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## Shoulder weakness induces trunk compensation after a stroke

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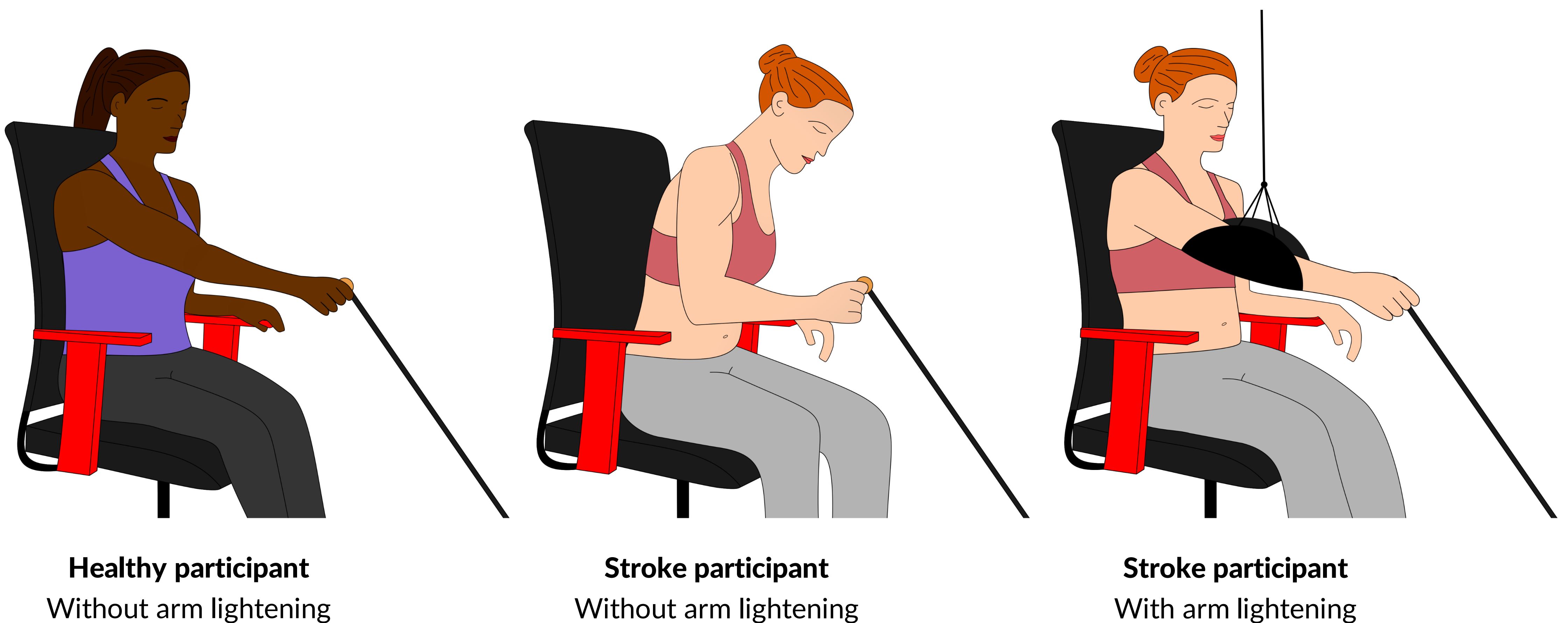
## INTRO

- Most stroke patients do not use their paretic limb even when they are able to do so, often resulting in secondary loss of function.
- Healthy people adapt their elbow-shoulder-trunk coordination to minimize the torque at the shoulder.
- The aim of this study is to evaluate how shoulder weakness after stroke impacts elbow-shoulder-trunk coordination.

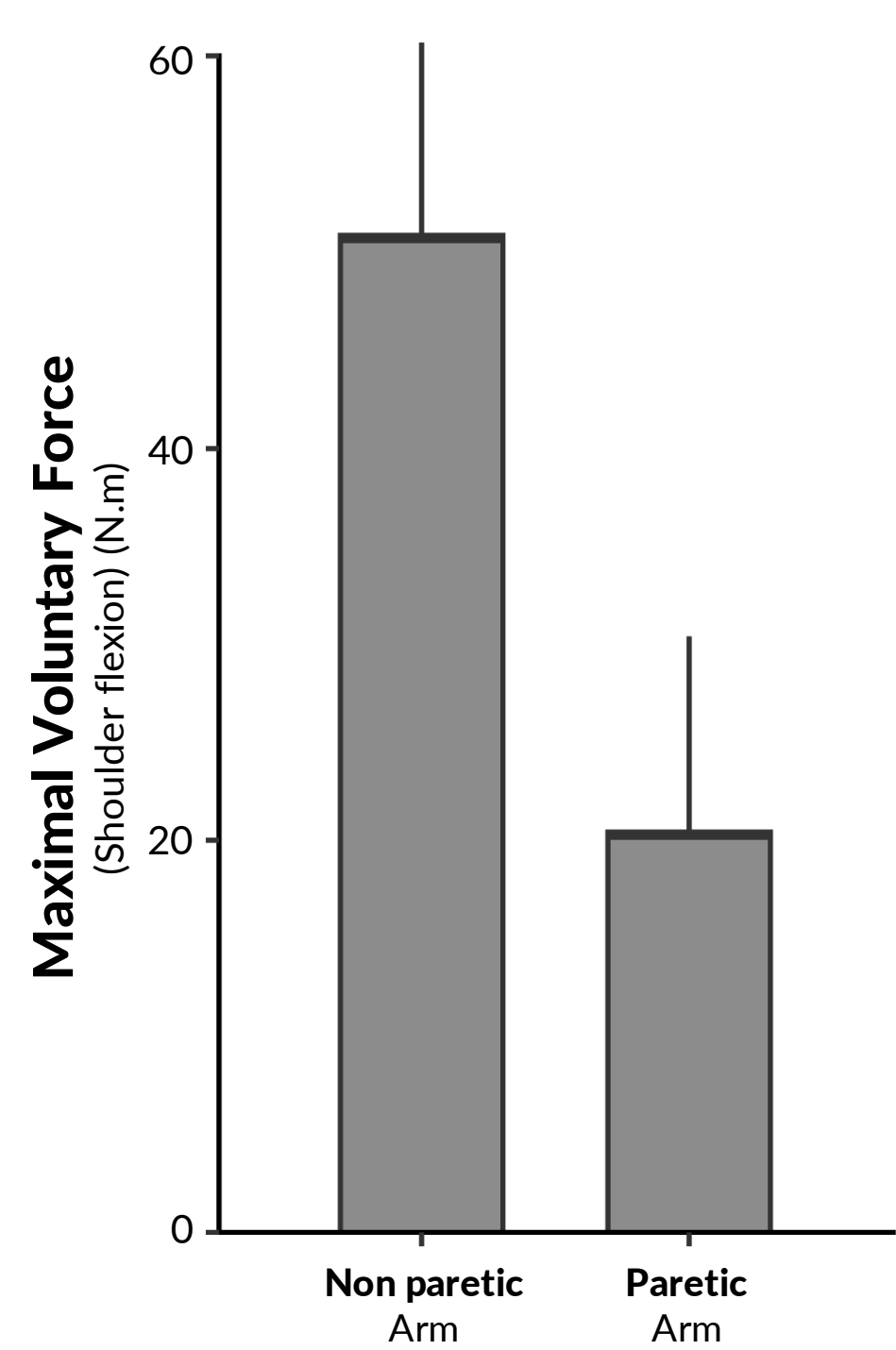
## METHODS

- 17 out of 22 patients recruited
- Supratentorial stroke (> 1 month)
- EMG + Motion Capture (Kinect v2)
- Reaching: Spontaneous VS Self-limited trunk

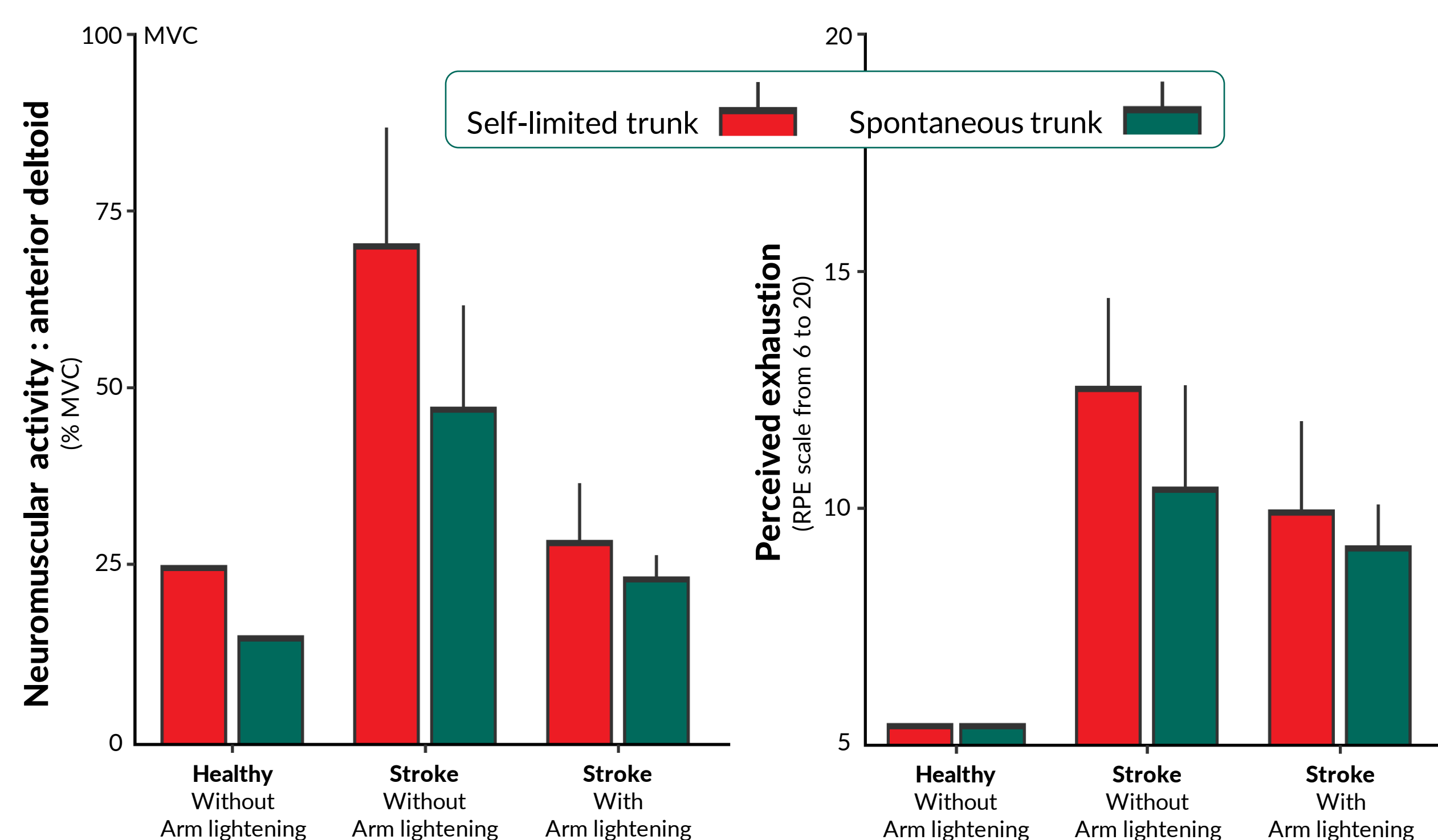
# After a **stroke**, shoulder **weakness** leads to **changes** in arm-trunk **coordination**.



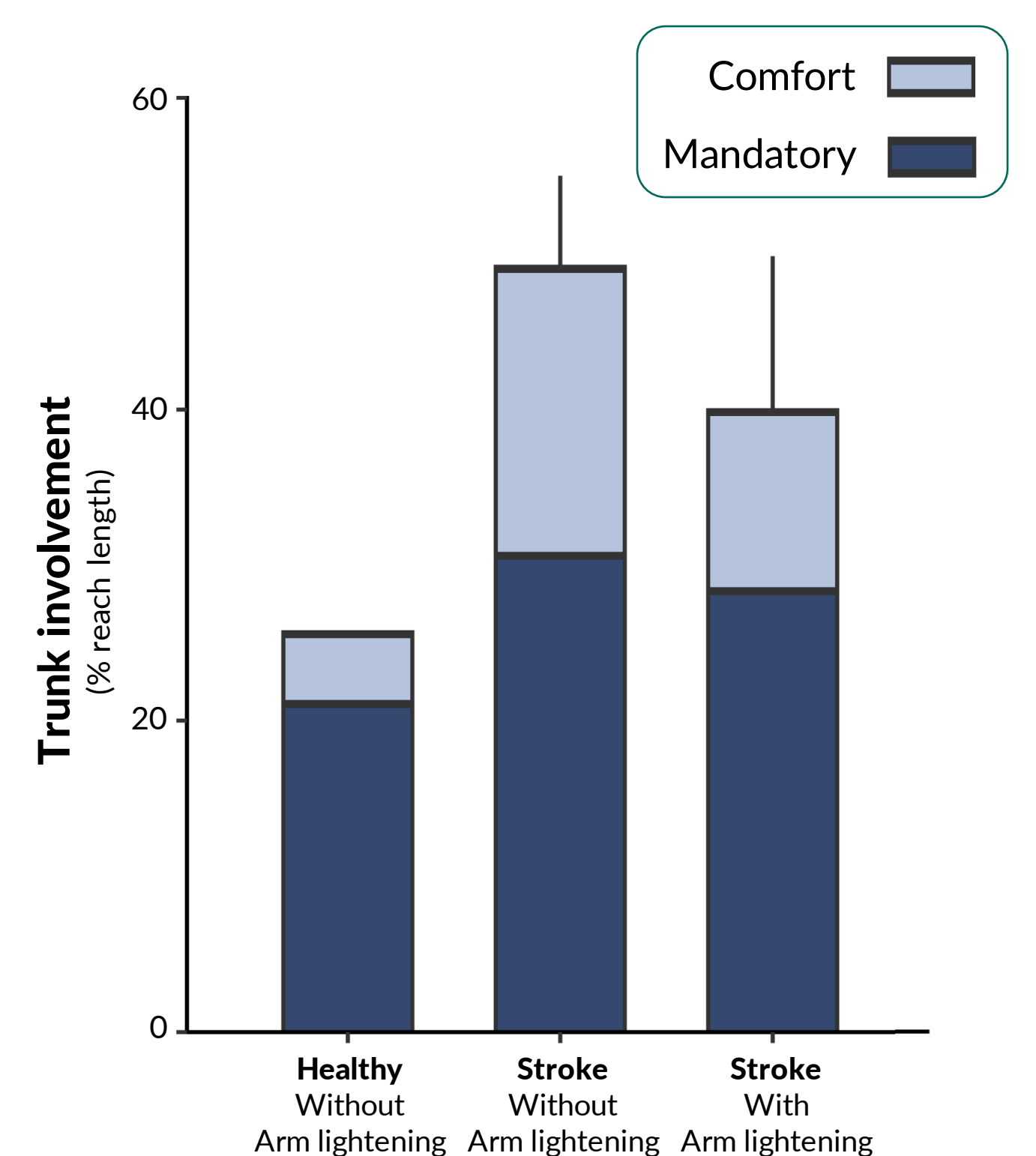
After a stroke, shoulder strength is reduced by half



Trunk compensations allow a more normal neuromuscular activity and perceived exhaustion



Lightening the arm reduces compensation



## DISCUSSION

- The observed compensation is not merely a 'poor coordination', but more likely a 'good adaptation' to the weakness of the shoulder after the stroke.
- Given the beneficial effect of the antigravity device, future work may evaluate the effect of **strength training** on reducing compensations.

Ongoing study

