

A 5-STEP GUIDE TO BRAIN-BASED PROGRAMMING FOR PERSONAL TRAINERS



WHY NEUROLOGY?

Have you ever noticed how increasing knowledge completely changes how we view things? Gait for example; before I understood how joints and muscles were supposed to load in gait, I would only see a body walking away from me! Once I'd studied biomechanics, walking became a treasure chest of information.

Well, the same (and more!) can be said for understanding the integration of brain and body. Once you have the knowledge, no movement, exercise or health-based advice you give will ever be the same

In this 5 Step Guide, you will learn how you can cater an exercise programme specifically to benefit multiple layers of the brain and nervous system, and considering it's running the show in all of us, this is essential knowledge to have!

1 STEADY STATE CARDIO

That's right, Cardio! Memory and cognitive function are the saviours of steady state cardio. We know it sucks for fat loss, but low-intensity cardio (50-75% Max HR/VO2max) for 30- 60mins 3 x week, has been shown to improve the size and connectivity of the Hippocampus and Frontal cortex, even in the ageing population. That means better memory, decision making and problem-solving in general.



Kirk I. Erickson, a Michelle W. Voss. Exercise training increases size of hippocampus and improves memory. Proc Natl Acad Sci U S A. 2011 Feb 15; 108(7): 3017–3022.

Sandra B. Chapman, Sina Aslan. Shorter-term aerobic exercise improves brain, cognition, and cardiovascular fitness in ageing. Front Aging Neurosci. 2013; 5: 75



2 VESTIBULAR STIMULATION

The Vestibular system is the connection between your brain and inner ear which drives your autonomic nervous system, provides the sense of balance and is intrinsically coupled to spinal posture.

It's one of the top three most influential systems in the entire brain! We can stimulate it with rolling patterns, level changes balance challenges, and when we do, we increase the ability of our extensor chain to contract.

Integrate this pattern into any regular training warm up, especially if you are focusing on the extensor chain or postural work. Don't do too many reps as you could feel sick in the process!

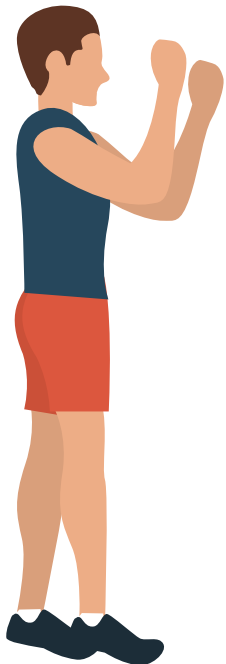
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ISOLATED COMPLEX MOVEMENTS

The proximal joints of the body (shoulders and hips primarily) have a special connection with a part of the brain known as the Cerebellum. This guy governs the rate, rhythm, force, and accuracy of movement and is even involved with the modulation of thought, emotions the gastrointestinal and endocrine (hormonal) systems.

We can target the Cerebellum by practicing novel, complicated patterns at the proximal joints. This will improve ROM, muscle facilitation and motor control.

Integrate this drill in-between sets of any upper body strength training movement to improve performance.



HOW TO PERFORM:

Take your arm out in front of you. Lock the elbow, and with a loose fist draw a figure 8 in the air in front of you. Focus on slow, smooth movement. You can then increase the complexity by changing where the arm is, moving the shoulder through any pain-free range that it has available. This drill can be performed on practically any joint, but the shoulders and the hips are the most impactful.

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GROSS COMPLEX MOVEMENT

Complex movement patterns require much higher involvement of the nervous system. The more coordination and novelty involved in a movement pattern, the more your brain has to pay attention and learn. Over time this leads to stronger and denser connections between the Cerebellum and Frontal cortex, which means you have a more highly integrated brain!

Crawling patterns are a great starting place for incorporating complex movement.

That's called Neural Plasticity.

Complex patterns increase proprioceptive input to the brain and output from the brain which makes you a better mover. Integrate this pattern into a warm-up or as a superset for any other movement you like.



Kleim JA, et al. Motor learning induces astrocytic hypertrophy in the cerebellar cortex. Journal Behav Brain Res. 2007 Mar 28;178(2):244-9. Epub 2007 Jan 25.

Kleim JA, et al. Synaptogenesis and Fos expression in the motor cortex of the adult rat after motor skill learning. J Neurosci. 1996 Jul 15;16(14):4529-35.

5 BRAIN TRAINING

(SHARPENED RHOMBERGS AND PERIPHERAL TAPS)



Ok, so here we go, this is tapping into the mainframe! Your eyes are a physical extension of the brain itself. When we include visual stimuli, we can generate rapid and dramatic changes in function.

In this drill, we incorporate a balance challenge (vestibular system and proprioceptive goodness) with a peripheral vision task. This provides a strong stimulus to the Brainstem, Occipital, and Parietal cortex.

Including this drill as part of a warm-up will switch the brain and body on for motor learning/training tasks. You can also expect a general increase in ROM and improved muscle facilitation!

HOW TO PERFORM:

Stand with one foot in front of the other, the heel of the front foot touching the toe of the back foot. Make sure the feet are directly in line with each other in a straight line. From here the client fixes their gaze on a target that is directly in front of them and is across the other side of the room. The trainer will start to give the client targets to touch with their finger in their peripheral field of vision. The client must not move their eyes from the central target.

SUMMARY

This guide gives you a taste of the sort of knowledge that changes how you see the body, movement, and health forever.

However, the real magic comes from the accuracy of application, and that comes from assessment. The vast majority of people have some asymmetry in the brain's control of the body.

Knowing which tissue and neurophysiological systems require 'Calibration' is the key to incredible and often instantaneous changes in the body, and that's what AMN Practitioners are trained to do.

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