

Brain and Body Health

Our nervous system has primarily two functions: one is to receive information and the other is to transmit it. The information comes into the brain through activation of specific receptors often referred to as the senses: vision, hearing, taste, temperature, chemical changes, mechanoreceptor, (motion, stretch, or touch receptors). The touch receptors are found in the skin in the underlying fascii, in the muscles in the form of muscle spindle receptors, and in the joints of the spine. Exercise is important in maintaining the activation of the central nervous system through the stimulation of specific movement receptors. ^{iiiiiiivv} Research into what excites and activates the brain shows that 90% is from the accumulation of movement receptor stimulation. It is helpful when the exercises chosen are pleasant, enjoyable, and effective. It is good to create and experience novel exercises. Changing the exercise program on a regular basis is essential. Ideally, one would change their program routine of repetitions on a monthly basis.

To maintain a lean strong muscle it must be contracted. An important fact is that the half life of muscle protein is 6-10 days. Muscle protein is what makes up the elements associated with the contracting of the muscle. When the muscle protein is reabsorbed due to inactivity, the muscles become weaker, smaller, and less effective. This places more load on the tendons and ligaments and other supportive structures associated with the joints. Unfortunately, this leads to more frequent injuries.

Since this muscle protein has a half life of 6-10 days, inactivity or a significant reduction in the movement in the joint for 6-10 days results in a reduction of half of the protein in that muscle. Hence, when there is inactivity, or a lack of motion, there will follow a significant reduction in the strength of that muscle, physical capacity, beauty (in the appearance of a fit shape), and maintenance of lean tissue in the form of muscle.

Muscle requires a significant amount of energy in the form of calories to not only grow but to also be maintained. Each pound of muscle requires 100 calories a day for its maintenance. This is useful information in that if an individual gained five pounds of muscle through resistance strength training, they would increase the metabolic requirements to 500 calories per day. Five hundred calories per day, 7 days per week, equals 3,500 calories which is equal to 1 pound of fat being burned per week as a consequence to the additional muscle. This is significant when comparing calories burned when running a mile. For most individuals, running a mile burns 100 calories. Therefore, they would require 35 miles of running to burn up 3,500 calories or a pound of fat. This demonstrates how efficient and effective we are with burning fat when performing aerobic exercise. We get “good mileage” from our fat. Most people may walk a mile and burn up 80 calories. It would take about 41 miles to burn up 3,500 calories or a pound of fat with walking. Therefore, we are **most effective at fat loss by increasing lean mass** with resistance strength training.

To be fair, after exercising for 30 minutes there is a 2-hour post exercise increased metabolic rate, such that 2 hours after a 30-minute work-out is approximately 2 hours of increased activity and burning 25% more calories. Therefore, the combination of resistance strength training to build muscle and a reasonable aerobic program for increasing metabolic activity would be useful for maintaining cardiovascular health and a lean form. Too many neglect to take advantage of this muscle building benefit. The best exercises for over strength include: Bench Press, Squats, and Dead Lifts.

Incorporating exercises that integrate central neurological activity will further enhance exercise benefits. These exercises should include cross-crawls, cervical extension, special eye exercises, and balance exercises, which promote intrinsic spinal muscle activity.

Another benefit to exercise is cancer prevention. Studies indicate that women, who average 3 hours of exercise per week, reduced their risk of breast cancer by 30%. Women who exercised 4 hours per week, reduced their risk of breast cancer by 60%. Men who exercised by walking 5 miles per week reduced all cancer by 50%. That would be inclusive of prostate cancer.

Therefore, the combination of aerobic activity and resistance strength training are essential components to fitness. The benefits are: maintenance of lean tissue for purposes of maintaining good core stability, and activation of mechanoreceptor populations to stimulate greater brain function.

Since 90% of the brain is activated by movement receptor input and the greatest concentration of mechanoreceptors are associated with spinal motions, activities which promote greater spinal mobility, are essential. Also, since the paraspinal muscles are richly populated with muscle spindle afferents and muscle protein, activities which would promote greater spinal mobility and spinal muscle activity, would promote greater levels of activation of movement receptors.^{viviiviiiix}

Recent studies on brain activity have shown that the brain releases Brain-Derived Growth Factors (BDGF) when presented with novel stimuli and novel activities. Therefore, for most efficient results for a healthy brain, back and body, it is important to incorporate a fitness routine that includes: resistive strength training exercises that are novel, that engage spinal muscles to a high degree, that incorporate postural and balancing activities, and that are relatively fun and enjoyable. Incorporating these aspects with exercise will result in better shape, better stamina, stronger bones, more muscle tissue for strength capacities and calorie consumption. This will provide greater brain activation through the stimulation of mechanoreceptor populations, activation of higher brain centers, and thus a greater sense of well-being through the release of neurotransmitters, and endogenous or naturally found opiates.^x

Seek out interesting new resistance strength training neurologically integrating exercises. Implement consistent caloric restriction practices. Use exercise programs that incorporate cervical

extension, cross-crawl patterning, use of weights, exercise bands, exercise balls for core stabilization, muscle growth and improved balancing activities. You can then expect better thinking with a leaner brain and body.

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Increase Brain Neuroplasticity

For Balance and Fall Prevention

The Brain Back Body Exercise Program

The Brain Back Body DVD Program is a combination of specific Neuro integration exercises combined with traditional strength building protocols. The Brain Back Body DVD Exercise program was designed to increase Brain Neuroplasticity, Core spinal strength, and overall body

conditioning. In an article in the March 26, 2009 Wall Street Journal about "Brain Gyms" and neuroplasticity, the demand for "scientific-based brain-fitness workouts" was evident by the following : “ Consumers spent more than 80 million in 2008 on mental fitness.” We have been at this for decades but as you will read some call it "new".

"The industry pins its claims for brain exercise on a relatively new scientific discovery: neuroplasticity, the brain's ability to rewire itself throughout life by creating neural connections in response to mental activity."....." ...bulking up the brain, what brain scientists refer to as "cognitive reserve". The theory: People engaged in greater degrees of mental stimulation increase their brain mass and neural pathways, protecting them if a brain injury or dementia starts chipping away at brain connections."

The Brain Back Body Exercise Program creates a real “Brain Gym” in the privacy of your home. This program increases brain health by **activating the main pathways into the brain**. Three exercise chapters are divided to focus on specific brain and body areas:

Chest and Shoulders(Bench Press),

Arms and Back (Dead Lifts),

and Legs(Front Squat)

Each Chapter begins with a unique pattern of neuro integrative warm-up exercises (body swivels, eye exercises-pursuits, VOR, fixations, vergence, and saccades, cross crawls, neck and core against small ball) that are followed by resistance strength training procedures using exercise bands, and balls to increase neck and back strength, for Core strength, stability, and balance. The program objectives are to increase activation of the parts of the brain that control the spinal muscles (midline cerebellum) and for increasing the health of the cerebrum (increased frequency of firing of higher brain centers) for enhanced cognition, increased neuroplasticity, and postural control. The program will assist with muscle growth. This results in smoother motions, a better appearance, and improved thinking.

Brain Back Body DVD Program Package INCLUDES:

- The Brain Back Body DVD
- Small Neck extension Ball
- FitBALL® Light Exercise & Extra Heavy Exercise Bands

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