

How might verbal communication between therapists and patients influence patients' postural stability?

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Introduction

Overloading cognitive capacity may contribute to falls, fatigue and reduce patients' ability to engage in motor learning tasks. Cognition is defined as 'knowing' which includes perception, attention, language, thinking and memory. A challenging cognitive task may exceed an individual's capacity, meaning the performance of the task and/ or an additional physical task may be compromised.

Therapist and patient interactions including **general conversation**, **answering questions** and **following instructions**, involve memory retrieval, problem solving and directed and focussed attention.

It is important for therapists to be aware that their various interactions may have an unacknowledged impact on patients' postural stability.

Aim

To determine whether communication during therapeutic interactions impacts on the postural stability of healthy adults.

Results

Compared to **QS** with a total excursion of 0.75m [SD = 0.131] in 30 seconds. **GC** with 0.828m [SD = 0.161, p= 0.000] and **QA** with 0.830m [SD = 0.179, p= 0.001] produced significant increases in total excursion, indicating an increase of sway through a reduction in postural control. **ST** did not alter total excursion significantly (0.759m [SD = 0.115] p= 0.616).

Conclusion and Implications

Therapists should recognise how interactions during activity engagement can shift their patients' attention away from postural control, as **GC** and **QA** significantly reduced the postural stability of a healthy population. Anticipation of a cognitive or complex challenge may facilitate securing of postural stability, as with **ST**, enabling focus on the expected task. However, this may not be the case for patients with compromised physical or cognitive systems.

Awareness of the impact of different cognitive loads during activities can support decision making and optimise benefits during treatment interventions. Individualised education for patients and their carers may enhance personal safety and reduce fatigue during activities of daily living.

Future research should establish the impact of different types of loading on specific patient populations to inform how this can be used in rehabilitation to enhance or challenge patients' postural stability.

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References

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Method

A within-subject experimental design was used on two age groups. Subjects: 31 Cardiff University staff and student volunteers, aged 18-60 years [mean 34 years 9 months] without neurological, musculoskeletal, cognitive, sensory or balance impairment participated in the study.

Six collaborating researchers gathered centre of pressure total excursion [metres] measurements for 30 seconds with subjects in step-stance, using a Kistler force platform. **Quiet stand [QS, control]** and three experimental conditions were tested: **General conversation [GC]**, **Question and answer [QA]** and **Stroop test [ST]**. 2-tailed paired T-tests [sig p < 0.05] analysed differences between means of control and experimental conditions.



GC task replicates the general conversation a therapist may have with their patient such as during general 'chatting' whilst supervising the patient mobilising between different activities.



ST task replicates situations where a patient has to problem solve or make complex decisions whilst completing a functional task or learning a complex skill.

QA task replicates the task of a patient answering questions whilst carrying out an exercise, activity or functional task or simple decision making.

