The ability to suppress unwanted steps

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Motor inhibition

- Suppressing a planned movement
  - mostly investigated for hand movements
    - computer tasks based on the STOP&GO paradigm
      (Coxon, Stinear, & Byblow, 2009; Verbruggen & Logan, 2008)

Computer “StopSignal” task

In legs: step initiation

Deficit of older adults to accurately execute an effective voluntary stepping modification might be a potential cause for the increased risk of falls
(Tseng, Stanhope, & Morton, 2009)

Test during walking?

- There is a need to develop a test to measure the potential to suppress/modify ongoing walking movements
  - Resemble real life
    - subjects are tested during a walking task
  - Sensitive to different performances
    - possibility to scale the difficulty level
**C mill task**

**Testing young adults**

- Computer task 1
- C mill task
- Break
- C mill task + auditory dual task
- Computer task 2

| *counterbalanced* |

<table>
<thead>
<tr>
<th>7 males + 5 females</th>
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<tbody>
<tr>
<td>age (years)</td>
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<tr>
<td>height (cm)</td>
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<td>weight (kg)</td>
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**Available Response Distance**

- Single task, n = 12

**“easy” to “difficult”**

- Single task, n = 12

**Group results**

- New test of response inhibition during walking:
  - Young adults (YA) make more errors when time pressure is higher
  - YA differ in their ability to stop an ongoing stepping movement
  - The addition of a cognitive dual task increases the error rate
  - Test also feasible in elderly

*The C mill test might be useful for testing the lower limbs inhibition in walking*