The Importance of Social Engagement for Successful Aging

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What are Important Health Risk Factors?

“Social relationships, or the relative lack thereof, constitute a major risk factor for health—rivaling the effect of well established health risk factors such as cigarette smoking, blood pressure, blood lipids, obesity and physical activity”

- House et al., Science, 1988
What are Important Health Risk Factors?

Individuals with adequate social relationships have a 50% greater likelihood of survival compared to those with poor or insufficient social relationships. The magnitude of this effect is comparable with quitting smoking and it exceeds many well-known risk factors for mortality (e.g., obesity, physical inactivity).


How Can Social Processes Facilitate Successful Aging?
Social Engagement

- Social Integration (i.e. participation in a social community; holding meaningful social roles, having social support)
  - predicts resilience to adversity (e.g., Cohen & Wills, 1985).

Sociability and the Common Cold

Cohen et al. (2003)

After exposure to a (harmless) cold virus, highly sociable people are less likely to develop cold symptoms.

Fig. 1. Rate of developing colds (adjusted for controls) as a function of sociability quintile. Colds were defined as infection plus objective signs of illness or as infection plus subjective symptoms of illness (modified Jackson criterion).
Social Engagement

- **Social Integration** (i.e. participation in a social community; holding meaningful social roles; having social support)
  - predicts resilience to adversity (e.g., Cohen & Wills, 1985).
  - predicts physical health (e.g., Fratiglioni et al. 2000)

Social Integration and Dementia

Fratiglioni et al. (2000)

<table>
<thead>
<tr>
<th>Marital status and living arrangement</th>
<th>Relative risks (95% CI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married and living with someone</td>
<td>1.0</td>
</tr>
<tr>
<td>Single and living alone</td>
<td>1.9 (1.2–3.1)</td>
</tr>
<tr>
<td>Widowed/divorced and living alone</td>
<td>1.5 (0.9–2.2)</td>
</tr>
<tr>
<td>Married and living alone</td>
<td>1.5 (0.4–6.4)</td>
</tr>
<tr>
<td>Single and living alone with someone</td>
<td>1.0 (0.5–3.9)</td>
</tr>
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<td>1.4 (0.4–4.7)</td>
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</tbody>
</table>

Social isolation is robustly related to higher risk of dementia.
Social Engagement

(Uchino, 2009; Cohen, 2004)

- Social Integration (i.e. participation in a social community; holding meaningful social roles, having social support)
  - predicts resilience to adversity (Cohen & Wills, 1985).
  - predicts physical health (e.g., Fratiglioni et al. 2000)
  - predicts longevity (odds ratio 1.5; Holt-Lundstad et al. 2010)

Close Relationships and Breast Cancer Survival

Weihs et al. (2008)

In the case of a serious problem or stressful situation, who would you want to talk to?

Social support is related to longer survival after breast cancer.
Social Engagement

(Uchino, 2009; Cohen, 2004)

- **Social Integration** (i.e. participation in a social community; holding meaningful social roles, having social support)
  - predicts resilience to adversity (Cohen & Wills, 1985).
  - predicts physical health (e.g., 60% ↓ dementia; Fratiglioni et al. 2000)
  - predicts longevity (odds ratio 1.5; Holt-Lundstadt et al. 2010)

- How so? Social relationships …
  - are a major source of our positive affect
  - provide us with a meaning system (and validation thereof)
  - alter our stress physiology (fight-flight ↓, tend-and-befriend ↑)
  - lend us a helping hand (practical support)

Social Engagement is a reliable predictor of successful aging.

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Studying Everyday Social Engagement

**EAR = Electronically Activated Recorder** (Mehl et al., 2001)

- Digital audio recorder
- Samples ambient sounds
- e.g., 30 sec every 12 min (~5% of the day)
- 70-90 sound bites per day

![Digital audio recorder](image-url)
Daily Social Engagement and Happiness

- 79 participants wore the EAR for 4 days
- Well-being was assessed with self-reports of life-satisfaction and self- and other-reports of happiness
- Information derived from the EAR sound files
  - Alone vs. with others
  - Small-talk (uninvolved conversation of a banal nature; only trivial information is exchanged)
  - Substantive conversations (involved conversation of a substantive nature; meaningful information is exchanged)

Eavesdropping on Happiness

The happy daily life is sociable rather than solitary and conversationally deep rather than superficial.
Cognitive Benefits of Social Interaction in Older Adults

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Feb. 21, 2014

Social Interaction and Cognitive Function

- Social engagement appears to be associated with resilience, physical health, longevity, and happiness, particularly if it’s deep and meaningful.
- But what about cognitive benefits?
- Is social interaction related to better cognition, i.e., to better memory, executive function, reasoning, or speed of information processing?
## Is Social Interaction Related to Better Cognitive Function?

- Evidence is strongly suggestive that it is
- Several studies have reported correlations between social engagement and cognitive function, i.e., people who have an engaging lifestyle have better cognitive function
- But what does that mean?
  - a) Does social interaction improve cognitive function?
  - b) Are people with higher cognitive function more likely to be socially engaged?

## Longitudinal Studies

- Several longitudinal studies have shown a relation between greater social activities and lower risk of cognitive decline and Alzheimer’s disease
- The general conclusions from recent studies are that the effects of cognitive and social variables are likely bidirectional (e.g., Seeman et al., 2011; Small et al., 2012)
  - An engaged lifestyle may reduce age-related cognitive decline, and
  - Declining cognitive function may lead to social disengagement
Social Intervention Studies  
(e.g., Mortimer et al., 2012)

- Compared 4 interventions:  
  - Social Interaction Group: Met 3 x a week for 40 weeks discussing topics of interest  
  - Tai Chi Group: non-aerobic exercise  
  - Walking quickly around a track  
  - No intervention control  

- Results  
  - Social Interaction group and Tai Chi group showed improvements in some cognitive measures (e.g., verbal fluency, speed of processing, memory)

Our Study

- Evidence suggests that staying socially engaged is important for maintaining cognitive function with age  
- However, as people age, there is an increased likelihood that they will become socially isolated  
- Could online social networking media such as Facebook be used to connect socially isolated older adults, and would that improve their cognitive function?
Method

Three Groups of Older Adults
Average age = 79; lived alone

- Group 1: Pretest-posttest Design
  - Tests of working memory/executive function, memory, and processing speed
  - Given before and after the Facebook/Penzu intervention

- Group 2: Interventions
  - 6 hours of training over a week
  - 7 weeks of daily postings in Facebook or Penzu

- Group 3: Waitlist

What is Working Memory

- Working memory is a system where small amounts of information can be temporarily held in mind and manipulated
- It’s controlled by a central executive

Example:
What is Working Memory

- Working memory is a system where small amounts of information can be temporarily held in mind and manipulated
- It’s controlled by a central executive
- It allows us to multi-task effectively, to attend to what is relevant, and ignore distraction
- It allows us to reflect on the past and plan for the future

Changes in Working Memory

The Facebook group showed a significant increase in performance compared to no significant change in the other two groups.
Both Facebook and Penzu groups improved following the intervention compared to the Waitlist group. No differential slowing for Trails B across groups.

### Summary

- We found a specific cognitive benefit associated with using Facebook
  - Only the Facebook group showed improvements in working memory
  - There were no changes in any other measures of executive function or memory
  - Both intervention groups showed improvements in processing speed
Why does using Facebook benefit working memory?

- Facebook involves social interaction
- Facebook may be more cognitively challenging than Penzu, i.e., it places greater demands on working memory
- Social interactions, in general, may involve working memory and executive control

Specific Advantages of Online Social Networking

- People who are truly socially isolated can stay connected, increasing the likelihood that they will challenge and maintain their cognitive function
- People who are experiencing cognitive decline can continue social interactions at their own pace
- People who may be experiencing declines in vision or hearing can make adjustments so that they can remain socially connected
Specific Advantages of Online Social Networking

- People can be selective in their social interactions, maintaining those that are positive and discarding those that are negative
  - Evidence suggests that negative social interactions increase stress and have negative effects on cognitive function
- Ultimately, people can stay in their own homes for a longer time, connected to a social support system, and able to function relatively independently.

Conclusions

- To the extent that social engagement involves cognitive activities, social interaction is likely to be beneficial and may be a very acceptable way to reduce cognitive decline, whether it occurs in face-to-face interactions or through online social media
Stay Engaged!

Suggestions for Daily Life Changes

- Cherish your “weak social ties” – enjoy the little conversations here and there
- Foster your “strong social ties” – create chances for a good conversation
- Actively seek out social connections that are substantive, meaningful, and emotionally satisfying

Do it in-person or online
Thank You Supporters...