (2010). Advanced Biomechanical Rehabilitation. Thesis for International Physiotherapy Program (Netherlands). p 57. Available here.

4. ABR Scotland website [last accessed June 2015]: http://www.abrscotland.com/Pages/ForProfessionals.aspx

5. Norum et al. (2012). Brain Damage Treated with Non Proven Intensive Training 2003 – 2011: A Norwegian Cost Analysis. Global Journal of Health Science 4 (6) 179–184.

Published November 2015 ©PenCRU 2015