**Background**

- Interference in goal-directed behavior can arise from distractions in the external environment,\(^1\,^2\) as well as from the internal milieu (e.g., intrusive thoughts).\(^3\,^4\)
- We have previously shown that older adults (OA) experience deficits in the suppression of externally-presented distracting information.\(^5\,^6\)
- In contrast, others have reported that OA shown a reduced frequency of internal distractions.\(^7\)
- We sought to resolve this potential discrepancy.

**Objectives**

1. To learn whether internal distractibility is affected by differences in task goals (internally- vs externally-oriented) or by the presence of external distractions (auditory noise).
2. To determine how internal distractibility is affected by aging.

**Methods**

**Participants**

- 12 healthy young adults (YA): 18-30 years old; 8F, 4M
- 12 healthy older adults (OA): 60-72 years old; 9F, 4M

**Experimental design**

- Two cognitive tasks:
  1. Internally-oriented (INT)
     - Mentally transform abstract shapes during a 5 sec delay
  2. Externally-oriented (EXT)
     - Visual target discriminations for 10 sec
- After each trial, participants indicated where their attention was focused during the trial
- Tasks performed with and without auditory distraction

**Behavioral results: accuracy**

**Behavioral results: reports of distractions**

**Meditation-inspired training may reduce internal distractibility**

- Six YA trained for 1 week with a meditation-inspired, plasticity-based cognitive training iPod application.
- Following training, we found a significant decrease in reports of internal distractions in the noise-free condition on the EXT task (one sample t-test, p<.02).
- Reports of external distractions did not differ significantly between pre-/post-training sessions.

**Conclusions and future directions**

- These results suggest that internal and external distractions interact dynamically, with an apparent trade-off between internal and external distraction.
- In contrast, OA appear less able to regulate their levels of internal distraction, leading to higher overall distractibility under noisy conditions.
- Preliminary data support the idea that regulation of internal distractions can be modified through practice with an application that integrates meditation principles with plasticity-based, cognitive methods.
- We are currently pursuing a large-scale training study on healthy young and older adults.

**References**


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