Balance training post stroke: Intense harnessed gaming compared to reactive and conventional training

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We are studying ways to make balance training more effective for people who have had a stroke.

We are especially interested in finding better ways to prevent falls and allow people to be more active.

We think that we do not train hard enough due to fear of falling, so we use a harness system to make the training more intense but still safe.

In this study we are comparing three types of balance training:

1. *Ten standard physical therapy sessions (conventional training)*
2. *A harnessed standing slip training session followed by nine walking sessions*
3. *Playing active video games in a harness system for ten sessions*

Typical Physical Therapy

Strength
ROM
Sensation
Movement
Responses

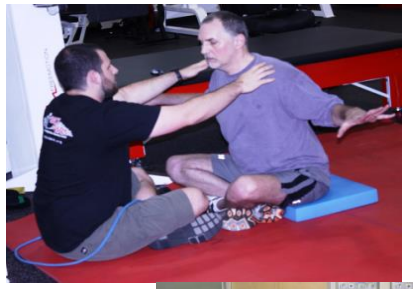
Sitting
Sit <> stand
Standing
Walking
All the other activities

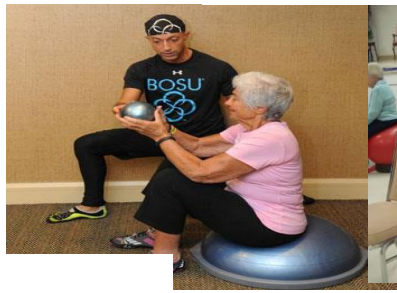
Attain sitting

Maintain sitting

Move within BOS

Move Outside BOS





Change sitting surface

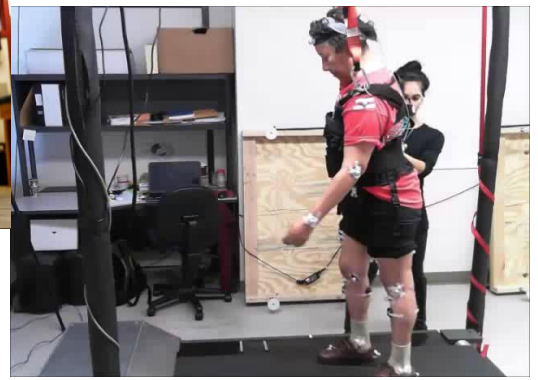
Change standing BOS

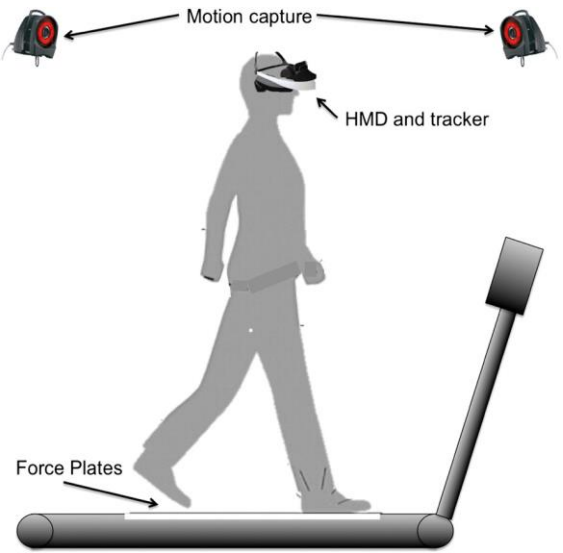
Change standing surface

Weight shift via reaching

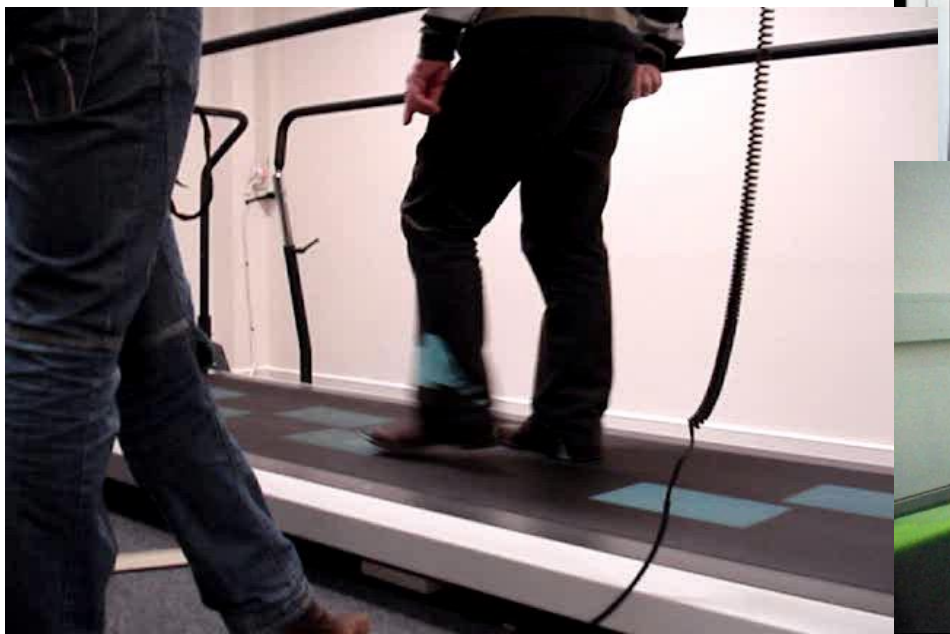
Self perturbations – kicking, stepping

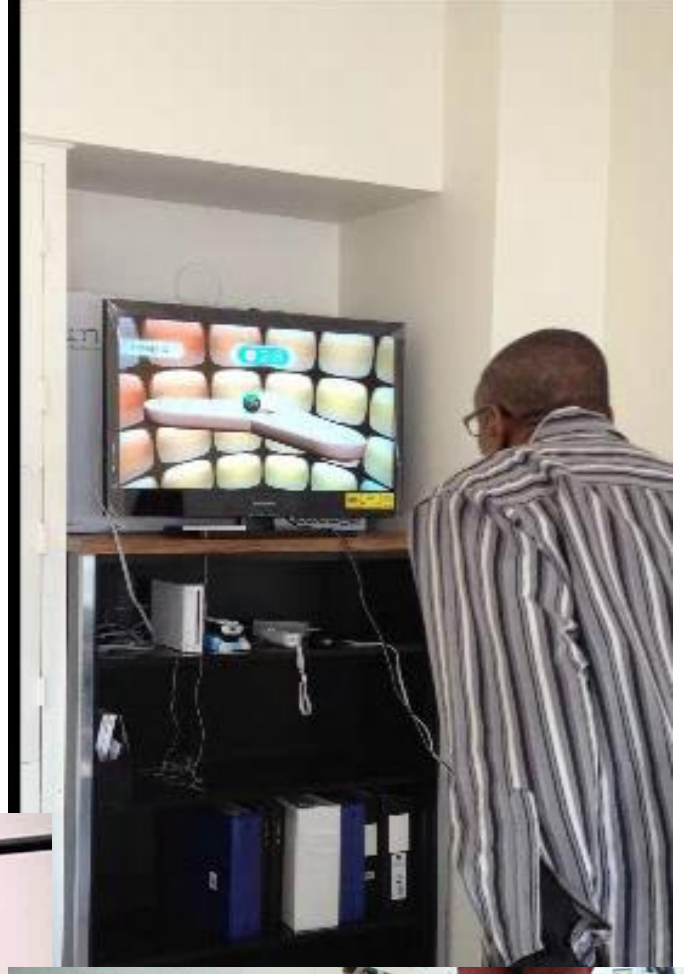
Perturbation based training

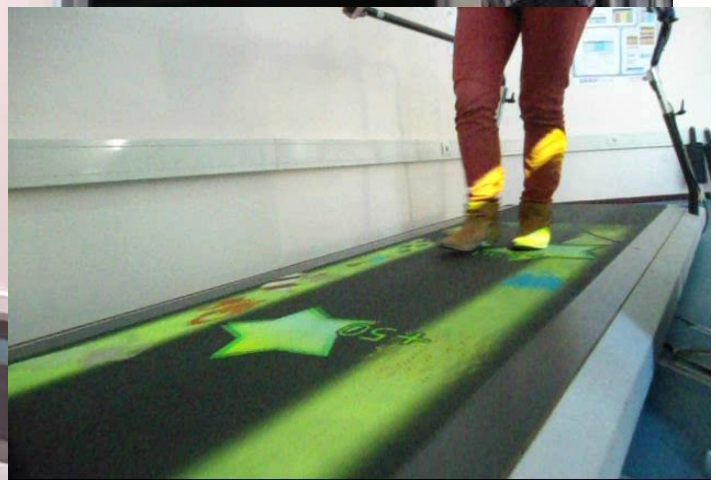




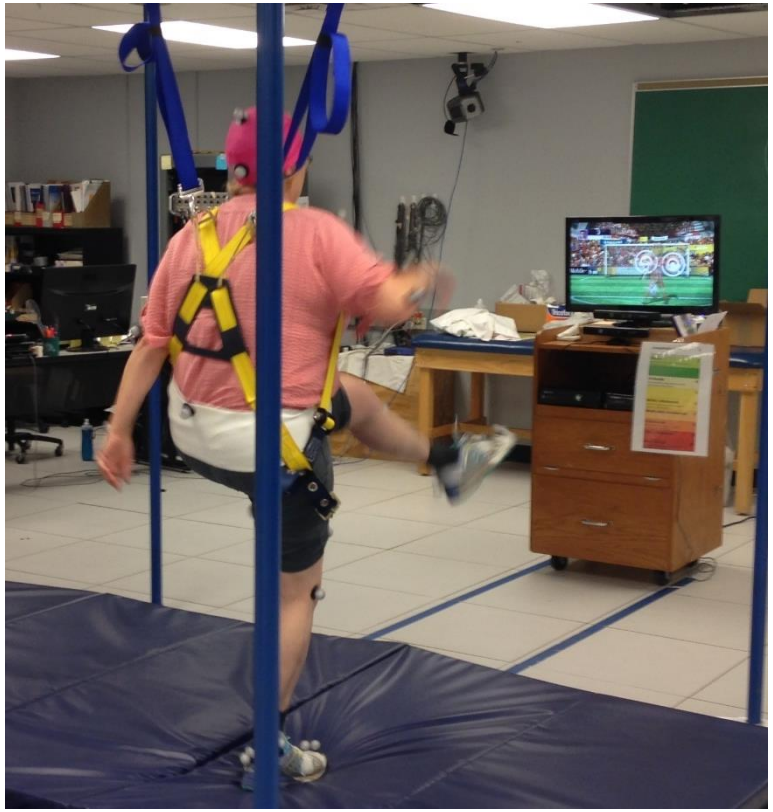
Virtual Reality

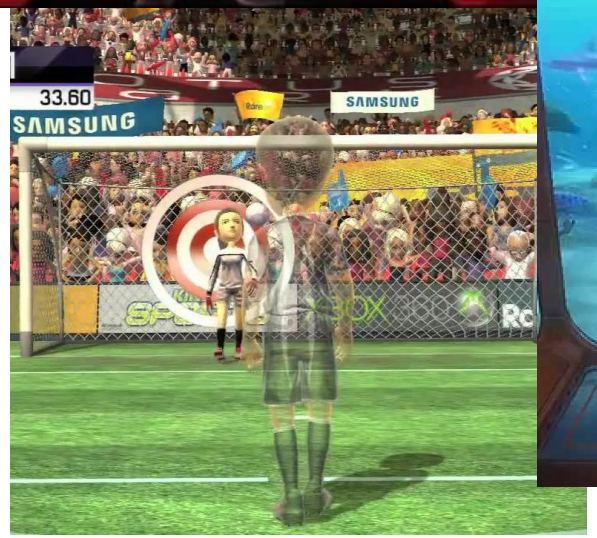


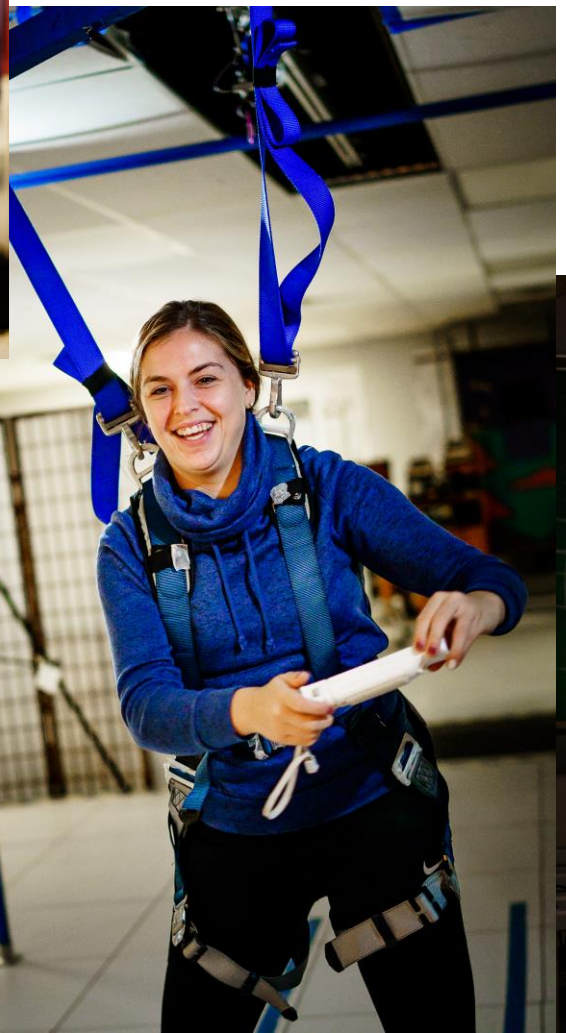




Harnessed gaming balance training







We are looking for people who would like to participate. To participate, you must:

- Have had a stroke at least 6 months before starting the study and be over 18 years old
- Have problems with your balance or limit your activities to prevent falling
- Walk at least ½ block (~ 150’) independently, with or without a cane or similar device
- Be able to stand independently for at least 30 seconds
- Be able to take at least ten steps without physical assistance or a cane or similar device.
- Be willing to keep a record of any falls during and for 6 months after the study ends
- Weigh less than 250 pounds and be no taller than 6’2” due to equipment size limitations

You will be randomly placed into one of the three training groups.

Participants will have their parking or bus fare paid and will receive an honorarium of $250.

12 to 14 visits total:

- 1 - 2 pre-test visits – clinical balance testing and treadmill balance testing
- 10 intervention sessions –
- 1 – 2 post-test visits – same clinical and treadmill balance testing
- Keep a log of any falls during study and for 6 months afterwards

COVID-19

- On hold since March
- University just started allowing this type of research again
- In process of getting approvals to restart in January
- Probably 2X/wk for 6 weeks now

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