INTRODUCTION: In recent years there have been numerous reports on the ability to imagine performing a movement without executing it (Motor Imagery; MI) and on the influence of MI on motor execution (ME) [1]. At the behavioural level, using the mental chronometry paradigm in various motor tasks (arm pointing, writing and walking), several studies have shown that covert actions preserve the same spatiotemporal characteristics and obey the same motor rules or biomechanical constraints as their overt counterparts [2, 3] by supporting the simulation theory developed by Jannero [4]. However, it is still unknown the effect of MI on the ME in patients with Multiple Sclerosis (PwMS). Here we tested a protocol based on mentally simulated motor actions on PwMS and investigated the possibility to use MI in Multiple Sclerosis neurorehabilitation.

MATERIALS AND METHODS

- 14 patients with MS (PwMS) among those followed at the AISM Rehabilitation Centre, Italian Multiple Sclerosis Society, Genoa, Italy
  - McDonald criteria
  - Stable phase of the disease
  - Exclusion of PwMS with FSS>1
  - Ashworth scale<1
  - MMSE < 24.
- 19 normal subject (NS) without neurological pathologies

In each session, only one pair of four different target sizes was presented to the subjects: 0.5, 1.0, 1.5, 2.0. After the signal, start subjects performed START/LEFT movement. They executed five LEFT-RIGHT/RIGHT-LEFT movements as the scheme shows:

CONCLUSIONS: Mental and motor processes become slower in patients with Multiple Sclerosis (PwMS) with a general decline of spatiotemporal characteristics. MI exerts an effect on ME by making less lasting the time of overt execution. This result open a new possibility in the field of neurorehabilitation in PwMS.