

# Aquatic Consulting & Education Resource Services



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## Brain Gym: Concept, Trademark, Treatment Modality

“The brain is like a muscle. When you use it, it grows and our mind produces results. As you develop your mental capabilities, you learn things more easily. When you first use a muscle that hasn’t been exercised much, it gets sore. But, if you keep doing your exercises, it adapts and gets stronger. This also applies to the brain” (Bylth, 2002, p. 7)

While the brain is not actually made up of muscle tissue, the concepts of using your brain in order to develop it further, as well as to maintain neurological health and wellness, are the increasingly coming to the fore. From seniors striving to maintain mental faculties as they age to children attempting to master the alphabet, everyone would like to maximize their cognitive abilities. For an individual who must overcome the affects of a cerebral vascular accident (CVA), a child who has cognitive delays, or a person who is in rehabilitation for traumatic brain injury, optimizing cognitive function is a goal. Combine these goals with the view of the brain having characteristics of a muscle needing movement, physical activity, and exercise to actualize these goals and brain gym results.

### The Concept

The concept of brain gym, in brief, is that movement, physical activity, and exercise can have a direct positive affect on cognitive function. The brain literally goes to the gym, along with the body. Physical tasks, combined with cognitive challenges combine to provide the workout. This workout has the potential to improve cognitive function, which, in turn, improves all of the functions under control of the brain.

Can we look into the brain and say for certain exactly what situations will change brain tissue and thus enhance learning? Of course not. There are too many variables involved in the learning process – environment, genetics, attitudes, learning capacity, curriculum delivery, nutrition, motivation, physical endowment – to name just a few. In addition, the usual time to analyze actual brain tissue is post mortem. However, numerous individuals are analyzing effects of movement on cognitive development.

Caterino and Polak (reported in Jensen, 2000) found mental focus and concentration levels in young children improved significantly after engaging in structured physical activity. On the opposite end of the age spectrum, Lautenschlager (et al. 2008) found physical activity can reduce risk of cognitive decline among older people. Within the research protocol used in this study was aquatic activity. No matter what the age group, the effects of physical activity on cognitive function are areas of study where positive results are the norm.

Movement, physical activity, and exercise all cause a variety of physiological responses that affect the central nervous system. Repeating specific movements, attending to solving problems and correcting errors, and being motivated to have positive results from deep practice all enhance learning. Add to this a coach (or teacher or therapist) capable of identifying critical components of a motor skill and the blueprint for optimal performance, which in turn affects the myelin structure of the nervous system, results. Increased layering of myelin increases performance. (Coyle (2009).

Brain gym application means enrichment of any activity environment to include participation in large muscle activities specifically designed to call into play problem solving, cognitive engagement, memory, recognition, repetition, intrinsic motivation, and stimulation. These activities are structured and supported by a facilitator who can identify critical components, and help the participant maintain positive engagement in the face of temporary learning barriers. The concept of brain gym includes all aspects of child play, even that on the playground (Hendy, 2000), as well as adult movement experiences.

Terms associated with the concept of brain gym include neuroplasticity, neurogenesis, sensory motor learning, kinesthetic learning.

Look for associated literature in the fields of motor development, physical education, physical fitness, vision, and psychology.

### The Trademark

Brain Gym® is a popular commercial program claiming that adherence to its regimen will result in more efficient learning in an almost miraculous manner. Brain Gym® originated in the 1970's with Paul and Gail Dennison working on ways to help learning disabled children and adults. Their field of study is named educational kinesiology (Edu-K), and they feel it is a form of applied kinesiology.

The program is based on the premise that all learning begins with movement and that any learning challenges can be overcome by finding the right movements, the performance of which will subsequently create new pathways in the brain. The Brain Gym® program centers around 26 movements or exercises designed to integrate body and mind. This integration is achieved by establishing interconnections in the anatomical, physiological, and neurological domains (Wikipedia, 2009). More specifically, the activities are designed to activate various parts of the brain by mimicking activities performed by infants and toddlers to achieve brain development and integration. (Mindandbodycoach, 2009).

Brain Gym® is a registered trademark of Brain Gym International/Educational Kinesiology Foundation, Ventura CA. Their website is at [www.braingym.org](http://www.braingym.org).

While there is great deal of easily accessed research justification for movement being used to contribute to learning, physical fitness, social development, and psychological well-being, scientific evidence regarding the validity of the claims made by the proponents of Brain Gym® is not present (Hyatt, 2007, Hyatt, Stephenson, & Darter, 2009). Hyatt further warns professionals to be informed consumers of research and to avoid implementing programming for which there is neither a credible theoretical nor a sound research basis.

Terms associated with the trademark Brain Gym® include educational kinesiology, Edu-K, applied kinesiology, mind-body activities, facilitated processes, re-patterning

Look for associated literature in the fields of physiology, neuroscience

### The Treatment Modality

No single treatment protocol can guarantee a positive outcome. While it might be an easy path to implement a single, repetitious therapeutic program, such a program most likely will not generate the overall positive results that a varietal program can generate. The concept of brain gym – using a wide variety of movement experiences to improve mental functioning is sound. It allows for customizing the activities to the specific abilities and needs of the individual. On the other hand, Brain Gym® is a very specific program of activities, deviation from which can be blamed (falsely) for lack of progress. Such a program, based on the same program for everyone concept, may have potential for the specific individual who fits the narrow profile where those activities would be of benefit no matter what the implementation, but will have little value as a sole treatment protocol.

When planning any treatment program, seeking activities from a variety of sources is key. The concept of brain gym can contribute to any broad treatment scope. Activities from Brain Gym® can also be incorporated for successful result. For example, if the treatment protocol goal is to improve reciprocal gait, performing aquatic exercise activities which pair opposite arm and leg use (right elbow to left knee, left elbow to right knee) assist in establishing oppositional arm and leg action. Walking a poly trail with the right foot stepping on the red spots while the left wrist (wearing a red wrist band) reaches forward helps make that same reciprocal connection. From Brain Gym® the cross crawl activity can be adapted to climbing an imaginary tree (calling in to play the creative imagination), raising the right hand/arm while lifting the left knee as one “climbs” an imaginary tree or ladder.

It is the challenge for the professional in aquatics to acquire a repertoire of many different activities that can serve a variety of purposes. A therapeutic treatment modality should provide problems for the participant to solve, connections for the participant to make, and knowledge and skills to re-affirm. Just as there are a variety of activities that can be done under the heading of “gym”, so are there a variety of

activities that can be appropriate treatment in the aquatic environment. Engagement of the brain through whatever means possible optimizes treatment results. Make the aquatic experiences for your clients more significant by making your pool a brain gym.

## Resources

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(Includes a 25 item bibliography.)