Are you afraid of falling?
Impact and management of fear of falling

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Fear of falling

• “Psychological trauma associated with falling”
• Realistic or unrealistic
• Adaptive or maladaptive?

“a lasting concern about falling that leads to an individual avoiding activities that he/she remains capable of performing”

(Tinetti et al, 1990 Tinetti & Powell, 1993)
Fear of falling: common

- In older people
  - 20-85% prevalence
  - People who have fallen
  - People who haven’t fallen
  - Women
  - Increases with age

A vicious cycle?

Fall

- Increased risk of falling
- Fear of falling
- Activity restriction
- Functional impairment

NARI
National Ageing Research Institute
Bringing research to life
IT TAKES SKILL TO TRIP OVER FLAT SURFACES
Inconsistent findings?

- Fear of falling
- Falls efficacy
- Balance efficacy
- Balance confidence
- Perceived control over falling
- Concern about falling
Fear of falling: measurement

• Are you afraid of falling?
• How afraid are you of falling? (Reinsch et al, 1992)
• Falls efficacy:
  – FES (Tinetti et al 1990)
  – MFES (Hill et al)
  – FES-I (Yardley et al 2005)
  – Short FES-I (Yardley et al 2005)
  – Stroke: FES-S (Hellström & Lindmark, 1999)
• Balance confidence
  – ABC
FES-I: long and short

<table>
<thead>
<tr>
<th>Activity</th>
<th>Not at all concerned</th>
<th>Somewhat concerned</th>
<th>Fairly concerned</th>
<th>Very concerned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cleaning the house</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Getting dressed or undressed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Preparing simple meals</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Taking a bath or shower</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Going to the shop</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Getting in or out of a chair</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Going up or down stairs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Walking around in the neighborhood</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Reaching for something above your head or on the ground</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. Going to answer the telephone before it stops ringing</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. Walking on a slippery surface (e.g. wet or icy)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. Visiting a friend or relative</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. Walking in a place with crowds</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. Walking on an uneven surface (e.g. rocky ground, poorly maintained pavement)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. Walking up or down a slope</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. Going out to a social event (e.g. religious service, family gathering or club meeting)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

http://www.profane.eu.org/fesi.html
Icon FES

"Please look at each picture carefully, and try to imagine yourself performing the activity."

If you currently don’t do the activity (e.g. if someone does your shopping for you), please answer to indicate whether you think you would be concerned about falling IF you did the activity.

Imagine that you are using your normal walking aid.

"We would like to know how concerned you are about the possibility of falling while doing any of the following activities, as pictured on the drawings. For each of the following activities, please show the level of concern which is closest to your own opinion to show how concerned you are that you might fall if you did this activity."

"According to the following SCALE: not at all concerned, somewhat concerned, fairly concerned, very concerned."

FOF is associated with....

- Falls
- Balance
- Gait
- Functional ability
- Activity restriction
- Personality
- Psychological state e.g. anxiety/depression
- Female gender
- Increasing age

Fear of falling and falls

Clear associations in the literature between

• Fear of falling/ falls efficacy and previous falls
• Fear of falling/efficacy and future falls
• (Arfken et al 1994, Lachmann 1998)

BUT......

• What is the causality???
• Very few longitudinal studies
Is there a pattern?

Spaghetti plot: FES vs time
Individual trajectories

Variable impact of fall

No impact of fall
Individual trajectories

Improvement, no fall

Fluctuation, no fall

ID number

128

ID number

82
Fear of falling & gait/balance

- Reduced gait speed
- Reduced step length
- Increased step width
- Increased double support phase
- Postural stiffening strategy?
  - Age, disease dependent
- Adjustments normal, but FOF heightens adjustment

Donoghue et al 2013; Shaw et al 2012; Delbaere et al 2009
• Fear of falling highly prevalent
• There are tools we can use to assess fear of falling/confidence and efficacy
• What interventions work????
The challenge of management

• Limited research targeting FOF directly
• FOF usually a secondary outcome in falls prevention/exercise trials
• What should be targeted?
  – Psychological factors
  – Physical factors
  – Falls risk factors
  – All factors
### Study Participants Intervention FOF measure Results

**Tennstedt 1998**
- 60+, self reported activity restriction due to FOF
- Group therapy
- Cognitive behavioural therapy
- Exercise
- 4 weeks, 2 hrs/week
- Adapted FES
- Significant difference in compliant group, small effect size; not intention to treat

**Clemson 2004**
- 70+, fallen or concerned about falling
- Group Exercise, medication management
- Home and community safety, action planning
- 7 weeks, 2 hrs/week + HV
- MFES
- No significant difference between groups

**Zhang 2006**
- 60+, decreased balance
- Group intervention
- Tai Chi
- 8 weeks, 1 hr daily for 7 weeks
- FES
- Significant difference between groups

**Huang 2009**
- 60+
- 3 groups:
  - CBT 8 weeks, 1 – 1.5 hr
  - CBT + Taichi – 8 weeks + 3x/week taichi
  - Control
- FES GFFM
- Significantly improved efficacy in CBT + Taichi at 2 and 5 months

**Zijlstra 2009**
- 70+, self reported fear of falling/activity restriction
- Group therapy
- Multicomponent
- 8 weekly sessions, exercise
- FOF PCOF
- Activity restriction
- Significant and durable differences

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**Table 2. Effects of the Multicomponent Cognitive Behavioral Intervention on Fear of Falling and Associated Avoidance of Activity (N = 540)**

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Control Group n (%)</th>
<th>Intervention Group n (%)</th>
<th>Adjusted Mixed-Effects*</th>
<th>OR (95% Confidence Interval)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fear of falling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-month follow-up</td>
<td>101 (43.3)</td>
<td>37 (16.3)</td>
<td>0.11 (0.05–0.22)</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>8-month follow-up</td>
<td>83 (39.0)</td>
<td>51 (24.8)</td>
<td>0.38 (0.19–0.75)</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td>14-month follow-up</td>
<td>86 (41.7)</td>
<td>48 (24.5)</td>
<td>0.31 (0.15–0.61)</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td><strong>Avoidance of activity due to fear of falling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-month follow-up</td>
<td>71 (30.5)</td>
<td>35 (15.4)</td>
<td>0.26 (0.13–0.53)</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>8-month follow-up</td>
<td>79 (37.1)</td>
<td>45 (22.0)</td>
<td>0.34 (0.18–0.67)</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td>14-month follow-up</td>
<td>71 (34.5)</td>
<td>50 (25.5)</td>
<td>0.54 (0.28–1.05)</td>
<td>.07</td>
<td></td>
</tr>
</tbody>
</table>

Note: The table also indicates the interventions used over 8 weeks, 1 hr daily for each week between groups.
Does the cycle exist?

- Fall
  - Fear of falling
  - Increased risk of falling
  - Activity restriction
  - Functional impairment

- Efficacy expectation
- Outcome expectancy

(Lach 2006, Bandura 1997)
Risk factors for falls:
- Vision problems
- Sensory problems
- Demographics

Appraisal of one’s abilities:
- realistic
- unrealistic

Balance performance

Falls efficacy

Fear of falling
Anxiety

Other contributors to fear/avoidance:
- Previous falls
- Beliefs
- Personality/perception/cognition
- Social supports

Deconditioning
Activity avoidance or restriction

Adapted from Hadjistavropoulos et al 2011
The message

- Assess both fear of falling AND efficacy
- Context is important
- Identify individuals at risk activity restriction
- Intervention based on accurate appraisal