

A new robot-assisted therapy for stroke survivors: Effects of long-term stretching exercises on ankle range of motion, balance and gait

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Introduction

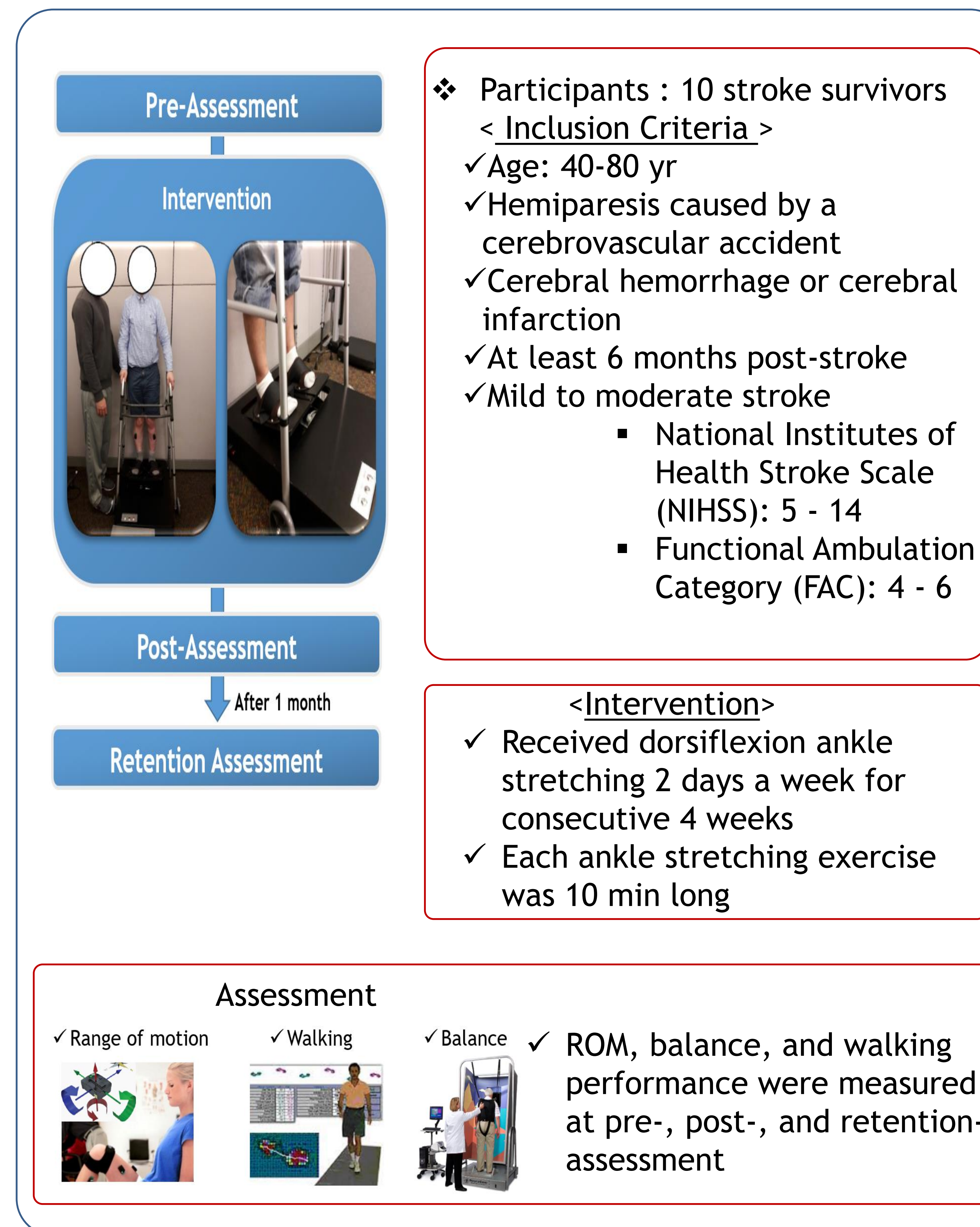
Stroke, a leading cause of severe, chronic, and long-term disability, affects at least 15 million people worldwide every year [1,2]. Limited ankle range of motion (ROM) is common in stroke survivors, which in turn leads to impaired balance and gait ability and reduced independence in daily activities [3,4]. Physical therapy involving stretching exercise is widely prescribed, but cost, limited availability of physical therapists, and labor-intensive efforts to deliver manual therapy hinder participation in clinical therapeutic regimens [5,6,7]. Multiple robotic systems for ankle stretching exercises are being developed, but in general they are complex and expensive.

<Research objectives>

- ✓ Quantitatively assess the effects of long-term ankle stretching exercises with the MAS
- ✓ Investigate the carry-over effects of improved ankle ROM on balance and gait performance in stroke survivors.



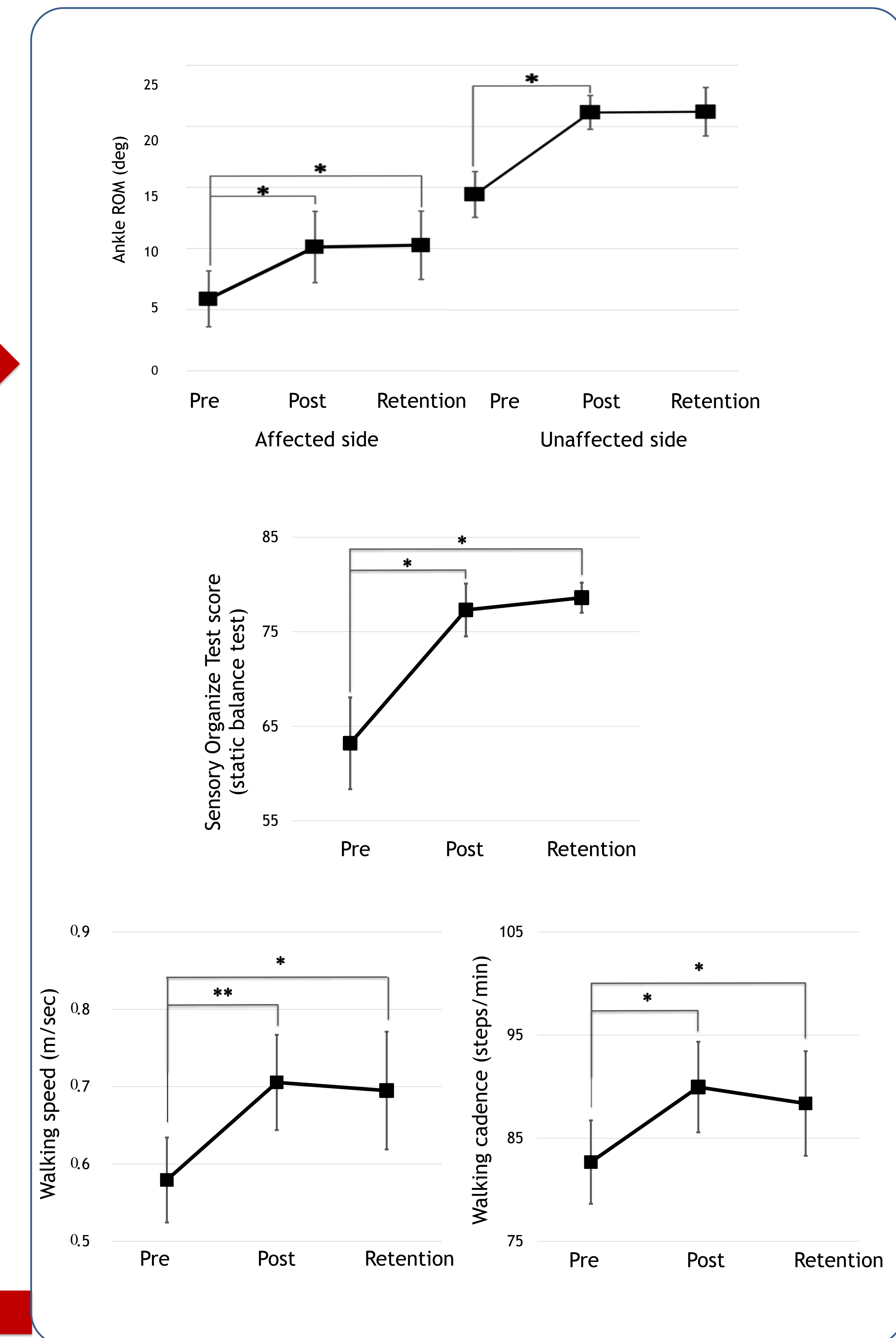
Methods



Conclusion

Our study has demonstrated that stroke survivors received ankle stretching exercises with the MAS for 4 weeks improved ankle range of motion, balance, and gait ability. These improvements remained relatively constant through the retention period (i.e., 1 month after the completion of the exercises). The findings have two important clinical implications: 1) stroke survivors could use the MAS in clinical or home environments, and 2) physical therapists could prescribe or adapt the MAS exercise sessions as needed.

Results



References

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