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Interactive Metronome (IM)

Summary: Interactive Metronome® (IM) is a therapeutic brain training program that helps people with timing, attention, impulse control, coordination and regulation. Interestingly enough, it can help with other conditions such as attention deficit hyperactivity disorder (ADHD).

What is Interactive Metronome (IM)?

Interactive Metronome® (IM) is a therapeutic brain training program that helps people improve core, foundational brain skills such as timing, attention, impulse control, coordination and regulation. When these foundational brain skills are addressed, it can help a range of other conditions as well, such as attention deficit hyperactivity disorder (ADHD).

Classic Activities that Help with Brain Development

It is interesting that in most societies, there are various activities that are done with children when younger, as well as activities that are done as part of regular societal rituals.
Ask any early childhood educator (ECE), and they can tell you the importance of activities such as:

- Singing,
- Dancing,
- Clapping,
- Drumming.

Interestingly enough, recent studies show drumming may be helpful in building key foundational brain skills as well. A study (the aptly named Clem Burke Drumming Project) showed that drumming 90 minutes per week (over 2-months) helps adolescents with autism spectrum disorder (ASD) improve their attention deficit and hyperactivity as well as impulse control (Clem Burke, 2022).
The challenge however with activities such as drumming, is that it requires sufficient motor coordination.
The advantage of IM is that it can teach sequencing, even if motor coordination is a challenge.
Learning to be able to do movements in a particular sequence (aka sequenced motor movements) is a foundational skill, which thus helps with later, subsequent aspects of brain development.

How Can Sequenced Movements Help with So Many Things?

When building a house, one starts with the foundation, then the walls, then the roof.

When building a brain, one similarly starts with the

1. Sensory /motor development, then
2. Language, then
3. Higher cognitive functions.

In this way, motor development (such as sequenced motor movements) (along with sensory development) is a core, foundational skill. If the foundation of sensory / motor development is disrupted, it impacts higher-level brain skills.
Adapted from: Nelson C, Center on the Developing Child, 2000.

What Conditions Might It Help With?

The Cleveland Clinic reports it may be helpful for the following brain functions:

- Executive functions (attentional control, initiation, behavioural self-regulation, self-monitoring, self-correction, problem-solving)
- Attention (focused, shifting, selective, divided)
- Working memory
- Processing speed
- Cognitive stamina
- Planning, organizing & sequencing
- Time-management
- Auditory processing
- Receptive language
- Expressive language (oral and written)
- Thought organization
- Reading comprehension & fluency
- Articulation & speech intelligibility
- Phonological processing
- Motor speech (apraxia)
- Fluency/stuttering/cluttering
- Motor planning & sequencing
- Coordination
- Balance
- Gait

- Posture
- Functional mobility
- Functional use of hemiplegic limbs
- Handwriting
- Sensory integration
- Social-behavioural skills

Although IM is not a cure, the Cleveland Clinic reports it may be *helpful* for people with the following conditions

- Developmental delays
- Learning disabilities, such as dyslexia; nonverbal learning disorder
- Developmental coordination disorder (also known as dyspraxia)
- Apraxia, a problem with motor coordination;
- Attention deficit hyperactivity disorder (ADHD)
- Auditory/Language Processing Disorders
- Autism spectrum disorder (ASD)
- Stuttering
- Down Syndrome & other chromosomal disorders
- Fetal alcohol syndrome
- Sensory processing problems
- Cerebral palsy
- Stroke
- Traumatic Brain Injury

What's the Evidence?

IM is a promising practice that has a literature base, primarily in the occupational therapy (OT) literature. There is a growing, though small literature in the standard medical literature. At this point, there is insufficient evidence for it to be recommended as a first-line for conditions such as ADHD.
IM is endorsed by Hull Services (which uses the neurosequential mode of therapeutics in Calgary, Alberta), Cincinnati Children's Hospital, and Cleveland Clinic Children's.

Looking for an IM provider? Looking for more information?

Interactive Metronome website
https://www.interactivemetronome.com
Interactive Metronome
https://my.clevelandclinic.org/pediatrics/departments/interactive-metronome

Unable to Find an IM Provider?

Consider alternate "brain building" activities (though note that these require the person to have sufficient coordination):

- Drumming
    - Look for "therapeutic drumming" otherwise "drumming lessons" in your area.
- Tap dancing, or similar traditional activities.

Research References

Research from the Clem Burke Drumming Project
https://clemburkedrummingproject.org/
Research on Interactive Metronome website

https://www.interactivemetronome.com/im-specific-research
Practice Review from Cincinnati Children's Hospital
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Shaffer R et al.: Effect of interactive metronome training on children with ADHD. Am J Occup Ther. 2001 Mar-Apr;55(2):155-62.
https://www.ncbi.nlm.nih.gov/pubmed/11761130
Park et al.: Effects of interactive metronome training on timing, attention, working memory, and processing speed in children with ADHD: a case study of two children.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5890222/

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