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The Coach2Move Approach: Development and Acceptability of an Individually Tailored Physical Therapy Strategy to Increase Activity Levels in Older Adults With Mobility Problems

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ABSTRACT

Background and Purpose: Despite the positive effects of physical activity on numerous aspects of health, many older adults remain sedentary even after participating in physical activity interventions. Standardized exercise programs do not necessarily bring about the behavioral change that is necessary. Therefore, a patient-centered approach is needed. The purpose of this study was to develop and assess the acceptability and potential effectiveness of the Coach2Move strategy; a physical therapy (PT) approach aimed at improving the long-term level of physical activity in mobility-limited older adults.

Methods: The Coach2Move strategy was developed on the basis of 2 systematic literature studies and expert consultations. Multiple focus group meetings and a Delphi procedure

were organized to gain consensus on the Coach2Move strategy. Acceptability and potential effectiveness were studied in a pilot study with a pre-/postdesign in which 2 physical therapists and 12 patients participated. To assess acceptability, patients were interviewed, discussion were held with the involved physical therapists was held, and health records were studied. Potential effectiveness was tested measuring the level of physical activity, frailty, quality of life, and mobility before and after treatment.

Results: On the basis of the literature study and expert consultations, an algorithm based on the Hypothesis Oriented Algorithm for Clinicians Part II was developed: the Coach2Move approach. Key elements of the Coach2Move approach include an extensive intake using motivational interviewing, clinical reasoning, coaching to increase physical activity and self-management, focusing on meaningful activities, and working according to 3 patient-tailored intervention profiles with a predefined number of sessions. The pilot study showed high appraisal of the strategy by both physical therapists and patients. Moreover, a potential effect on the level of physical activity, frailty, quality of life, and mobility was observed.

Discussion and Conclusion: Because the pilot study was not randomized or controlled and included a small sample, no conclusions can be drawn about the effectiveness of the Coach2Move strategy. However, all suggestions made in this study were implemented in an ongoing, randomized controlled trial in which the Coach2Move strategy will be compared to usual care PT. In conclusion, the Coach2Move strategy can be considered acceptable in PT practice and showed potential benefits. The results on the (cost-)effectiveness of this strategy based on a large, randomized, controlled trial are expected in 2014.

Key Words: clinical reasoning, mobility problems, patient-centered treatment, physical activity

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INTRODUCTION

Along with an increasing age, older adults have to eventually cope with (chronic) diseases and disabilities. The evidence for the positive effect of physical activity on multiple outcomes, such as an improvement of functional status,

prevention of (chronic) diseases, and an improvement of (psychological and social) well-being and quality of life is accumulating¹; we also know that many older adults remain sedentary.² Standardized and supervised exercise interventions do not necessarily increase the level of physical activity in daily life,³ and it is a great challenge to attain the behavioral change that is necessary for adherence to a physically active lifestyle, especially in older adults who suffer from chronic diseases and physical disabilities.^{4,5}

A large part of the population of older adults, however, suffer from (mobility) disability and problems in physical functioning.⁶ Mobility problems are known to be highly predictive of disability progression,^{7,8} to have a negative influence on quality of life,⁹ and to be associated with frailty.⁹ Frailty refers to a dynamic process involving the accumulation of physical, psychological, and/or social deficits in functioning, which increase the risk of adverse health outcomes.^{10,11} Older adults who are frail or at risk of becoming frail may benefit from physical activity in multiple ways and, therefore, physical activity is considered one of the few ways to lower frailty in older adults.¹²⁻¹⁴ Evidence suggests that physical activity has a positive influence on the physical and psychological domains of frailty.¹⁵ In addition, problems in mobility can also lead to reduced social participation.^{6,16} We can conclude that older adults with mobility problems and who are (at risk of becoming) frail may benefit immensely from physical activity.¹²⁻¹⁴ This population is, however, the hardest to get moving because of their physical, psychological, and social constraints.^{2,17}

The aim of this study was to develop a physical therapy (PT) strategy (Coach2Move) with the primary objective of increasing the level of physical activity in older adults with mobility problems and, consequently, reducing the level of frailty and improving quality of life and mobility. In this article, the development of the Coach2Move strategy, its acceptability, and potential effectiveness in PT practice are described.

METHODS

To guide the development of the Coach2Move strategy, the methodological framework proposed by the Medical Research Council was used.^{18,19} The Medical Research Council framework considers the process of development and evaluation of complex interventions as having several distinct phases: the preclinical or theoretical phase (phase I), the modeling phase (phase II), the exploratory phase (phase III), the randomized controlled trial (RCT) (phase IV), and long-term implementation (phase V). In this article, phases I through III are described (Figure 1 and Table 1).

Phase I: Preclinical Phase

The aim of the preclinical phase was to gather scientific evidence and expert opinions on the frailty process, patient

profiles, and dimensions of functioning that have to be considered as key elements in the therapeutic approach.

Literature review

Scientific evidence was gathered in 2 systematic literature reviews. The aim of the first systematic review was to identify the dimensions of functioning that are important in the frailty process and, therefore, should be considered in a PT intervention. This review also aimed to identify outcome instruments that could be used to evaluate the physical, psychological, and social aspects of frailty.²⁰ The second systematic literature review and meta-analysis was performed on the effects of physical exercise therapy in community-dwelling, frail, older adults with or at risk for mobility problems.³ This meta-analysis aimed to provide evidence on the effective components of an exercise intervention that may reduce frailty. Details of the method used in the literature reviews have been reported elsewhere.^{3,20}

Expert consultation with a multidisciplinary expert panel

A second step in the preclinical phase was to compose an expert panel and to consult this panel on the concept of frailty and key elements of a PT approach to improve physical activity. The expert panel consisted of 2 geriatricians, a nursing home doctor, a general practitioner, 3 geriatric physical therapists (GPTs) (1 working in a private practice, 1 working in a hospital, and 1 working in a nursing home), a representative of the Dutch Association for Physical Therapy in Geriatrics, a representative of the Dutch Institute of Allied Health Professions, a policymaker of a large residential care facility in the Netherlands, a caregiver of a geriatric patient, and 4 researchers. Two focus group meetings were organized with the expert panel. A focus group meeting is a group interview with a select number of participants who exchange ideas about a specific topic. A focus group meeting is generally characterized by in-depth discussions based on open-ended questions that are guided by an interviewer.²¹ In our first focus group meeting, the concept of frailty, the population of frail older adults, and the specific approach needed were discussed. The second meeting was dedicated to measurement instruments to be used in PT practice and differentiating patient profiles.

Phase II: Modeling Phase

The aim of the modeling phase was to develop a concept version of the Coach2Move strategy and to gain consensus on this strategy.

Project team meetings

The project team consisted of the authors of this article. Based on the results of the preclinical phase, decisions were made considering the approach and a first concept version of the Coach2Move strategy was developed.

Figure 1. The development and evaluation of the Coach2Move strategy based on the Medical Research Council framework.^{18,19} The dark gray parts of this figure have been finished and are described in this article. The light gray column refers to an ongoing study. The white part of this figure represents the last part of the developmental phase and will be performed in the future.

Expert consultation of physical therapists and final consensus procedure

The first concept version of the Coach2Move approach was presented to a volunteer group of physical therapists in 3 focus groups at a congress of the Dutch Association of Geriatric Physical Therapists. In addition to these focus groups, we also decided to ask for written feedback in a Delphi procedure with the physical therapists and the previously mentioned multidisciplinary expert panel. A Delphi procedure is a method in which participants fill out written questionnaires in multiple rounds to achieve consensus on a topic.²² The last step is generally a group

meeting to achieve an accepted consensus.^{21,22} In the first Delphi round, the Coach2Move approach was presented and feedback was expected. All steps of the PT process were described. Closed-ended questions were used to get feedback on the proposed steps. Participants were asked whether each step in the algorithm was relevant and correctly defined. The possibility to give suggestions for improvement was offered using open-ended questions. Because the first Delphi round resulted in only a few issues for further discussion, we decided not to perform a second written consensus round, but to organize 2 consensus meetings successively. Participants were sent an overview

Table 1. Development of the Coach2Move Strategy According to the Medical Research Council Framework

Step	Aim	Results
Phase I: Preclinical Phase		
<i>Literature review</i>		
1.	Identifying important frailty-related factors and selecting an outcome instrument to measure frailty over time	Physical dimension: nutritional status, physical activity, mobility, strength, and energy Psychological dimension: cognition and mood Social dimension: social contacts and social support
		The method of deficit accumulation was concluded to be appropriate to evaluate the level of frailty. This method was used to develop a new evaluative outcome instrument: the EFIP ²⁵
2.	Studying the effect of physical exercise therapy on mobility, physical functioning, physical activity, and quality of life	Physical exercise therapy was concluded to have a positive effect on mobility and physical functioning. High-intensity exercise seemed to be more effective than low-intensity exercise therapy in improving physical functioning. Strength training seems to be an important part of an exercise intervention and a personalized approach seemed to be more effective in reaching long-term effects.
<i>Expert consultation of multidisciplinary expert panel</i>		
First focus group meeting	Discussing the concept of frailty and the treatment approach	1. Frailty is a multidimensional and dynamic concept. 2. Consultation of and cooperation with other disciplines are an integral part of a PT intervention. 3. Conscientious diagnostics of impairments and disabilities, including barriers and facilitators at the level of activity and participation, should be conducted. 4. Explicit personalized goal setting and shared decision making should lead to a patient-centered plan focused on an increase in physical activity and self-management. Motivational interviewing is used to accomplish a patient-centered plan. 5. After dealing with physical barriers to become physically active, the role of the PT is coaching the patient in becoming more physically active in his or her own environment and achieving his or her own goals. 6. The strategy should be given by experts in the field of geriatric physical therapy.
Second focus group meeting	Selecting measurement instruments	EFIP, CIRS, SF-36, PSC, LAPAQ, EMS, grip strength (or Medical Research Council/10RM), 6MWT (if not possible 2MWT), TUG, NRS Pain, ROM, BBS (if not possible Tinetti) ^a
	Discussing intervention profiles	Three intervention profiles: (1) Increasing the level of physical activity (secondary prevention). (2) Temporary intervention to make it possible to safely maintain an active lifestyle without guidance (combination secondary prevention and curative intervention). (3) Improving/maintaining mobility, activities, participation, and enhancing physical activity in own environment (curative intervention as prerequisite for secondary prevention)
Phase II: Modeling phase		
<i>Project team meetings</i>		
Project team meetings	Developing draft version of the Coach2Move strategy	The HOAC-II and ICF were the starting points. Key elements defined in the preclinical phase were integrated in the model (Figure 1; Box 1)
<i>PT consultation and final consensus procedure</i>		
Three focus groups with physical therapists	Discussing the draft version of the Coach-2Move strategy	The Coach2Move strategy was well appreciated. Suggestions made: the BBS might be too difficult for some elderly persons, the 2 Minute Walking Test, and the Tinetti Balance Test should be added. It was discussed whether or not to add a specific falls-prevention profile. After discussion, it was decided that falls prevention is part of profile 2 or 3.
Delphi procedure in multidisciplinary expert panel and a group of physical therapists	Refining the Coach-2Move strategy	Identified barriers: time investment when working according to the algorithm, the feasibility of a preventive task for geriatric physical therapists, and the appropriateness of the Dutch Physical Activity Standard in this population.

(continues)

Table 1. Development of the Coach2Move Strategy According to the Medical Research Council Framework (Continued)

Step	Aim	Results
Consensus meeting with multidisciplinary expert panel and a group of physical therapists	Reaching consensus on the Coach2Move strategy	Barriers were discussed and consensus was reached. Discussion mainly focused on the question whether or not intervention profile 1 is part of PT treatment. It was decided that prevention is an important task of a PT and that intervention profile 1 is appropriate. Furthermore, time investment seemed large but needs to be explored in the pilot study.
Phase III: Exploratory phase		
Pilot study	Studying the feasibility of the algorithm: Interviews with patients (n = 12) Discussion between therapists (n = 2) and project team Study of registration forms	Therapists (n = 2): time investment in diagnostic phase is large (up to 2 h), but necessary to attain patient-centered and goal-oriented therapy. Therapy is more efficient (average of 11 consults). Time investment also reduced when therapists got more experienced in working according to the algorithm. Advice: remove EMS, CIRS, and SF-36 from algorithm and use electronic health record. The measurement instruments EMS, ROM, and BBS were considered not adequate as outcome instruments in an RCT. Patients: extensive diagnostic phase, including objective measures, were well appreciated and considered an incentive to perform better. The fact that therapy was aimed at their own goals was positively judged.
	Exploring the potential effectiveness of the algorithm	A significant improvement in level of physical activity, quality of life, walking speed, and level of frailty was found.
Phase IV Randomized controlled trial (RCT)		
An RCT on the (cost-)effectiveness of the Coach2Move strategy started in September 2012 in 13 PT practices in the Netherlands. The Coach2Move strategy is being evaluated on the level of physical activity, frailty, mobility, quality of life, patient-specific complaints, and cost-effectiveness in frail older adults with or at risk of mobility problems. Patients are being individually randomized to either treatment by a geriatric physical therapist according to the Coach2Move strategy or usual care PT by a PT. Blinded measurements take place at 3 and 6 months. This study has been registered in the Netherlands National Trial Register (registration number: NTR3527).		
Abbreviations: BBS, Berg Balance Scale; CIRS, Cumulative Illness Rating Scale; EFIP, Evaluative Frailty Index for Physical activity; EMS, Elderly Mobility Scale, grip strength; HOAC, Hypothesis Oriented Algorithm for Clinicians; ICF, International Classification of Functioning, Disability and Health; LAPAQ, LASA Physical Activity Questionnaire; NRS, Numeric Rating Scale; PT, physical therapy; PSK, patient specific complaints; ROM, Range of Motion; 6MWT, 6 Minute Walking Test; SF-36, 36-item Short-Form Health Survey; 10RM, 10 Repetitive Maximum; TUG, Timed Up & Go test.		

of the results of the written Delphi round and were invited to attend this meeting. The first meeting was held with the initial multidisciplinary expert panel and the second meeting with the physical therapists who responded in the Delphi procedure. Expert consultation resulted in a second concept version of the Coach2Move strategy to be used in phase III of the developmental process.

Phase III: Exploratory Phase

The aim of the exploratory phase was to test the developed Coach2Move strategy in a pilot study on acceptability and to determine the potential effectiveness before starting an RCT.

Design

The pilot study was performed according to a 12-week pre-/postdesign in which 2 physical therapists and 12 patients participated. The physical therapists were closely involved in the development of the Coach2Move approach; 1 of the physical therapists (NdV) was also part of the research team. Both physical therapists treated 6 patients. Data were collected prior to (t0) and after the PT treatment (t1 at 12 weeks) by the physical therapists. In addition, semistructured interviews were conducted in a cross-over

design in which the participating physical therapists interviewed each other's patients.

Participants

The participants were consecutive patients in 2 PT practices and enrolled after either referral by a physician or directly via self-referral between October 2013 and March 2014. Participants were included if they were 70 years or older, had problems in physical functioning/mobility and/or physical inactivity (noted by either the patient or a formal or informal caregiver), were cognitively able to understand verbal and/or nonverbal instructions (MMSE ≥ 14), were not bed- or wheelchair-bound (able to walk at least 10 m with or without the use of a walking device), and had no acute illness for which admission to a hospital was necessary. The participants were informed about the study and signed an informed consent declaration.

Outcome measures

The potential effectiveness of the PT treatment was evaluated with the following tools: the level of physical activity (LASA Physical Activity Questionnaire),²³ quality of life (SF-36),²⁴ frailty (Evaluative Frailty Index for Physical

activity),²⁵ mobility (Timed Up & Go test and Walking Speed),^{26,27} All measurements were performed pre- and posttreatment by the involved PT.

Data collection

The involved physical therapists kept a health record on a specially designed registration form consisting of all the steps of the Coach2Move strategy, including reminders considering the key elements. The registration forms were cross-checked by the involved physical therapists, which means that physical therapist 1 checked the forms of physical therapist 2 and physical therapist 2 checked the forms of physical therapist 1 on registration of all items and on using the key elements of the Coach2Move strategy.

Interviews with patients were conducted after completion of the treatment episode. As part of the interview, patients were asked to indicate the perceived effectiveness of the PT treatment on their physical functioning using the Global Perceived Effect (GPE) scale.²⁸ The GPE measures patients' opinions about the degree to which their physical functioning has changed on a 9-point scale ranging from "very much improvement" (score 1) to "very much deterioration" (score 9). In addition, patients were asked whether or not their personal treatment goals were reached, if they were satisfied with the total PT treatment and how they felt about the extensive diagnostic phase including the use of many measurement instruments. Finally, patients were given the opportunity to provide positive and negative comments about the PT treatment. The interviewer registered the answers given by the patients on a registration form.

Discussion between both physical therapists and the research team were held at the end of the pilot study. The discussion session had an open character, and the physical therapists were invited to give their opinion on the Coach2Move strategy and to indicate possible improvements. Physical therapists were also explicitly asked about their experiences with the applied measurement instruments.

Data analysis

We used descriptive statistics for quantifying outcomes at t0 and t1. Differences between outcomes at t0 and t1 were assessed using paired-samples *t* test statistics. The significance level was set at 0.05.

With regard to the qualitative analysis, 1 researcher (N.dV.) analyzed the open-ended questions descriptively by repeatedly reviewing and organizing the data to extrapolate the most meaningful sections. Common categories were extrapolated, and these categories were organized in major themes. The extrapolated themes and categories were discussed with both physical therapists and the research team (J.B.S. and R.N.).

Based on the discussion session with the physical therapists and the research team, a summary of the main barriers and recommendations to improve the Coach2Move

strategy was drafted by the researcher (N.dV.). The summary was sent to the members of the research team and the physical therapists to check the validity of the summary and the proposed adaptations to the Coach2Move strategy.

RESULTS

Phase I: Preclinical Phase

Literature review

In the first systematic literature review on identifying the dimensions that are important in the frailty process, 3 dimensions were identified. Each dimension included a number of factors: the physical dimension (including nutritional status, physical activity level, mobility, strength, and energy level), psychological dimension (including cognition and mood status), and social dimension (including level of social contacts and social support). The results of our systematic review show that numerous frailty instruments have been developed and that these instruments measure different aspects of frailty. On the basis of the review criteria, it was concluded that The Frailty Index (deficit accumulation method) was the most appropriate instrument to use as an evaluative outcome measure on frailty.²⁰ In the second systematic literature review and meta-analysis, physical exercise therapy was found to have a positive effect on mobility and physical functioning. High-intensity exercise seemed to be more effective than low-intensity exercise therapy in improving physical functioning. In addition, strength training was considered to be an important part of an exercise intervention, and a personalized approach was concluded to be most effective in realizing long-term effects.³

Expert consultation with multidisciplinary expert panel

In the first focus group meeting, the panel agreed on the key elements of the Coach2Move strategy as shown in Table 1 and Box 1. The expectations of the panel were that a detailed problem analysis would lead to a focused intervention that removed the barriers for becoming

Box 1. What Makes Coach2Move an Innovative and Unique Strategy in Improving the Activity Level in Frail Older Subjects?

1. Use of motivational interviewing: exploring questions for help and barriers and facilitators in relation to physical activity.
2. Use of an algorithm (Hypothesis Oriented Algorithm for Clinicians) that emphasizes an extensive intake and supports clinical reasoning to set priorities.
3. Shared decision making on meaningful treatment goals to increase physical activity including signing a treatment contract.
4. Coaching on self-management to increase long-term results.
5. Focusing on meaningful activities at home with help from family, friends, or professionals.
6. Working according to 3 patient-tailored intervention profiles.

physically active. In addition, focusing on the facilitators that are present in the personal and environmental domains of functioning in relation to patient-specific goals on activity and participation level was expected to increase adherence.

Phase II: Modeling Phase

Project team meetings

In an early stage, it was decided that the approach should follow both the framework of the International Classification of Functioning, Disability and Health²⁹ and the Hypothesis Oriented Algorithm for Clinicians (HOAC)-II.^{30,31} The International Classification of Functioning, Disability and Health provides health care professionals with a standardized framework to describe patients' functioning and external and personal factors that influence functioning on multiple domains in a common language. The HOAC-II model provides physical therapists with guidance in their clinical reasoning. The model is hypothesis oriented, which

means that the physical therapist formulates hypotheses about the cause and consequence of the identified problems. The status of the patient is categorized in Patient Identified Problems (PIPs) and Non-Patient Identified Problems (NPIPs), and in enablement and disablement. Patient Identified Problems are the problems encountered by the patients themselves and NPIPs are the problems identified by clinicians and caregivers. An enablement perspective guides the physical therapist not only in identifying participation and roles but also in exploring the skills and resources needed to fulfill these roles within different environmental contexts. A disablement perspective, on the contrary, reveals information about an underlying disease or pathology and the impairments and disabilities associated with these conditions as well as disabling personal and external factors. Integration of the enablement and disablement perspective, classified in PIPs and NPIPs, provides a detailed picture of patients and their environment.³⁰ The Coach2Move strategy, integrated in the HOAC-II model, is summarized in Figure 2

Figure 2. The Coach2Move strategy summarized in the HOAC-II cycle.^{30,31} Profile 1: Coaching on self-management. Profile 2: Improving functions and activities, coaching on self-management. Profile 3: Reducing specific problems in function and activities and participation, coaching on self-management. PT indicates physical therapy.

Expert consultation physical therapists and final consensus procedure

The 3 focus groups with GPTs were each visited by 15 GPTs with working experience and/or additional education in geriatrics. Feedback was mainly given on the selected measurement instruments in the diagnostic part of the Coach2Move strategy and the intervention profiles (see Table 1). Of the 45 GPTs that participated in the focus groups, 13 (28.9%) volunteered to take part in a written Delphi procedure on the Coach2Move strategy. All members of the initial multidisciplinary expert panel responded. Analyzing the results of the total Delphi procedure brought to light 3 main barriers: time investment when working according to the algorithm, the acceptability of a preventive task for physical therapists, and the appropriateness of the Dutch physical activity standard in this population. Three intervention profiles were defined in which patients were categorized on the basis of the complexity of their problems and their hypothesized potential for improvement. Profile 1 is aimed at patients who are physically inactive but do not have physical barriers to become physically active. The PT intervention mainly consists of self-management coaching. The second profile deals with patients with acute or minor mobility problems who need a temporary PT intervention to overcome barriers to becoming physically active (eg, muscle strength training, balance training, fear reduction). Patients with moderate to severe mobility problems that lead to specific problems in activities and participation are categorized in profile 3, which consists of PT treatment on the level of body function, structure, activities, and participation. In addition, all intervention profiles focus on patient-specific goals, which are set using shared decision making (Table 1). Agreement on the Coach2Move approach was reached in a consensus procedure consisting of 2 group meetings.

Phase III: Exploratory Phase

Participants

The pilot study was performed with 2 physical therapists and 12 patients. Table 2 describes the patient characteristics, the indication for PT, and the PT treatment components. Nine women and 3 men participated with a mean age of 83.0 (SD = 5.8) years. The number of comorbidities varied from 1 to 12, with a mean of 8, based on the Cumulative Illness Rating Scale for Geriatrics (CIRS-G) scores.

Registration forms

Studying the registration forms showed that all steps of the Coach2Move strategy were followed consistently and registered precisely by both physical therapists. No fidelity problems were observed. The physical therapists performed an extensive intake with all participating patients and the

discrepancy between the actual and desired situations, considering activities and roles were leading principles in goal setting (see Table 2). Physical therapists and patients agreed on treatment goals and their own contribution concerning reaching these goals. Patients were coached and trained to become more physically active in their own environment and to reach their personal goals. Other disciplines were consulted in several cases (see Table 2).

Interviews with patients

The overall experience with the Coach2Move approach was positive (Table 3). According to the GPE scale, 10 patients reported an improvement in physical functioning and 2 patients judged their physical functioning as equal to before the PT treatment. The personal goals of 8 patients were reached. The remaining 4 patients indicated that their goals were partially reached. All patients indicated that they were highly or relatively satisfied with the PT treatment. None of the patients were unsatisfied, and 1 patient was fairly satisfied. Results and patient quotes are presented in Table 3. Analyzing the open-ended questions led to the extrapolation of 4 major themes: the extensive intake/diagnostic phase, the personalized approach, the treatment modalities, and the repetitive measurements. All patients mentioned the extensive intake, and this was well appreciated. All patients were satisfied with the detailed analyses of their problems. In addition, most patients were glad to be taken seriously in their complaints and desires and allowed to tell “their story.” A second theme that emerged from the interviews was the personalized approach. It was considered motivating by many patients to work together with the PT in achieving their own goals. Third, patients noticed that the PT treatment did consist of not only exercise therapy but also instruction, advice, and coaching on how to reach their goals in daily life. Patients indicated that this helped them a great deal in reaching their goals in their own environment. Finally, most patients valued the measurements that were periodically executed by the PT to evaluate treatment progression. The objective assessment of (functional) status made them see their progression, and this was considered a motivating factor for adherence.

Discussion with involved physical therapists

For the involved physical therapists, the pilot study showed that working according to the Coach2Move approach was very time consuming. The diagnostic/consultative part of the strategy and registration took up to 2 hours per patient, while the duration of a normal PT consult in the Netherlands is 30 minutes. Time investment did decline along the way when the therapists got more experienced with the Coach2Move strategy. Despite the large time investment in the diagnostic phase, the physical therapists were positive about the added value of the Coach2Move approach. It was concluded that a good diagnostic phase was an essential part of PT and allowed physical therapists

Table 2. Characteristics of Participant and the Physical Therapy Process in the Pilot Study

Patient	Age	Gender	Score on CIRS-G	Physical Therapy Indication	Question for Help	Personal and External Factors	Physical Therapy Intervention	Consultation Other Discipline?
1	75	Male	12	Surgically repaired hip fracture	Wants to walk outside without a walking aid and to do gardening	Lives at home with wife, mild cognitive impairment, afraid to fall	Instructions/ advice on mobility, walking aids, and gardening. Exercise to improve quadriceps muscle strength and endurance	Orthopedic surgeon was consulted because pain did not decrease: the gamma nail turned out to be wrongly placed
2	70	Female	12	Total de conditioning and mobility problems, including fall risk	Wants to be more active and to be able to walk longer distances to go on trips with husband and (grand) children	Lives at home with husband, lies in bed most of the day, mild depression, afraid to fall	Instructions/ coaching on physically active lifestyle and ADL. Exercise to improve muscle strength, endurance, balance, mobility. Walking program and training ADL skills	Geriatrician to be informed about the complex health status and whether or not medical treatment is needed.
3	88	Female	1	Low activity level after fall incident (direct access to physical therapist)	Wants to be more physically active. Afraid to move around because of fall accident	Lives at home independently, daughter lives nearby and comes around often, afraid to fall	Instructions on the importance of physical activity and coaching to stay physically active	...
4	81	Male	6	Total hip replacement	Wants to be independent in ADL, to increase walking distance, to bike and to work in the garden	Lives at home independently, no children or other family, but "good" neighbors. Very motivated to improve physical functioning	Instructions/ coaching on mobility, ADL and gardening. Exercise to improve endurance, muscle strength in the lower extremities and training ADL skills, working in the garden and biking	...
5	82	Female	7	Low activity level	Wants to be able to say prayers by kneeling on the floor, wants to go to the church again, and wants to ride a bike again	Lives in a residential care facility where help in household is provided. Low cognition, lonely and acquainted with depression. Children do not come around often.	Information/ coaching on the importance of physical activity and possibilities for an active lifestyle, trying possible physical activity options, training kneeling on the floor and rising from the floor	Occupational therapist to try riding an adapted bike and psychiatrist to get additional information considering cognition and depression
6	79	Female	9	Surgically repaired hip fracture	Wants to improve walking ability, to get in and out of bed independently and to go to the bathroom independently	Lives in a residential care facility. Help in ADL and household is provided. No tasks and roles but is satisfied with situation: has "small" goals. Good contact with children and grandchildren	Instruction/ coaching on ADL (bed and toilet transfers) and walking aids. Exercise to improve muscle strength of lower extremities and mobility/ walking. Training getting in and out of bed and going to the bathroom	Orthopedic surgeon was consulted for prolonged pain. The gamma nail turned out to be wrongly placed

(continues)

Table 2. Characteristics of Participant and the Physical Therapy Process in the Pilot Study (Continued)

Patient	Age	Gender	Score on CIRS-G	Physical Therapy Indication	Question for Help	Personal and External Factors	Physical Therapy Intervention	Consultation Other Discipline?
7	89	Female	2	Surgically repaired hip fracture	Wants to be able to walk to community center and participate in exercise and dance class (at community center)	Lives at home independently. Little family interaction; one son who lives far away. Social contacts in community center. Positive attitude	Instructions/ advice on walking, training walking endurance, and expanding walking distance. Exercise specific to the exercise- and dance classes to attend in the future	...
8	88	Female	12	Low activity level (<i>direct access to physical therapist</i>)	Wants to be more physically active to be able to go to social activities	Lives in a residential care facility. Good relationship with children who help her in many activities. Worries about health status, but positive attitude	Instructions on the importance of physical activity and coaching to stay physically active	...
9	87	Female	5	Total hip replacement	Wants to be independent in ADL and live at home	Lives temporarily in a residential care facility after surgery. At home: large house with bedroom upstairs. Children are involved in recovery, but very busy. Before surgery socially and physically active life. Used to be a PT herself	Instructions on mobility and ADL. Exercise to improve endurance and muscle strength of the lower extremities	...
10	84	Male	7	Arthritis spine	Wants to have some tasks and roles in life and more social interaction. Misses that since moving to a residential care facility. Wants to improve walking	Lives in residential care facility, against his will. No family or friends, very lonely. Residential care facility is in another town, misses his home town and the people in his old neighborhood. Difficult to make new contact. Severe pain	Instructions on the importance of physical activity and coaching to stay physically active. Coaching meaningful activities and social interaction. Training to improve walking	Social worker was consulted to help in finding meaningful activities and improve social interaction
11	82	Female	10	Total hip replacement	Wants to do some household chores independently, walk outside every day, and be able to go to the coffee room to drink coffee with others.	Lives in a residential care facility. Gets help in ADL and household. Contact with children not good, feels depressed and a bit lonely	Instruction on physical activity and coaching on household chores and an active lifestyle. Exercise aimed at improving balance, endurance and walking distance, training to walk outside and to coffee room	...
12	87	Female	10	Walking difficulty and fall risk	Wants to be able to go outside for a walk with husband and wants to have more tasks/ things to do	Lives together with husband in residential care facility, both not healthy. Good contact with children. Is "not allowed" to do things because of fall risk. Cognitive impairment	Instruction/ advice on safely performing (household) activities. Exercise to improve endurance and balance. Training, walking outside, and improving walking distance	

Abbreviation: ADL, activity of daily living.

Table 3. Patient Opinion on the Physical Therapy Procedure and Outcome

Patient	GPE	Goals Reached?	Patient Satisfaction - Opinion on PT Procedure	Patient Quote
1	2	Yes	Very good	The measures made me see my progression.
2	3	Yes	Good	I still feel very tired, but I do get out and do things again.
3	2	Yes	Good	That was the advice I needed to get back on my feet.
4	1	Yes	Very good	I never thought I would be able to do gardening again.
5	1	Yes	Very good	Every time I am walking I feel that I am getting stronger.
6	3	Yes	Good	Now I am satisfied with the things I can do.
7	3	Partly	Good	I have reached my goals. I am able to walk to the community center and participate in my exercise class, but it does take a lot of effort.
8	5	Yes	Good	It was nice to see how well I performed at the tests.
9	2	Yes	Good	The treatment was functional, it really helped me.
10	5	Partly	Fair	The pain does not decrease, that's frustrating.
11	3	Partly	Good	I still want to walk longer, but my body is not cooperating.
12	3	Partly	Good	The exercise was good, but hard.

Abbreviation: GPE, Global Perceived Effect, ranging from 1 (very much improvement) to 9 (very much deterioration); PT, Physical therapy.

to make better decisions, resulting in therapy that was more goal-directed, time-efficient, and patient-centered. Adherence improved because of the fact that goals were of great value for the patients and because they were motivated to reach them. Furthermore, coaching was possible in this population and patients were able to become more physically and socially active in their own environment: sometimes on their own and sometimes supported by family, friends, or professionals. Registration using an electronic health record was suggested to make the administrative process more efficient. In addition, it was suggested to remove some of the recommended measurement instruments from the algorithm: the Elderly Mobility Scale (EMS), the SF-36, and the CIRS-G because these instruments were time-consuming while the information gathered did not influence the clinical reasoning process.

Potential effectiveness

Table 4 describes the results of the quantitative evaluation of the 12 patients. This table shows that, overall, patients were more physically active and less frail after PT treatment. They also had a higher quality of life and better mobility. A significant mean change of 26.9 minutes of physical activity a day was observed (SD = 23.7). Furthermore, the physical dimension of quality of life and walking speed significantly improved, and the level of frailty significantly decreased with a mean change of -0.076 (SD = 0.073; $P < .05$).

DISCUSSION

Our study shows that the Coach2Move strategy is an innovative, patient-centered approach that has been systematically designed and is based on the combination of scientific evidence and expert opinion. After minor adjustments, the

Coach2Move strategy was considered acceptable by both physical therapists and patients. The next step is to test the effectiveness and cost-effectiveness of the Coach2Move strategy in an RCT, which we have already started. The design of this study has been described in a previous publication³² and is registered in the Netherlands National Trial Register (registration number: NTR3527).

The patients were all very satisfied with their treatment according to the Coach2Move strategy. The themes that emerged from interviews showed that the key elements of the Coach2Move strategy were apparently noticed and well appreciated. Research shows that, in clinical practice, physical therapists do not generally apply key elements of the Coach2Move strategy such as goal setting on activity level, analysis of both enablement and disablement, shared decision making, and coaching.^{33,34} This supports us in our hypothesis that the Coach2Move strategy differs substantially from conventional PT. We will evaluate the contrast between the Coach2Move approach and usual care PT in the RCT using quality indicators.

The physical therapists in the pilot study were also supportive of the additional value of the Coach2Move strategy in PT practice. They did, however, make some suggestions to improve the strategy. First, the diagnostic part of the strategy was concluded to be time consuming. On the contrary, this was one of the strengths of the approach. Shortening the strategy would mean that some basic steps of the clinical reasoning process would get lost, while all the steps of this process are important. Investing more time in a comprehensive inventory of the patient-specific situation and applying motivational interviewing leads to agreement with the patient on (specific) individual treatment goals and treatment plan, and to the patient's own contribution to achieve these goals. This

Table 4. Results of the Pilot Study

Patient	LAPAQ: min/d		SF-36: Physical Score		SF-36: Mental Score		EFIP		TUG (s)		Walking Speed (m/s)		Intervention Profile	Number of Consults
	T0	T1	T0	T1	T0	T1	T0	T1	T0	T1	T0	T1		
1	20.4	69.3	31.4	35.9	52.3	64.2	0.38	0.35	16.0	17.7	0.83	0.79	2	8
2	4.28	22.0	30.4	34.2	48.0	62.0	0.55	0.52	32.0	22.5	0.55	0.67	3	14
3	23.0	58.6	27.4	50.7	71.5	60.9	0.34	0.15	21.0	17.0	0.75	0.85	1	3
4	25.0	114.3	20.1	40.2	66.9	55.9	0.36	0.20	41.0	16.0	0.6	0.93	2	17
5	21.3.	42.9	45.9	51.2	60.0	58.4	0.31	0.21	10.5	10.0	0.93	0.97	1	7
6	0.0	20.0	30.5	31.5	65.5	65.6	0.50	0.47	32.0	52.0	0.38	0.26	3	17
7	20.0	56.3	32.4	44.8	57.4	60.8	0.45	0.27	32.0	14.0	0.55	0.83	2	8
8	15	27.1	18.5	53.1	62.1	54.9	0.47	0.37	19.0	19.0	0.90	0.89	1	3
9	5.7	17.0	41.7	46.8	49.2	62.9	0.37	0.30	22.0	15.0	0.67	0.91	2	15
10	15.0	35.0	39.9	38.5	30.4	34.1	0.42	0.38	19.0	19.8	0.64	0.66	1	7
11	2.0	8.0	27.1	27.2	68.0	71.2	0.53	0.58	19.7	19.1	0.70	0.83	2	15
12	0.0	3.6	27.3	29.9	21.1	18.0	0.71	0.67	18.1	16.6	0.53	0.56	3	19
Mean (SD)	12.6 (9.6)	39.5 (31.3)	32.1 (7.1)	39.2 (7.9)	54.0 (15.3)	55.9 (14.9)	0.45 (0.11)	0.37 (0.16)	23.9 (8.6)	19.9 (10.6)	0.67 (0.16)	0.76 (0.20)		11.00 (5.73)
Change: Mean (95% CI)	26.9 (41.9 to 11.8) ^a P = .00		7.12 (12.0 to 2.2) ^a P = .00		1.9 (7.2 to -2.2) P = .45		-0.076 (-0.03 to -0.12) ^a P = .00		-4.0 (3.0 to -11.0) P = .24		0.09 (0.18 to 0.02) ^a P = .02			

Abbreviations: CI, Confidence Interval; EFIP, Evaluative Frailty Index for Physical activity; LAPAQ, LASA Physical Activity Questionnaire; SF-36 = 36-item Short Form Health Survey; TUG, Timed Up & Go Test; T0 refers to before the start of the physical therapy episode and T1 refers to after the physical therapy episode.

^aSignificant difference between pre- and posttreatment measurement.

is hypothesized to be more time efficient in the end. To make the Coach2Move approach less time-consuming without losing essential steps in the clinical reasoning process, it was suggested to remove 3 measurement instruments from the algorithm. This suggestion was followed, and the SF-36, the EMS, and the CIRS-G were removed from the Coach2Move strategy. Another suggestion was to support the clinical reasoning process and lessen the administrative burden by developing an electronic health record that consists of all “Coach2Move steps.” This suggestion was also followed and implemented in the ongoing Coach2Move RCT.

Even though the Coach2Move strategy involves a relatively large time investment during the diagnostic phase of PT treatment, we do expect this strategy to be both more effective in improving the long-term level of physical activity and more efficient than usual care PT. We expect both interventions to be effective in reducing problems related to mobility and body function and structure. However, we expect that, because of its specific focus (Box 1), the Coach2Move strategy leads to a long-term increase in physical activity. This hypothesis is based on our meta-analysis in which we concluded that participation in an exercise intervention did not mean that the level of physical activity in daily life increased.³ In addition, we know from the literature that physical therapists do not generally set goals specifically directed at increasing physical activity and that physical therapists do not generally use coaching techniques.³⁴ In a recent publication of the Netherlands Institute for Health Services Research (NIVEL),³⁵ improving physical activity is not mentioned as one of the treatment goals applied by physical therapists in 2012 in the Netherlands. This NIVEL report also shows that, even though most physical therapists (55.7%) give information and advice to their patients as part of their treatment, only 0.1% explicitly “coaches” their patients.³⁵ Moreover, the mean number of consultations given in this pilot study (including the extensive intake) is 11 sessions (1/2 hour). This is less than the mean number of PT sessions in usual care PT in the Netherlands for people with a chronic condition, which was 19 in 2012.³⁵ This supports the hypothesis that a focused intervention based on an extensive diagnostic phase increases motivation and adherence and is, therefore, more efficient in the treatment phase.

A limiting factor in this study was that the physical therapists that performed the pilot study were involved in the developmental process of the Coach2Move strategy, and 1 of them was part of the research team (N.dV.). This made it easier for them to apply the strategy correctly and may have contributed to the absence of fidelity problems. In addition, the (nonblinded) physical therapists also performed data collection, which may have resulted in bias. The pragmatic choice for this design was made because the aim of this pilot study was not to evaluate

effectiveness, but to assess acceptability and potential effectiveness. The participating patients provided only positive feedback concerning the Coach2Move process. Possibly, the fact that the patients were given a lot of attention as a consequence of participating in a pilot study influenced their judgment on the PT process; patient/therapist interaction is known to be of great value for patients.³⁶ Future research will have to show whether the Coach2Move strategy can be broadly implemented in PT practice; health care professionals do not automatically adopt a new strategy after being trained in that strategy. Various determinants may influence the implementation process either positively or negatively, for example, the characteristics of the new strategy, the adopting person, the organization, or the sociopolitical context.³⁷ A process analysis will be conducted alongside the ongoing RCT to evaluate possible implementation issues. In addition, performance indicators will be developed to evaluate the adherence to the Coach2Move strategy by the participating physical therapists.

Choices made in the design of the ongoing RCT were based on the results of this pilot study. The fact that we found significant changes in the small sample of this pilot study on different outcomes, including physical activity, frailty, walking speed, and quality of life, is promising with regard to the ongoing RCT and support of our hypothesis: improving agility in mobility-limited older adults (as measured by means of walking speed) makes it possible to be more physically active. Adequate PT guidance and coaching in becoming more physically active in a way that suits individual lifestyle, wishes, and barriers is expected to lead to greater adherence to a physically active lifestyle after PT has ended. Finally, we expect a physically active lifestyle to positively influence quality of life and the level of frailty. The results of our RCT are expected in 2014.

CONCLUSION

This article describes the development of the Coach2Move strategy: a personalized and goal-oriented PT approach aimed to improve the level of physical activity in older adults with mobility problems. After minor adjustments, the Coach2Move approach is acceptable for both physical therapists and patients. Moreover, the Coach2Move approach has shown potential benefit for older adults with mobility problems. Effectiveness and cost-effectiveness of the Coach2Move strategy are being studied in an ongoing RCT. The results of this RCT are expected in 2014.

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