

AQUATIC KIDS' CORE

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Kids' Core is an aquatic program originally designed for school age children who exhibit poor endurance during classroom activities, fatigues quickly, avoids playing large motor games, organized games or sports and has difficulty playing on playground equipment.

With limited core stability, posture is compromised. Poor handwriting, scissor skills and object manipulation may be noted. Imitation of rhythm patterns and movement are evident. Overall, children who lack strength, endurance and flexibility have difficulty maintaining an alert state during the school day and may not be able to fully participate in classroom and home activities.

The Kids' Core program now includes activities for early childhood classes (3-5 year olds). The preschooler program is based on developmental milestones. For example, prepubescent children who participate in strength training do not gain muscle bulk; instead are developing myelination of nerve fibers.

Core training programs consist of strength, endurance, and flexibility. Kids' Core adds rhythm and music to the program as both are naturally occurring in the environment and are important to development of gross and fine motor skills.

STRENGTH TRAINING

Beyond developing muscle, developing muscle strength supports ligament growth and bone density. Strength training promotes improved mental health, socialization and self esteem. It promotes processing of proprioceptive information received from muscle actions. It leads to improved motor control and overall fitness.

When planning activities, tasks can use hydrodynamic principles of buoyancy, speed, frontal surface of levers or assistive equipment such as gloves, braided sponges, noodles, kickboards or paddles.

For school age and older, a sample of activities includes: Push up/down, in/ out, side to side, all push ups, noodle races using breast stroke arms only, kicking only, tug of war, survival camp (rope "walk", rescues using ropes). For younger children, activities can be modified to include games and music. Pretend play ("strong man" imitating weight lifting) encourages the child to "work" on developing strength.

ENDURANCE TRAINING

Endurance is the ability to stay alert and active throughout the day; at work, school or home.

Being able to stay engaged in activity improves an individual's quality of life. Being engaged is necessary at any point in life. For example, for youth, it is important to fully participate in academic function and at play or in athletics; for adults, working 8-10 hours a day and engaging in leisure activities like golf, swimming, ball sports; and for seniors volunteering, working, maintaining the home, exercising and sports. Developing healthy engagement in endurance training in young children establishes good habits for the future.

Purpose: Improve participation in life. Examples of developing endurance would be tracking the amount of time engaged in an activity such as bike riding or walking and gradually increasing time or with exercises, increasing repetitions over time. In the water, increasing walk time or changing the depth of water that tasks are performed helps increase endurance.

FLEXIBILITY TRAINING

Regardless of age, flexibility increases mobility. Many factors influence flexibility. For example, joint structure, age and gender, connective tissue, muscle bulk, proprioceptors, health, and injury. Flexibility can be achieved through stretching. Dynamic stretch is the most appropriate for young children, static stretches should be avoided.

Exercises that are designed for coordination and movement as well as active engagement in daily activities like reaching for toys, hygiene and grooming benefit very young children (10 and under). Flexibility training during the teen years can focus on postural changes affecting hips, lower back, hamstrings, shoulders, scapula. Injury during sports or reduced movement due to sudden physical changes may also occur. Beyond mid teens, flexibility training may focus on sport specific training. Use of dynamic stretching before sports or exercise routines may assist in reducing injury. Dynamic stretches can be easily incorporated into the school day during recess or study breaks and by engaging in home activities like playing Twister, Wii games. Static stretches can be included in programming for older children but only when muscles are warm.

In the pool, flexibility exercise include dynamic stretches using noodles, swimming for toys while on kickboard or noodle, using Yoga, Pilates or Ai Chi. Fun deck activities can incorporate Yoga, songs or games ("Simon Says", "Head Shoulders, Knees, Toes", practicing arm strokes for swimming.

SENSORY

The foundation of all motor, language, social, cognitive development is the ability to process sensory information. Without a solid foundation, higher levels of function are difficult to achieve. The sensory systems that have a strong influence on development are

The vestibular system, working in harmony with the auditory and visual system affects balance and position in space. Movement and balance, auditory/language processing, muscle tone, bilateral integration, motor planning, emotional security, gravitational security, visual spatial perception, head position are controlled by the vestibular system

The proprioceptive system Is stimulated by active movement and muscle stretch and affects body awareness, motor control and motor planning, graded movement, postural stability, emotional security. It works closely with the vestibular system through active movement. Perception of active extensor movement contributes the most information. It also works closely

with the tactile system. When the two systems work together, it is referred to as *somatosensory processing*

The tactile system functions are for protection and discrimination. Stimulation comes from touch on the surface of the skin; light touch stimulates a protective response in infancy and as the system matures, its function is more discriminatory. Deep pressure input affects body awareness, motor planning, emotional security, social skills, gross motor (positional activities, movement within the environment), fine motor (use of small muscles of the hands, fingers, tongue, lips, mouth, toes., manipulation of materials, language (Articulation) and academic learning.

A few examples of ways to incorporate sensory in aquatics are: Vestibular: walking in all directions, floating prone or supine, bouncing in vertical or sitting. Proprioceptive: Playing toss with a heavy ball, changing speed of motion to increase turbulence/resistance, entering at the deck edge by rolling prone and sliding into the water, doing seated push ups at deck edge
Tactile: Using the shower to get suit wet, “painting” the pool walls or extremities with a paint brush, roller or sponges, playing with texture balls.

RHYTHM

Rhythm adds smoothness and efficiency to movement.. Our daily lives follow a rhythm including dressing, eating, sleeping, moving around the house, community and work places
Skilled athletes demonstrate high levels of rhythm and are often required to participate in music and dance classes to improve rhythm and balance. Two of the most highly rhythmic activities are music and language.

The development of rhythm

Begins in infancy with parents bouncing, jiggling and moving children in rhythmical patterns. This provides sensory input and begins to regulate systems. Simple games like patty cake and itsy bitsy spider build timing circuits and as a child grows games such as jump rope, hop scotch, bouncing on beds/furniture further increases rhythm development In teen years and beyond, dancing, athletics, playing a musical instrument, horse riding and swimming all promote rhythmic development. Rhythm is around us, about us and guides our daily lives.

Rhythm activities on deck may include repeating simple to complex rhythm patterns using hands, feet, containers, mats or whatever is available. In the pool practicing the rhythm of breathing, flutter kicking, arm strokes like front crawl and breast stroke, bobbing, splashing, clapping, marching, jogging.

In addition, to the activities mentioned, recognized aquatic techniques may be incorporated into Kids’ Core programs:

BURDENKO

Uses mind body connection, **Promotes** thinking and moving in an assisted environment which creates movement challenges. Buoyancy immediately challenges balance

Children under the age of 5 are not appropriate because of not understanding cause and effect or the mind/body connection

Unpredictable command technique (UCT)

Developed by David Ogden

Offers a series of commands for movement of extremities and moving about the pool.

Challenges the brain to process requests quickly and recruit muscles appropriately to carry out the request.

Encourages mental “sharpness”, muscle responses, attention to task, directionality, bilateral integration

Ai Chi/Ai Chi Ne/Ai Chi in 3

Is a series of movements which promote flexibility, balance, coordination, strength, and relaxation.

Encourages deep breathing (diaphragmatic) to increase relaxation, deliver increased oxygen to the muscles, and organs

Uses ambient music to establish a calm environment. Ai Chi 3, ambient music in ¾ time to promote larger range, increased speed of movement, movements flow. Ai Chi Ne (pairs):

Encourages rhythm, balance, core stability, sensory, social interaction

BackHab

Basic concepts and exercises can be incorporated into a pediatric program to: Improve core stability, improve awareness of position in space, improve bilateral alternating or reciprocal movement patterns.

Yoga and Pilates

Land based yoga and Pilates positions are adapted for the aquatic environment.

Both promote flexibility, strength, balance, coordination, core strength.

Pilates moves require activation of core muscles and proper body alignment for strengthening, flexibility, balance, coordination.

Yoga incorporates both dynamic and static stretch for strengthening, flexibility, balance and coordination.

Core training applies to any age group at any time. Kids’ Core establishes a foundation for children to explore movement and develop healthy exercise habits and promote more active participation in life activities. For more information about Kids’ Core, at rkmetz@frontier.com.

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