

ASSESSMENT TOOLS FOR THE STUDY OF THE EFFECTIVENESS OF PHYSICAL EXERCISE INTERVENTIONS IN FUNCTIONALITY OF PEOPLE WITH MILD DEMENTIA

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Introduction

Exercise is often proposed as a non pharmacological intervention in people with dementia, but evidence remains inconclusive about the effects on cognitive function. Several systematic reviews comment on the heterogeneity of the results due to the type and degree of dementia under consideration, the type of intervention exercise as well as the different assessment tools used [1,2]. Purpose it is to present assessment tools regarding the functionality of people with mild dementia in relation to therapeutic exercise and its effectiveness.

Methods and Materials

Presentation of functionality assessment tools for mild dementia (Alzheimer's Disease) that can be used for research and clinical purposes and facilitate physiotherapists in clinical decisions: Senior Fitness Test (SFT), Berg Balance Scale (BBS) and Instrumental Activities of Daily Living Scale (IADL). All the above tests have been proven valid and reliable in Greek population [3-7].

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Results

The **Senior Fitness Test (SFT)** is a valid and reliable tool for measuring functional fitness for both healthy seniors and people with dementia (Fig.1). It is suitable for both research and clinical purposes. It is simple to use, does not require expensive tools or technical expertise and can be applied in any clinical setting. The test includes six functional tests and takes about 30-40 minutes to perform. Each test has accompanying performance standards for men and women aged 60 to 94 years [8].

60-Second Chair Stand
Description: The participant stands on a flat surface with feet shoulder-width apart, arms at their sides, and hands on their thighs. They stand on their toes and rise up as high as possible, holding the position for 60 seconds. The number of times they rise and sit back down is counted.

1-Minute Walk
Description: The participant walks on a flat surface for 1 minute. They are instructed to walk as fast as they can without running. The distance walked is measured.

Arm Curl
Description: The participant stands on a flat surface with feet shoulder-width apart, arms at their sides, and hands on their thighs. They perform a bicep curl with one arm, lifting the weight up to their shoulder and lowering it back down. They repeat this with the other arm. The number of curls is counted.

3-Minute Step Test
Description: The participant stands on a flat surface with feet shoulder-width apart, arms at their sides, and hands on their thighs. They perform a step test on a 6-inch step for 3 minutes. The number of steps is counted.

Back Stretch
Description: The participant stands on a flat surface with feet shoulder-width apart, arms at their sides, and hands on their thighs. They perform a back stretch by pulling one knee towards their chest and holding the position for 15 seconds. They repeat this with the other leg. The number of stretches is counted.

6-Foot Up-and-Go
Description: The participant stands on a flat surface with feet shoulder-width apart, arms at their sides, and hands on their thighs. They perform a 6-foot up-and-go test by standing on a 6-inch step, sitting down, standing up, and walking 6 feet. The time taken to complete the test is recorded.

Figure 1. Senior Fitness Test (SFT).

The **Berg Balance Scale (BBS)** is a tool for assessment balance in the elderly, it has been tested for its reliability and validity in patients with various neurological diseases. The BBS assesses the static and dynamic balance capacity. It consists of 14 simple tests, which are often performed in daily activities (Fig.2). Subjects are graded on a scale of 0-4 depending on their ability to perform the required tests. The overall score ranges from 0 to 56. The time required to complete all the tests is 15-20 minutes [5].

LAWTON - BRODY INSTRUMENTAL ACTIVITIES OF DAILY LIVING SCALE (IADL)

Scoring: For each category, circle the item description that most closely resembles the client's highest functional level (either 0 or 1).

Category	Item Description	Score
A. Ability to Use Telephone	1. Operates telephone on own initiative-looks up and dials numbers, etc.	1
	2. Dials a few well-known numbers	1
	3. Answers telephone but does not dial	1
	4. Does not use telephone at all	0
B. Shopping	1. Takes care of all shopping needs independently	1
	2. Shops independently for small purchases	1
	3. Needs to be accompanied on any shopping trip	1
	4. Completely unable to shop	0
	5. Does not travel at all	0
C. Food Preparation	1. Plans, prepares and serves adequate meals independently	1
	2. Prepares adequate meals if supplied with ingredients	1
	3. Heats, serves and prepares meals but does not maintain adequate diet	1
	4. Needs to have meals prepared and served	0
	5. Does not eat at all	0
D. Housekeeping	1. Maintains house alone or with occasional assistance (e.g. "heavy work domestic help")	1
	2. Performs light daily tasks such as dust-mopping, bed-making	1
	3. Performs light daily tasks but cannot maintain acceptable level of cleanliness	1
	4. Needs help with all housekeeping tasks	0
	5. Does not participate in any housekeeping tasks	0
E. Laundry	1. Does personal laundry completely	1
	2. Launders small items-clothes, stockings, etc.	1
	3. All laundry must be done by others	0
F. Mode of Transportation	1. Travels independently on public transportation or drives own car	1
	2. Struggles when travel via taxi, but does not otherwise use public transportation	1
	3. Travels on public transportation when accompanied by another	1
	4. Travel limited to taxi or automobile with assistance of another	0
	5. Does not travel at all	0
G. Responsibility for Own Medication	1. Irresponsible for taking medication in correct dosage at correct time	1
	2. Takes responsibility of medication as prepared in advance in separate dosage	1
	3. Is not capable of dispensing own medication	0
H. Ability to Handle Finances	1. Manages financial matters independently (budgets, writes checks, pays rent, bills, goes to bank), collects and keeps track of income	1
	2. Manages day-to-day purchases, but needs help with budget, major purchases, etc.	1
	3. Incapable of handling money	0

Figure 3. Instrumental Activities of Daily Living Scale (IADL).

Berg Balance Scale

ITEM DESCRIPTION	SCORE (0-4)
1. Sitting to standing	_____
2. Standing unsupported	_____
3. Sitting unsupported	_____
4. Standing to sitting	_____
5. Transfers	_____
6. Standing with eyes closed	_____
7. Standing with feet together	_____
8. Reaching forward with outstretched arm	_____
9. Reaching upward from floor	_____
10. Turning to look behind	_____
11. Turning 360 degrees	_____
12. Placing alternate foot on wood	_____
13. Standing with one foot in front	_____
14. Standing on one foot	_____
Total	_____

Figure 2. Berg Balance Scale (BBS).

The **Instrumental Activities of Daily Living Scale (IADL)** by Lawton - Brody, is an appropriate instrument to assess complex activities of the daily life of the elderly (Fig.3). It is also a valid and reliable tool for assessment functions, in both healthy elderly and elderly patients with dementia. Administration time is 10-15 minutes. There are eight domains of function measured with the Lawton IADL scale. Women score on all 8 areas of function, for men, the areas of food preparation, housekeeping, laundering are excluded. A summary score ranges from 0 (low function, dependent) to 8 (high function, independent) for women, and 0 through 5 for men [6,9-11].

Conclusions

The aforementioned functionality assessment tools are valid, reliable as well as easy and fast to use. These tools can be used for research and clinical purposes and facilitate physiotherapists (researchers and non-researchers) in their decisions.