Study Water and Cerebral Palsy Handout

Effects of a movement and swimming program on vital capacity and water orientation skills of children with cerebral palsy.

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Research comparing water training and land training involving children is appearing in the literature. In a previous CALA article, we reported on the comparison of bone development between children who are soccer players and those who are swimmers; the comparison was favourable for both groups. Recent research in a controlled study with children who suffer from cerebral palsy showed that vital capacity in a swimming group improved by more three times that of the improvement in a traditional therapy group.

Abstract

Swimming and aquatic exercise are known for their effects on respiration in normal and asthmatic people. The purpose of the present study was to evaluate the effect of a 6-month movement and swimming program on the respiratory function and water orientation skills of children with cerebral palsy (CP). Forty-six kindergarten children aged 5 to 7 years were assigned either to a treatment or control group. The intervention program consisted of swimming sessions twice weekly and sessions of group physical activity in a gym once weekly, each session lasting 30 minutes, for a period of 6 months. Children in the control group were treated (30 minutes, 4 days per week) with 'Bobath' physical therapy. With specific handling in 'Bobath' therapy, the muscles can be educated into more useful patterns of movement, patterns that the child may never have experienced before. Through 'Bobath therapy a child can learn how to move more functionally, become more co-coordinated and overcome postural problems. This enables both the child and the family to experience a better quality of life.

The children in the treatment and control groups had comparable disability types, age, and anthropometric measurements. A '2×2 (group × test period) repeated measures ANOVA design' confirmed a significant effect of interaction of time with group. The results also confirmed that children with CP have reduced lung function compared with normative data for children in the same age category. The treatment program improved baseline vital capacity results by 65%, while children in the control group improved by only 23%. The movement and swimming exercise program had a better effect than a physical therapy routine implemented in a previous study, consisting of respiratory exercise alone.

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Comment

It seems that some doctors and other members of the medical and rehab establishment still need to be educated on the efficacy of water therapy. The research resulting from the types of study described previously will to inform and educate members of the health profession.

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More Research is Needed!

Of course, one of the reasons that the medical community has a skeptical view of aqua therapy is the lack of supporting scientific studies. In a study by the same author referred to above, he found very limited work in the area. In one study to determine the effectiveness of aquatic interventions in children with neuromotor impairments, he found limited work was accomplished in the previous 30 years. The study was designed as a search of electronic databases between 1966 and January 2005 using the following keywords: 'hydrotherapy', 'aquatic therapy', 'water exercise', 'aquatics', 'adapted aquatics', 'aquatic exercise' and 'swimming'.

Eleven of the 173 articles that were retrieved met the inclusion criteria: one randomized control trial, two quasi-experimental studies, one cohort study, two case control studies and five case reports. Seven articles reported improvement in body functions, and seven articles reported improvement in activity level. Two of the four articles that investigated outcome measures regarding participation described positive effects while the findings of the other two revealed no change. None of the articles reported negative effects due to aquatic interventions.

Conclusion:

According to this review, there is a substantial lack of evidence-based research evaluating the specific effects of aquatic interventions in this population.

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