

# Neuromuscular Conditioning

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Mounting research shows that physical exercise is vital for the brain's neuromuscular functions and may even cause permanent structural changes to the brain. To some degree, our movements represent our physical strengths as well as our limitations, thus our movements and body language can also forecast an emotional state.

When we move, some muscles must contract while others relax. This happens automatically. The central and peripheral neurological systems drive movement command through sensory and reflex behavior. The sensory system takes in information as the body moves through space; changes position, posture, speed; and responds to gravity and different forms of tactile feedback. The motor system creates and controls tension in stabilizing and moving muscles. It responds to sensory feedback with gross or fine motor control.

So many of the injuries that occur as we age are the direct result of falls and other balance related difficulties. The Neuro-Muscular Conditioning Program improves vestibular control, balance, coordination and agility. Balance (the sensing of gravity), coordination (the harmonious functioning of muscles or groups of muscles during the execution of movements), agility (the ability of the joints to move through a full range of motion with quickness) are relayed on by the brain as a baseline calibration point. It's also excellent at improving more complex cognitive processes generally. One of the main reasons people over the age of 60 visit a doctor is because of balance related issues.

In my view, as a physical and health educator, Health-Fitness Education is one of the most important educational subjects to influence, maintain and improve people's (any age) physical, emotional and learning abilities (Experience your body the way it is meant to be). Consistent programs use leads to better cognitive functioning which tends to decline as we age.

As a part of my doctoral thesis, I developed an educational method called the SykorovaSynchro Method. The core of this method is to apply the neurological rule: "The less muscular effort, the more enhanced sensory awareness is for learning and for physical performance."

The purpose of the SykorovaSynchro Method is to structure an exercise program with the use of sensory integration/ mental imagery, somatic movement, and awareness exercises to enhance communication between the brain and the rest of the body. It helps to achieve positive changes in one's life - a new sense of self awareness and control, stress reduction, revitalization of energy flow, postural alignment and flexibility, circulation, sensory-motor learning ability and creativity.

Exercise in many different forms, whether it is calisthenics, stretching, walking, weight resistance, and swimming or cycling, is known as the most important part of the treatment

and healing regimen for chronic pain and fights its debilitating effects in important ways. The water's natural resistance and buoyancy creates a comfortable environment for functional exercises to improve buoyancy, balance and motor control.

### 1. Water Exercises to improve and maintain balance

By definition balance is a state of equilibrium or equipoise; equal distribution of weight, amount, etc. Components of water exercise have this therapeutic progression for balance improvement and maintenance:

- Equilibrium: orientation to the vertical position via nerve signals from the inner ear
- Body alignment: a kinesthetic sense of how body segments are linked
- Pelvic stability: a consistent pelvic angle during activity
- Coordination between the upper or lower body: an interval awareness of their relationship
- Muscle tone: the use of muscles to accomplish all of the above components with the least amount of effort

### 2. Water Exercises to achieve coordination.

The physiological definition of coordination is the harmonious functioning of muscles or groups of muscles during the execution of movements. Coordination is also the capacity of the human organism for rhythm and interconnection. Lack of coordination creates tension leading to a cycle of activation-relaxation being replaced by high activation-low activation. Uncoordinated people are tense. Water resistance slows down the movement and increases reaction time, which will give time within the exercise to relax specific muscles. Coordination is the practice of effort and relaxation at the same time.

### 3. Water Exercises to achieve agility.

A person's flexibility and speed refers to the ability of the joints to move through a full range of motion with quickness. Having muscular flexibility allows for more movement around the joints, which are a great way to increase agility and keep the body protected from injury.

Aquatic programs that follow integration of mental and physical exercises will help stabilize and harmonize emotional, social, physiological, spiritual and intellectual aspects of health. Additionally, these programs will enhance body awareness through somatic exercises, breathing techniques, slow passive stretches and easy movements, such as Ai-Chi, aqua yoga, aqua Pilates, which will enhance your chances of aging productively and gracefully.

Resources:

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