

Functional Impact of Interactive Metronome® (IM)  
on a  
38 Year Old Male with Multiple Sclerosis

**HISTORY:**

M.C. is a 38 year old male with an eight year history of multiple sclerosis (MS). He reported several exacerbations and remissions over that time frame. His most recent exacerbation occurred 3-4 months prior to his evaluation and IM treatment. He did not experience full remission and was having frequent falls, necessitating the use of a standard cane for the first time in the course of his disease. He also reported reduced walking endurance.

**ASSESSMENT:**

**Functional Assessment:**

He entered the clinic using a cane.

**Baseline measurements:**

Balance was tested by timing the following activities (seconds before losing balance).

Standing, feet together, eyes open

Standing, feet together, eyes closed

Standing, right foot, eyes open

Standing, right foot, eyes closed

Standing, left foot, eyes open

Standing, left foot, eyes closed

Agility was tested by walking a 20' x 1.5" tape line (number of steps before stepping off line):

Normal stride

Heel-to-toe

**Fine motor:**

Typing the phrase "The quick brown fox jumped over the lazy dog" repeatedly for one minute - scoring number of characters, including spaces and punctuation.

**IM Long Form Assessment:**

**TREATMENT:**

M.C. was seen five days a week for three weeks for IM training (see Session Flowsheet). No other treatment intervention was provided. He was asked to continue his normal activities of daily living - unaltered (no additional exercise, walking, etc.).

**OUTCOME:**

	Initial	Final	1 mo.
Standing, feet together, eyes open	40 sec.	>60 sec.	>60 sec.
Standing, feet together, eyes closed	4 sec.	>60 sec.	>60 sec.
Standing, right foot, eyes open	6 sec.	>60 sec.	>60 sec.
Standing, right foot, eyes closed	1 sec.	14 sec.	2 sec.
Standing, left foot, eyes open	3 sec.	43 sec.	47 sec.
Standing, left foot, eyes closed	1 sec.	11 sec.	2 sec.
Tape line normal stride	5 steps	>100 steps	>100 steps
Heel-to-toe	7 steps	>100 steps	>100 steps
Typing (characters per min.)	165 cpm	185 cpm	176 cpm

M.C. reported he no longer required his cane at the end of the three week treatment session. At one month post treatment, he was walking without the cane; he had not fallen since completing the program. He reported having more endurance walking. A six month followup is planned.

**DISCUSSION:**

The rationale for using IM as a treatment modality for this patient was based on the hypothesis that, although it was not possible to halt or reverse demyelination, it might be possible to strengthen / augment intact pathways involved in motor planning and execution. As neuroscience technology advances, it is our hope that verification of this hypothesis will be possible. From a practical perspective, profound, objectively measured changes were observed at the completion of the three week protocol.