

Case Report on influencing adherence of pre-frail older adults and an exercise programme

Clinical internship assignment Master's in Physiotherapy in Geriatrics

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1. Summary

It is known that the number of very old people is increasing. These people also experience increasing problems with walking. This adversely affects their independence. Loss of independence is associated with a reduction in reserve capacities. However, the reserve capacities can be influenced through physical exercises. These facts are not necessarily known to older adults. However, lack of awareness is a determinant of lack of adherence. This means it is worth investing in education. Knowledge of the ageing process, patient's understanding of their own influence on this, and the offer of a tailor-made exercise programme are preconditions for successfully taking action to delay ageing-related impairments. It is thus beneficial if the geriatric physiotherapist devotes extra attention to psychosocial education in the clinical reasoning process. Tools are required to measure and influence motivation. The exercise must match the impairments experienced by patients and their understanding of their capacity to influence these. In this report, the Lawton-Brody list and an amended Visual Analogue Scale are used as tools for psychosocial education. A training method for directing exercise for older adults with pre-frail characteristics is described in detail. Both the tools and method are available online. It is intended as the physiotherapeutic element of a care plan.

2. Introduction

It is known that the desire to remain active decreases among older adults. Marcell (2003) describes a vicious circle of diminishing capacities with increasing age. This means daily tasks are increasingly experienced as tiring. As such, resting is generally a conscious choice for older adults to allow them to divide their energy across the day. It is generally known that the ageing process is accompanied by many discomforts, but the effect of insufficient exercise is not generally known among older adults. Fried et al (2001) describe the clinical syndrome frailty, in which three or more of the following criteria are present: involuntary weight loss, experiencing tiredness, muscle weakness, decreased walking speed and low physical activity. This syndrome is strongly associated with a loss of independence. Behm et al (2014) demonstrate that it is useful to help older adults understand their own capacities in order to positively influence their independence. In an RCT, they studied the effectiveness of two educational programmes in which the contributions of older adults themselves were given explicit attention. Both interventions proved to be effective means of improving satisfaction with physical and mental health. This is important, as the level of health experienced by patients themselves is a determinant of adherence in exercise-related interventions (Tak et al 2012). This study by Tak is part of a PhD thesis (Tak 2013), in which the author shows the effect of physical exercises on slowing the loss of physical reserve capacities. As such, it is important to increase older adults' knowledge of the risks of frailty, and thus also of loss of independence. Tak: "The greatest challenge will be to get older adults moving, and most of all to keep them moving. Only a quarter of older adults who take part in an exercise programme keep moving afterwards. Devoting attention to high-quality instructors and to the physical ailments of participants can improve this." For the geriatric physiotherapist, this means using tools to measure and influence the motivation to perform exercises. It is also necessary to offer an exercise method that takes account of the lack of energy experienced, while still delivering improved well-being. These conclusions firstly mean that the geriatric physiotherapist must devote extra time in the clinical reasoning process to psychosocial factors so that older adults' knowledge of the ageing process and their own capacities can be improved. Secondly, the geriatric physiotherapist is challenged to offer an evidence-based exercise intervention that is interesting enough for older adults that they persevere with the training. This Case Report uses an amended VAS list as a tool, combined with the Instrumental Activities of Daily Living Scale questionnaire (I-ADL) by Lawton-Brody, as tools for psychosocial education. An

illustration of the importance of physical capacity in retaining independence is included. A training method for directing exercise for older adults with pre-frail characteristics is described in detail.

Both the tools and method are available online. It is intended as the physiotherapeutic element of a care plan in the 1st line.

3. Report: target group, instruments for education and exercise method

a. Determining the target group

The clinical syndrome frailty is the major factor in determining both the tools for education and the means of helping patients perform more daily activities. Fried et al (2001) describe a process that leads to vulnerability. In this process, three or more of the following criteria must be present: involuntary weight loss, experience of tiredness, muscle weakness, decreased walking speed and low physical activity. If two criteria are present, the term pre-frail is used. It applies to older adults living at home. Walking speed can be measured objectively with simple tests, such as the 3, 4 or 10 metre walking test. To determine walking ability, as required for transfers, the Timed Up and Go test (TUG) can be used (see attachment 1, Table 1). Cambier (2014) has characterised pre-frail older adults based on their performance in two tests by using the following cut-off values: 0.8-0.6 m/sec or a TUG score of > 15 sec. These criteria indicate that the older adult experiences considerable impairments in performing daily activities such as transfers, walking indoors and outdoors (ADL and I-ADL). Using these tests, the geriatric physiotherapist can determine the physical capabilities of the patient in and around the home. Very often, the older adult is not lacking in motivation to move. A lack of movement may be due to the conviction that it is better to be economical with their available energy.

b. Instruments

An older adult with a walking speed of 0.6-0.8 m/sec and/or a TUG score of > 15 seconds will have problems with daily activities in which moving their own body plays a role. These Instrumental Activities (I-ADL) are measured using the I-ADL list by Lawton & Brody (1969). The list has an inter-rater reliability of 0.85, and the validity has been found to be significant at 0.01 level (Graf 2013). The instrument assesses self-reported functional skills required for independent living. While the instrument is not particularly sensitive, it acts as a starting point for education about the role of functional skills in retaining independence. In addition to the I-ADL list, a Visual Analogue Scale is used. A scale of 0 to 100 is shown on a vertical line of 20 cm, as with a thermometer. The older adult crosses the score *for today*, and also writes the associated score in a box. This is analogous to the method employed in the EQ-5D-5L. The EQ-5D-5L is a trademark of the EuroQol Group, and is a validated and reliable health questionnaire used in population studies. This instrument is seen as increasingly important for measuring how patients experience their own health in clinical settings (Hinz et al 2013, Euroqol Group). While this list itself cannot be used, as it is subject to copyright, the combination of the amended VAS and I-ADL list appears to be a sound and affordable alternative for physiotherapy practices. Education about the role of exercise is supported by the use of an illustration, which shows the role of the reserve capacity in the ageing process (see attachment 2, Fig. 1). These tools are used in the clinical reasoning process to be able to influence the psychosocial factors that play a role in the intention to take exercise and also to persevere with it. It is worth investing time together to determine the older adult's motivation to take exercise (Tak 2012, Behm 2014).

c. Exercise method

The exercise programme for the geriatric physiotherapist follows the Evidence-Based recommendations from the Position Stand of the American College of Sports Medicine (ACSM). This Position Stand has been specifically developed for older adults, and therefore also gives recommendations for the target group discussed here. Table 2 (attachment 1) contains a summary of these recommendations. The exercise programme consists of two parts: the exercise part and the walking part. The exercise part consists of eight exercises, which are completed in circuit form. Each exercise is performed for 30 seconds. The rest period is 15-30 seconds. This creates rhythm in the programme. Each exercise may be performed several times in succession, or a single round may be completed at fixed times throughout the day. A round is a time block of 10 minutes (see attachment 1, Table 3). A two-minute warm-up period and a two-minute cool-down period are included. All exercises can be done at home. A timer and a ball are required for the exercises. An exercise journal is supplied to record any relevant details. All this information is attached separately, and can be found online.

The skills from the exercise part are subsequently used in the walking part. This walking assignment is precisely adjusted to the walking ability of the older adult. Table 4 (attachment 1) shows how participants can work towards independent exercise in 18 treatment sessions (3 months). This helps illustrate the physical, mental and financial investment required by the older adult. A new episode can be started periodically, if necessary with modified exercises. Note that time is set aside for the “psychosocial factors” element. It is possible to negotiate with health insurance providers about a “product price”.

4. Discussion

Bringing Evidence to Practice: this is the goal of this report. Based on the evidence discussed, the rationale is: “Education about the risks of frailty is required. The knowledge gained increases the probability of adherence to a training programme for pre-frail older adults. Such a training programme must be evidenced based, but also interesting enough that they will persevere with it”. This makes significant demands on the expertise of the geriatric physiotherapist. A “high-quality instructor”, as described by Tak (2013), has competences in the field of motivation. However, motivating older adults who experience diminishing strength to make extra efforts in order to feel “less bad” remains challenging. The benefit of investing time in psychosocial factors in the clinical reasoning process, is that it is possible to determine together if the patient is motivated to train. If a person has no intention of taking exercise following information, education and a discussion of its benefits, there is no point in beginning. I always remember that taking exercise can also be fun. The successful experience: “I can do this!” opens patients' eyes to their own capacities. During my studies for the Master's in Physiotherapy in Geriatrics, I employed the package proposed here with five pre-frail older adults. Two persons did not wish to take exercise, and did indeed score low on “the health thermometer”. Two persons decided to take exercise together; they already did groceries together. The fifth person did each exercise in a different room, but not one after another. Is that a bad thing? This is not ideal, and is a topic for discussion. The primary goal is to positively influence how patients experience their own health, by giving them knowledge and understanding of physical exercises.

5. Conclusion.

Among pre-frail older adults, physical activity and how they experience their own health, and their knowledge of how to influence these, are interrelated (Behm 2014, Tak 2012). Physical activity performed in a structured way, which improves daily functioning, delivers benefits in terms of physical well-being (Tak 2013). However, the cited studies also show that

this target group does not necessarily understand these potential benefits. Such knowledge is however an important determinant for adherence. This means it is useful to invest in increasing knowledge of the risks of frailty and influencing health and independence. Offering an appropriate training method is a useful first step.

Sources

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- * Tak E., Reducing the impact of geriatric conditions by physical activity (2013) *PhD thesis VUMc 31 October.*
- * Visual Analogue Scale, www.meetinstrumentenzorg.nl.

Attachment 1: Tables

Table 1. Characteristics of pre-frail older adults, determined with a score in two tests. Cambier, used with permission.

Test	Score/range
Walking speed	0.6-0.8 m/sec
TUG	>15 sec.
This score for one or both tests	

Table 2. Chodzko et al. Position stand ACSM (2009)

The ACSM/AHA Guidelines recommend the following special considerations when prescribing exercise and physical activity for older adults. The intensity and duration of physical activity should be low at the outset for older adults who are highly deconditioned, functionally limited, or have chronic conditions that affect their ability to perform physical tasks. The progression of activities should be individual and tailored to tolerance and preference; a conservative approach may be necessary for the most deconditioned and physically limited older adults. Muscle strengthening activities and/or balance training may need to precede aerobic training activities among very frail individuals. Older adults should exceed the recommended minimum amounts of physical activity if they desire to improve their fitness. If chronic conditions preclude activity at the recommended minimum amount, older adults should perform physical activities as tolerated so as to avoid being sedentary.

Table 3. Circuit of 8 exercises, time indicated with short or long pause after each exercise. Each exercise is carried out for 30 seconds. Each exercise may also be performed several times in succession.

	Circuit time fast Performer (min.)	Circuit time slow Performer (min.)
8 exercises of 30 sec/ex.	4	4
8 x pause of 15 sec/ex.	2	
8 x pause of 30 sec/ex.		4
Warming up/Cooling down	4	4
Circuit time total	10	12

Table 4. number of treatment sessions for the complete programme

Week 1 and 2	2x/wk “psychosocial factors”	4 sessions
Week 3, 4, 5	2x/wk instructing exercises	6 sessions
Week 6 – 13	1x/wk guidance at home	8 sessions
After 3 months, continue exercises independently		Total number of sessions: 18

Attachment 2: Figures

Figure 1. Maintaining functional capacity. Source: World Health Organisation

