

# Effects of rehabilitation with treadmill and internal cues on gait parameters in patients with Parkinson's disease

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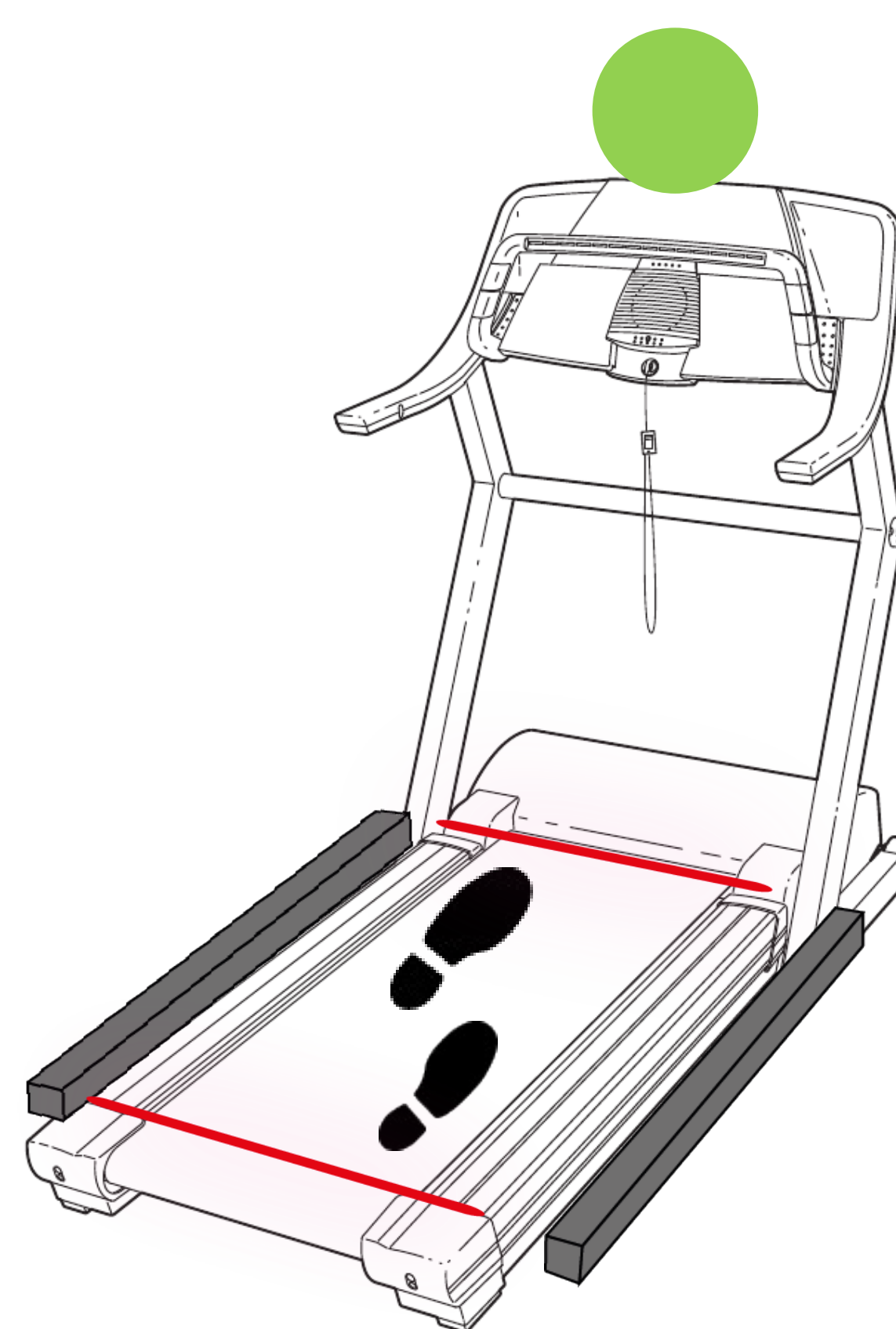
## BACKGROUND:

Disorders of gait (DG) are very frequent in patients with Parkinson's disease (PD). Some studies have shown that rehabilitation with treadmill and external and internal cues improves gait parameters in PD patients.

**AIM:** To verify the effectiveness of a treatment that combines the use of a treadmill with the use of internal cues on gait parameters.

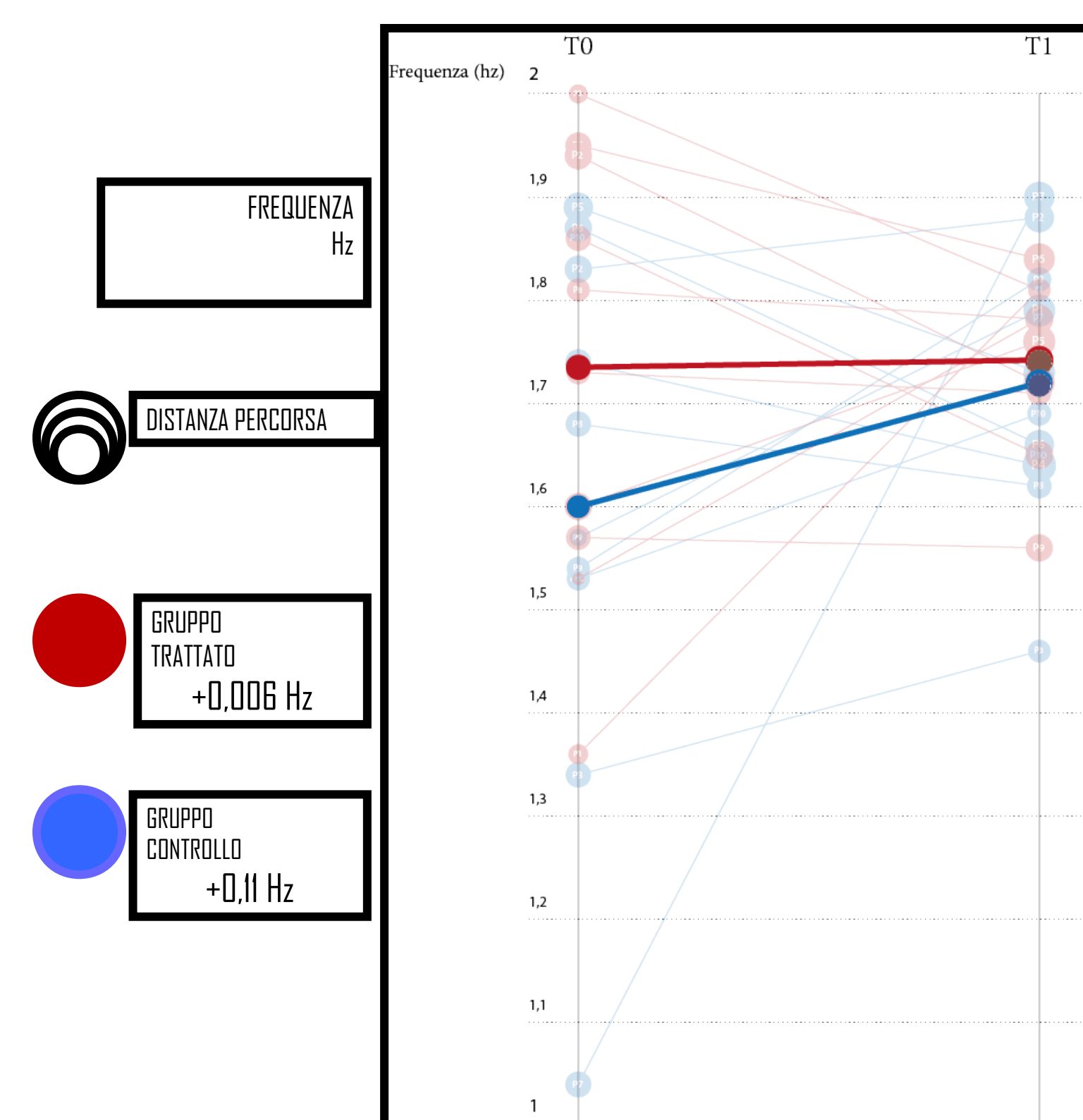
## METHODS:

20 PD patients were divided into two groups (group 1 case); all patients, before and after rehabilitation program, were subjected to specific assessment scales: Tinetti Gait Assessment (TGA), Timed Up and Go Test 3m (TUG3m), TUG10m, TUG3m dual tasking test, TUG10m dual tasking, 6-minutes walking test (6MWT). The rehabilitation program (4 times/week for an hour) provided the training step autonomous walking and dual task and treadmill. Group 1, biweekly, substituted the final part of the rehabilitation session with the treatment of treadmill associated to internal cues which consists of a photocell system, positioned at the walking belt, which identified the support of the feet on the belt itself. The operator chooses the distance between the front and the rear photocell determining the target that the patient must reach. A clearly visible green light in front of the patient turns on only if the latter covers the fixed-length. Such a "cue" is defined as "internal", because, in this case, it is no longer the patient who adapts his step to an external stimulus imposed a priori as in the case of the metronome or of colored strips placed on the floor.



## RESULTS:

Both groups showed an improvement as regards meters covered, the stride length and speed, however, results were statistically significant only in group 1 [TUG3m ( $p = 0.039$ ); TUG10m ( $p = 0.044$ )]. This significant increase of the distance ( $p = 0.037$ ) observed in group 1 was not attended by an increase in step frequency, but rather by a significant increase of the average stride length ( $p = 0.043$ ).



## CONCLUSIONS:

An intensive rehabilitation treatment on the treadmill associated to internal cues improves the mobility of patients in particular by increasing the speed and the average of stride length rather than the frequency of the step itself: mechanism that could prevent DG such as freezing.

## REFERENCES:

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