DUAL TASKING AND FALLS

PROFESSOR DAWN SKELTON
DR JENNIFER MUHAIDAT
**BACKGROUND**

The ability to appropriately allocate attention among tasks that are performed simultaneously

Dual tasking is part of executive function and is strongly related to divided attention

**Dual Task Paradigm:**
To examine the effect of a concurrent cognitive or motor task on motor performance. Primary and secondary
DUAL TASKING AND FALLS

Why is it a problem?

Falls occur more frequently during dynamic tasks. Dynamic tasks involve dual tasking.

Poor executive function is associated with falls.

Fallers have limited attentional resources due to the extra demands of their functional limitations.
YELLOW BLUE ORANGE
BLACK RED GREEN
PURPLE YELLOW RED
ORANGE GREEN BLACK
BLUE RED PURPLE
GREEN BLUE ORANGE
COMMON TESTS

Stop Walking While Talking
Walking and counting backwards
Walking While Talking (simple/complex)
Walking While Remembering Test

... Many more
<table>
<thead>
<tr>
<th>Author</th>
<th>Primary task</th>
<th>Secondary task</th>
<th>Prediction (yes/ No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bergland and Wyller (2004)</td>
<td>Static balance</td>
<td>Arithmetic and visual</td>
<td>Yes</td>
</tr>
<tr>
<td>Pajala et al. (2008)</td>
<td>Static balance</td>
<td>Reaction time and arithmetic</td>
<td>No</td>
</tr>
<tr>
<td>Bootsma-van der Wiel et al (2003)</td>
<td>Walking</td>
<td>Verbal</td>
<td>Yes but not better than single task</td>
</tr>
<tr>
<td>Stalenhoef et al. (2002)</td>
<td>Walking</td>
<td>Arithmetic</td>
<td>No</td>
</tr>
<tr>
<td>Swanenburg et al (2010)</td>
<td>Static balance</td>
<td>Arithmetic</td>
<td>No</td>
</tr>
<tr>
<td>Author</td>
<td>Primary task</td>
<td>Secondary task</td>
<td>Prediction (yes/ No)</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------</td>
<td>----------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Lundin-Olsson et al. (1997)</td>
<td>Walking</td>
<td>Verbal</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Special thanks to Reto Kressig
Special thanks to Reto Kressig
OUR RESEARCH

Ecological validity: focus groups
Stair negotiation with manual
Avoiding moving obstacles
Bending down and picking up objects
Multitasking

Pilot study: 49 task combinations
Nine tests identified
Primary: Walking, Obstacles, TUG, Stairs

OUR RESEARCH

Reliability and validity:

Multitasking:
OR = 1.12 95% CI 1.03-1.24

Avoiding a moving obstacle:
OR = 1.29 95% CI 1.11-1.54

TUG and manual
OR = 1.23 95% CI 1.10-1.41
LET’S DUAL TASK!!
DUAL TASK INTERVENTIONS
REFERENCES


REFERENCES


