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Expert Survey on Physical Activity Programmes and Physical Activity Promotion Strategies for Older People

National Report - The Netherlands

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Contents

1	Introduction.....	5
2	Methods	7
2.1	Definitions	7
2.2	The experts.....	7
2.3	National qualifications in the supervision/guidance of physical activity.....	9
2.4	Selection of programmes and promotion strategies.....	9
2.5	Systematic search for evidence based guidelines	10
3	Results Experts.....	13
3.1	Selection of Experts	13
3.2	National qualifications in the supervision/guidance of physical activity.....	15
3.3	Nominated programmes and promotion strategies	17
4	‘Successful’ PA Programmes.....	19
4.1	Description of pa programmes.....	19
4.2	Results for the directors questionnaire.....	21
5	‘Successful’ PA Promotion Strategies	37
5.1	Description of promotion strategies.....	37
5.2	Results for the directors questionnaire.....	38
6	Concordance with guidelines	47
6.1	Results systematic search for evidence based guidelines	47
6.2	Concordance of pa programmes with guidelines.....	47
6.3	Concordance of pa promotion strategies with guidelines	57
7	Conclusions & Recommendations	63
7.1	Selection and response of experts	63
7.2	National qualifications	63
7.3	Selection of programmes and strategies	63
7.4	Programmes	63
7.5	Promotion strategies	65
7.6	Limitations	66
7.7	Conclusion	67
	Appendices	
	A Identification details of national PA experts	
	B Identification details of ‘successful’ PA programmes	
	C Identification details of ‘successful’ PA Promotion Strategies	
	D Search strategies	
	E Overview selected programmes and promotion strategies by physical activity experts	
	F Citation details of evidence based guidelines	

1 Introduction

The European Network for Action on Ageing and Physical Activity (EUNAAPA) is committed to improving the health, wellbeing and independence of older people throughout Europe by the promotion of evidence-based physical activity.

The first aim of EUNAAPA work package No. 5 (Identify Existing Programmes for Physical Activity and Physical Activity Promotion for Older People) was to identify and describe, with the help of national experts, Dutch examples of physical activity (PA) programmes and PA promotion strategies for older people which were deemed to be 'successful'. The second aim was to critically compare these programmes and strategies with evidence based guidelines identified by a systematic search of the scientific literature.

In May 2007, the EUNAAPA partners in each participating country were asked to enlist the help of eleven physical activity experts in their country, all recognised authorities on PA for older people. Each Expert was asked to:

- complete a short questionnaire concerned principally with the availability in their country of national qualifications in the supervision or guidance of physical activity for adults in general and for older adults in particular;
- identify a successful PA programme for older people in their country and assist its director to complete a second (longer) questionnaire, concerned primarily with the characteristics of the chosen PA programme;
- identify a successful PA promotion strategy for older people in their country and assist its director to complete a third questionnaire, concerned primarily with the characteristics of the PA promotion strategy.

The resulting data have been submitted to the leader of work package 5 (University of Edinburgh) for incorporation into a cross-national report. The present document is a national report on the data collected by and from the Dutch Experts.

In the Netherlands, the inventory was carried out by the Dutch collaborating EUNAAPA partner, TNO Quality of life, in Leiden.

2 Methods

2.1 Definitions

Throughout this report several terms will be used to describe the physical activity programs, promotion strategies etc. The following definitions have been used in the data collection, analysis and discussion:

Physical activity (or PA) – Any bodily movement that is produced by the contraction of skeletal muscle and that substantially increases energy expenditure *e.g.* running, walking, swimming, lifting or carrying a heavy weight.

PA programme – A schedule of selected physical activities in which individuals can choose to engage *e.g.* an overall programme of activities and PA opportunities for older people OR the components of such a programme, such as a programme of old time dancing classes, supervised resistance training, supervised seated exercise classes, hill walking groups or aqua classes etc.

A successful PA programme – A PA programme is ‘successful’ if a PA expert in that country considers it to be successful. This judgment may be based on some or all of a wide range of possible effects of the programme. These might include, for example, demonstrable improvements in physical fitness or quality of life, growing membership, client loyalty, etc.

PA promotion strategy – An intervention, device or plan which is intended to increase the PA of a community *e.g.* improved street lighting or an educational TV advertising campaign.

A successful PA promotion strategy – A PA promotion strategy is ‘successful’ if a PA expert in that country considers it to be successful. This judgment may be based on some or all of a wide range of possible effects of the strategy. These might include, for example, demonstrable improvements in swimming pool use, in self-reported physical activity, increasing bicycle sales etc. In order to check how experts defined the term ‘successful’ TNO asked them to indicate this on a separate form.

Older person – (as used in the systematic search) being 60 years and over, in good health or suffering from a medical condition.

2.2 The experts

As requested by the leader of Work Package 5, eleven Experts were selected with the help of the matrix below (Table 1). Partners were instructed that they should use the matrix to guide the selection of eleven Experts – ideally one from each of the 11 boxes but not more than two from any one box. They were advised that the matrix should be used flexibly, bearing in mind, for example, that several organisations could be located in more than one box. EUNAAPA Partners were also advised that, ideally, all of their selected Experts should be knowledgeable both in the field of PA Programmes and in the field of PA Promotion Strategies. If this was not possible, it was particularly

important that the Partners should ensure that both fields were adequately represented in the group of 11 Experts as a whole.

Table 1 Matrix used to guide the selection of national Experts for WP5

	sport sector		health sector and/or social services sector		education sector (including training and professional development)	
	government	other	government	other	government	other
National or Regional	Ministry of Sport (or equivalent)	NGO specialising in the delivery of recreational or competitive physical activity for older people	Ministry of Health or Ministry (or department) with particular responsibility for older people	NGO specialising in the delivery of health-related exercise for older people or sickness funds or health insurance or NGO addressing age-related issues	Department specialising in the training of those who deliver recreational, competitive or health-related physical activity for older people	NGO specialising in the training of those who deliver recreational, competitive or health-related physical activity for older people 6
	1	2	3	4	5	Professional association for those specialising in old age healthcare or social care 7
	government	other	government	other		
City or local neighbourhood	Municipal department for sport, recreation and leisure services	Sport or dance organisation with special interest in older people or Other organisation providing physical activity opportunities for older people	Municipal department responsible for healthcare services for older people or Municipal department responsible for social care services for older people	Local branch of a sickness fund or health insurance or Commercial provider of health-related exercise or Local branch of an NGO addressing age-related issues/providing social care for older people		
	8	9	10	11		

Most of the Dutch Experts selected were known personally to EUNAAPA, TNO. In order to guarantee the participation of the designated 11 experts more experts were contacted at the start of the selection process. This was also done to ensure selection of experts in all 11 boxes of the sampling matrix and anticipate on problems with contacting experts during the Dutch holiday season (July-August 2007) and possible non-response. Also, after the initial selection process, a feedback session/expert meeting

was held with PA experts concerning the results of Work Package 4 (Assessment of instruments to measure physical activity and physical functioning) and to present the EUNAAPA network and other work packages. During this meeting some participants also suggested other possible experts to be selected for work package 5.

Selected Experts were then contacted by TNO by letter and/or telephone. The purpose of the project and Work Package was explained to the potential Expert by TNO and their support was requested.

2.2.1 *Distribution and return of Experts' questionnaires*

From July to August 2007 experts were contacted and requested to participate. After agreement to participate, each expert was sent a copy of the PA Expert Questionnaire, accompanied by an explanatory letter. Also included were a template of a further explanatory letter and paper copies of the other two questionnaires for distribution, in due course, to the directors of their chosen PA programme and PA promotion strategy. In order to facilitate this process, TNO offered assistance in contacting directors and sending out the questionnaires.

PA experts were encouraged to complete and return the PA Expert questionnaires as soon as possible. Defaulters were reminded several times by telephone and e-mail. Also, they were advised to contact directors a.s.a.p. in order to give them enough time to complete the questionnaire. The last reminder included a warning that if questionnaires were not returned by 20 September 2007, it might not be possible for their data to be included in the final analysis and in the national and cross-national reports.

2.3 National qualifications in the supervision/guidance of physical activity

The questionnaire completed by the 11 national Experts also asked about the availability in their countries of national qualifications in the supervision or guidance of physical activity for adults in general and for older adults in particular. It asked whether such qualifications were optional or compulsory, and requested detailed information about assessment, validation and revalidation of the higher level, older-person-specific qualification. Finally, it asked about the existence in their country of a professional register of qualified instructors (*i.e.* a regulatory body that holds a current record of those qualified to guide or supervise physical activity and of their level of specialist qualification).

2.4 Selection of programmes and promotion strategies

Each national Expert was asked to identify a successful PA programme and a successful Promotion Strategy for older people in their country and assist its directors to complete a questionnaire concerned primarily with the characteristics of the chosen programme or strategy. The national Experts were instructed that their choice should be guided by the definitions as stated in the beginning of this method section.

To be eligible for consideration a successful PA programme or strategy must have been running for at least 6 months and if it has ceased, this must have occurred no more than 2 years previously.

2.4.1 *Distribution and return of programme and strategy questionnaires*

In June 2007, each of the selected Dutch Experts were invited to nominate a successful PA programme and promotion strategy and contact the directors by an explanatory letter. They could also distribute the questionnaires. TNO offered to assist with this process because of the upcoming holiday season. If an invitation was declined, because a director did not agree to participate or because it had already been chosen by another PA Expert, then the PA Expert was invited to identify another successful PA program or promotion strategy. PA Experts were not permitted to select their own programme or promotion strategy.

The PA Experts were invited to give support to the director of their chosen PA promotion strategy Directors, and were reminded several times to complete and return the questionnaires. The last reminder included a warning that if questionnaires were not returned by 20 September, it might not be possible for their data to be included in the final analysis and in the national and cross-national reports

2.5 **Systematic search for evidence based guidelines**

The objective was to conduct a logical, repeatable and thorough search for evidence-based, professional guidelines for the promotion and/or provision of safe and effective physical activity (PA) by older people.

The guidelines identified by the search are to be used to create a readily accessible inventory of existing evidence based guidelines. This resource is to be included in the cross-national and national reports on WP5. It will permit a critical comparison of the successful PA programmes and PA promotion strategies (identified by the WP5 Experts) with current evidence-based guidelines.

2.5.1 *Criteria for inclusion in inventory of guidelines*

The publications to be included in the inventory were those which we considered to be guidelines, position stands, consensus statements, standards or recommendations from a credible source, that addressed exercise and/ or physical activity for older people and which satisfied all five of the following criteria:

- composed by a process involving a consensus of experts;
- published under the auspices of government departments, international health organisations, age-related NGOs, or learned societies;
- with sufficient information about the evidence on which they are based to allow the individual recommendations to be graded according to the strength of that evidence (SIGN Guideline No. 98, July 2007);
- published from 1990 onwards;
- addresses the delivery and/or promotion of physical activity for the older person (including old age specific sub-sections of guidelines for the role of physical activity for adults of all ages in health and/or disease).

2.5.2 *Search to identify candidate publications for inclusion in the inventory of guidelines*

The search protocol took account of the fact that the guidelines which we sought might have been published in scientific journals, websites, or as free-standing publications. Searches included no language restrictions and were limited to older adults. The following electronic databases were searched:

- Ovid Medline (1950 to June Wk 4 2007)
- CINHL (1982 to June Wk 5 2007)
- EMBASE (1996 to 2007 Wk 26)
- SPORTDiscus (1830 to May 2007)
- AARP Ageline (1978 to June 2007)
- Cochrane Review Library
- NHS Scotland elibrary

Appendix D lists the search strategies used for Ovid Medline and adaptatons for the other databases.

The following websites were chosen on our judgement and searched for relevant guidelines, position stands, consensus statements, standards or recommendations. Search terms were adapted from the two Ovid Medline searches outlined in appendix D.

- WHO (World Health Organisation)
- NIH (National Institute of Health)
- NIA (National Institute of Ageing)
- CDC (Centre for Disease Control)
- ACSM (American College of Sports Medicine)
- AHA (American Heart Association)
- NICE (National Institute for Health and Clinical Excellence)

Two reviewers (Fiona Scott and Archie Young) independently scanned the titles of candidate publications identified by the searches to identify potentially relevant publications for more detailed review. Searches of bibliographies and texts were also conducted to identify additional relevant publications. Non-concordance of reviewers was resolved by discussion. The abstract was obtained for each title selected.

The abstracts were then independently studied by the two reviewers, to identify publications for full review. Non-concordance was resolved by discussion. From the full text, the reviewers independently identified the publications which met all five criteria for inclusion in the inventory. Once again, non-concordance was resolved by discussion.

3 Results Experts

3.1 Selection of Experts

Twenty four potential Experts were contacted of which fifteen agreed to participate (see also figure 1). Of the nine experts that did not participate, two declined because they did not have enough experience or knowledge in the field of Physical Activity. Seven experts did not respond at all to our request(s).

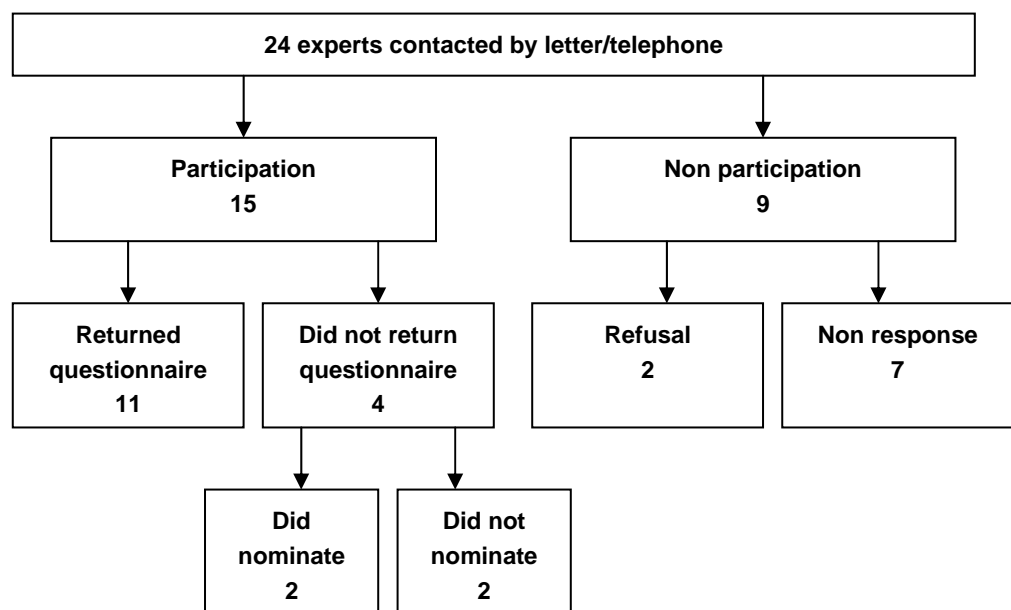


Figure 1 Flowchart selection and response Dutch experts

When selecting the Experts, TNO judged that the thirteen experts agreeing to participate (represented by the letters A-M¹) represented all of the primary matrix fields, with the exception of box 3 and box 5 (Table 1 and 2). Some of the Dutch Experts, however, could justifiably be identified with more than one field in the selection matrix.

Table 2 Primary matrix fields of 13 Dutch Experts that nominated programs and strategies, as perceived by TNO when selecting the Experts. Expert L and M did not complete the expert questionnaire.

	PA Expert												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Primary matrix field	1	4	10	11	4	2	6	7	9	6	11	2	8

3.1.1 Return of Experts' questionnaires

Despite several reminders (see above), four selected experts did not return their expert questionnaire. Two of them however did nominate a successful program and strategy. Two experts did not respond at all. This meant that box 8 of the selection matrix is also

¹ These include the eleven who returned the questionnaire and 2 additional experts who nominated programmes and strategies

Expert	total	A	B	C	D	E	F	G	H	I	J	K
Health-related exercise facility management	1						1					
Health-related exercise instruction/supervision/guidance	4							1	1	1	1	
Education	4					1			1	1	1	
Research	6		1			1	1		1		1	1
Social services, social care or social welfare	1										1	
Socio-cultural organisation	0											

3.2 National qualifications in the supervision/guidance of physical activity

3.2.1 Basic level qualification

Most experts do not know whether there are basic level requirements available or required (table 5). Those experts that indicate there are qualifications required mention the CIOs (Coordinator Sports & Movement Activities) and requirements for specific programs. One expert estimates that 75% of instructors have an entry level qualification.

Table 5 PA Experts' responses concerning the availability in The Netherlands of a basic level qualification in supervising or guiding physical activity or exercise by adults in general

	Basic level qualification	
	Available	Required
Yes	2	3
Sometimes	1	0
No	0	4
Don't know	2	4
Missing Data	0	0
Not applicable	6	0
Total	11	11

3.2.2 Higher level qualification

Also concerning higher level qualifications, most experts do not know whether these are required (table 6). The same qualifications are mentioned as earlier, this time specifically for older adults: CIOs/OA (CIOs for Older Adults) and qualifications for specific programs (like *MBvO*, More Exercise for Seniors). A majority of the experts think that a higher level qualification is important (5 out of 11), although most do not know whether such a qualification is externally validated. Two experts estimate that 75-100% of instructors has a higher level qualification (Table 7).

Table 6 PA Experts' responses concerning the availability in the Netherlands of a higher level qualification in supervising or guiding physical activity or exercise by older adults.

	Higher level qualification			
	Available	Required	Important	External verification
Yes	2	2	5	1
No	1	6	0	1
Don't know	4	3	3	5
Not applicable	4	0	3	4
Missing Data	0	0	0	0
Total	11	11	11	11

Table 7 PA Experts' estimates of the prevalence of the basic, entry level qualification and the higher level (older-person-specific) qualification among instructors guiding or supervising physical activity by older participants

	Entry level	Higher level
0%		
25%		
50%		
75%	1	1
100%		1
Don't know	8	7
Not applicable	2	2
Missing data		
Total	11	11

3.2.3 Assessment, validation and revalidation

According to most experts who answered the question about the higher qualification level, all mentioned aspects in table 8 are part of the assessment. A test of knowledge and a practical test of teaching competence are the most mentioned requirements for retention of the higher level qualification

Table 8 PA Experts' responses concerning the components of the assessment for the higher level (older person specific) qualification (sorted)

	yes
Verification of current cardiopulmonary resuscitation (CPR) certification	6
Summative assessment of knowledge	5
Practical teaching competence assessed with older participants	5
Practical teaching competence assessed with participants of any age	3
Don't know	3
Not applicable	2

Table 9 Number of PA Experts' concerning the requirements for retention of the higher level (older person specific) qualification

	Yes	No
Payment of fee	1	7
Evidence of current CPR certification	2	6
Evidence of continuing professional development (CPD)	2	6
A test of knowledge	4	4
A practical test of teaching competence	5	3
Other	0	8
Nothing	1	6
Not applicable	3	

3.2.4 Professional register

Although only two experts indicated that there is a professional register of qualified instructors, five experts mentioned a specific register by name. These are the BIG registration (Professionals in care), KNGF (Royal Dutch Society for Physical Therapy) and specific registers of organisations that deliver the programs (*MBvO (More Exercise for Seniors)*, *GALM (Groningen Active Living Model)*, *HIB (Heart in Movement)*).

Table 10 PA Experts' responses concerning the existence in the Netherlands of a professional register of PA instructors and their qualifications and concerning its membership requirements for registration to supervise PA by adults in general (a basic, entry level qualification*) and by older adults in particular (a higher level qualification**)

	Professional register		
	Exists	Membership requires	
		Entry level*	Higher level**
Yes	2	2	4
No	5	1	1
Don't know	4	4	
Not applicable		4	5
Missing data			1
Total	11	11	11

3.3 Nominated programmes and promotion strategies

In total thirteen experts nominated a PA programme and promotion strategy. All directors were contacted to participate and provide information via the relevant questionnaire. Figure 2 and Appendix E gives an overview of the nominated and finally included programmes and strategies.

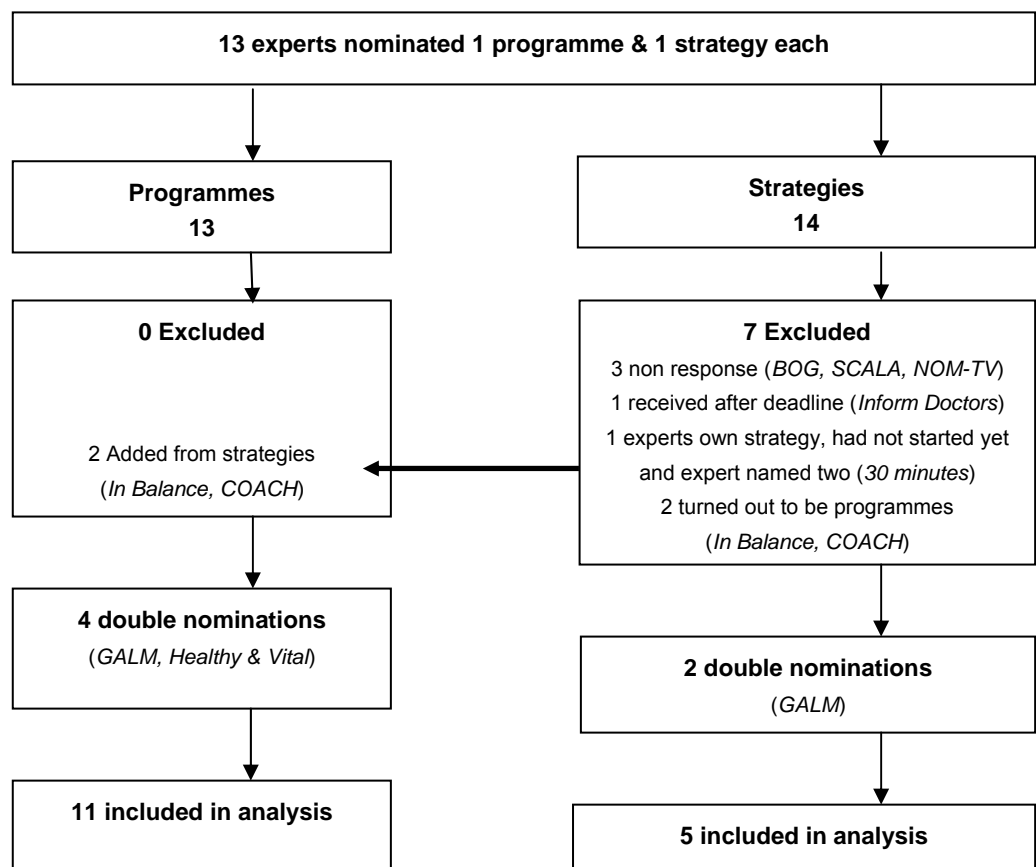


Figure 2 PA Experts' nominated and included PA programmes and promotion strategies

Note: BOG stands for "Bewegen voor Ouderen in Groepsverband" (Exercise for Seniors in Groups) and involves exercises that target activities of daily living under supervision of a physiotherapist. SCALA is a promotion strategy that incorporates the promotion of sports activities for seniors with a chronic disease

or physical limitation. *NOM-TV* stands for Netherlands On the Move-TeleVision ("Nederland In Beweging-TeleVisie" (NIB-TV) in Dutch) and involves a television broadcast on weekdays designed especially for older adults and that consist of exercise blocks and health education blocks. *Inform Doctors* is a strategy to inform physicians about the benefits of PA through a memo and advise them on the COOL programme. *30 minutes* is a governmental promotion campaign that aims to increase the knowledge of Dutch citizens on the minimal daily activity that is beneficial for people's health. The *In Balance* programme includes health education and physical exercise that aim to raise awareness of its older participants with regard to fall risks and fall prevention. *COACH* is a programme that aims at stimulating individuals that are inactive to increase their physical activity level through exercise counseling. *GALM* stands for Groningen Active Living Model and aims to get non-active or insufficiently active seniors aged 55-65 to become and stay active. *Healthy & Vital* involves health education and physical exercise for older adults and also incorporates promotion of physical activity.

3.3.1 Selection of promotion strategies and programmes

In total 13 experts² nominated 14 promotion strategies and 13 programmes. Of the nominated promotion strategies 7 were excluded: one expert nominated two strategies of which one was excluded because it was his own strategy and it had not started yet (*30 minutes*). Two of the nominated strategies turned out to be programmes (as defined by the contacted director) and are analysed as programmes. Three directors did not complete the questionnaire, despite several reminders. Because some experts were late with reporting their nominations the time left to contact and invite some of the directors to complete the questionnaires proved to be too short. One questionnaire was received after the deadline (*Inform doctors*).

One strategy was nominated three times and the experts could not indicate another strategy in stead when invited to do so. In total five strategies remained to be included into the next analysis. One of these strategies had been nominated three times (*GALM*), and also as a programme. According to the director it can be viewed as a programme as well as a strategy.

All directors of the nominated programmes participated and completed the questionnaire within the set deadline. One programme (*GALM*) was nominated four times and two programmes (*Healthy & Vital* and *More Exercise For Seniors (MBvO)*) were selected two times. However, the PA programme *MBvO* is included twice in the analysis, because the older participants of a *MBvO* programme can usually choose to participate to a variety of sports activities and exercise programmes that are locally provided. Therefore the contents of *MBvO* programmes may differ between locations. The answers of the *MBvO* programme directors differed to such an extent that in the current report they are considered as two different programmes (*MBvO Amsterdam* and *MBvO Noord-Holland*).

The experts that nominated a programme that was already selected, stated that they weren't able to nominate another programme (lack of time or did not know of another suitable programme).

Two additional programmes were added that were originally nominated as a promotion strategy (*In Balance* and *COACH*), but according to the director could better be qualified as a programme. Thus, 11 programmes were included into the analysis.

Three experts were also selected (by other experts) as a programme or promotion strategy director. One director was selected for three PA programmes (*GALM*, *COACH* and *ACTOR*) and for two PA promotion strategies (*GALM* and *SCALA*). All of these 5 initiatives are considered to be part of one general promotion strategy: *Groningen Active Living Model (GALM)*.

² 2 out of 13 experts did not complete an expert questionnaire but did nominate a program and strategy (see also figure 1)

4 ‘Succesful’ PA Programmes

4.1 Description of pa programmes

In total eleven physical activity programmes were included into the analysis (in alphabetical order):

ACTOR:

ACTOR is a spin-off of *GALM* which focuses on older adults that suffer from loneliness. The *ACTOR* programme consists of a method to approach older adults that are lonely with a physical activity programme that is provided during one year. All older adults living in a certain neighbourhood or institution are approached to participate in *ACTOR*. Potential participants are screened for loneliness with a validated questionnaire. The activity programme of *ACTOR* includes a combination of social skills training and physical activities that are organised by the participants themselves (usually group sports and recreational movement). The primary aim of *ACTOR* is to enhance self efficacy and empowerment.

Care 70+:

The *Care* programme for seniors (*Care 70+*) is a programme for older adults with back, hip, or knee problems. The programme consists of home and group exercises and is provided by therapists Cesar and Mensendieck. The programme focuses on prevention and/or the management of back pain, hip joint pain, and knee joint pain in community dwelling older adults. Exercises consist of walking, exercise to music, and machine-based circuit training.

COACH:

COACH is a spin off of *GALM* and aims at stimulating individuals that are inactive to increase their physical activity level. During a period of 3 months participants are provided with exercise counselling and a pedometer. During the programme participants are taught how to incorporate physical activity in their daily lifestyle and are provided with feedback through the pedometers and through counselling. Common activities that are encouraged are walking (groups), group sports, aquatics and recreational movement.

COOL:

COOL stands for “Conditietraining Op Oudere Leeftijd”, (“Endurance training at an elderly age”).

COOL was developed by physical therapists working in a nursing home and aims to improve the endurance of older institutionalised persons, keep them in good condition, and to prevent mobility problems.

Physicians and/or physical therapists refer the patients for participation to the programme. *COOL* is a group activity that is an addition to the individual physical therapy. Exercises are mainly machine-based endurance and strength training exercises.

Exercise is Part of Everyone (EPE):

Exercise is Part of Everyone is a programme that aims to decrease older adults’ barriers to be physically active and increase self efficacy. Participants are provided with information on the benefits of exercise and are taught ways to become more active. The

programme is provided by physical therapists and activities and exercises are tailored to the individual's interest and function.

GALM:

GALM stands for **G**roningen **A**ctive **L**iving **M**odel and the goal is to get non-active or insufficiently active seniors aged 55-65 to become and stay active. The orientation is towards healthy seniors as well as those suffering from a chronic disease and/or physical handicap. Basically it comprises of several phases which are covered in an 18-month period for a *GALM* project: Approaching the target group (mailing + home visit), Fitness test 1, Introductory exercise programme (12 weeks), Physical activity advice, Continued exercise programme (30 weeks), Fitness test 2, Continuation of physical activity.

The exercise programmes vary throughout the *GALM* programme and aim to familiarize older participants with different types of exercise/sports. At the end of the *GALM* programme participants are encouraged and enabled to continue the activities that they preferred.

Healthy & Vital:

The *Healthy & Vital* programme (formerly known as "Aging Well and Healthily") consists of six sessions during which the older participants receive health education and physical exercise. Each session is divided in two parts. During the first part, a peer educator (elderly) provides information on a topic. The topics are always related to maintaining a good health: successful aging, exercise and health, nutrition, physical and mental resistance and endurance, safety in and around the home, or symptoms related to aging. During the second part, an exercise instructor (usually an instructor from *More Exercise for Seniors (MBvO)*) delivers a low intensity exercise programme that focuses on exercises for the upper body, exercises for the lower body, and movements for the whole body. The exercise programme is a step-in and step-over programme and is meant to encourage people (after the six week period) to participate in other PA programmes, such as *MBvO*. In addition to the weekly sessions, participants are encouraged to perform the exercises three times per week at home.

In Balance:

The course *In Balance* takes participating seniors in four steps from information and awareness to action. These steps include an introduction session, 4 sessions with information and 2 x 8 exercise sessions.

The *In Balance* programme includes health education and physical exercise that aim to raise awareness of its older participants with regard to fall risks and fall prevention. Education and counselling is provided in 4 meetings and exercise sessions are provided once per week for 16 weeks. Exercises are derived from principles of Tai Chi. The exercise programme includes attention to somato-sensory feedback signals, increasing ankle range of motion, and improving proprioception and sensation. The emphasis is placed on slow and continuous motions, trunk rotation, and weight shifting. All exercises are tailored to the individual abilities of the participants and most exercises can be performed sitting instead of standing because of fatigue or poor balance control.

MBvO (Amsterdam & Noord-Holland):

More Exercise for Seniors (MBvO in Dutch) is a low-to-moderate intensity community-based group-wise exercise programme for older adults. The aim is to improve social participation and integration, and to prevent a need for care. The activities of *MBvO* are

tailored to the wishes and abilities of the participants and mainly consist of gymnastics, swimming, dancing, and sports.

Nijmegen Falls Prevention (NFP):

The *Nijmegen Falls Prevention (NFP)* programme consists of 10 sessions (2 sessions per week), that are dedicated to balance, gait, and coordination training in an obstacle course, which mimics activities of daily life with potential fall risk. To stimulate the complexity of daily life, the balance and gait tasks have to be performed simultaneously with various additional motor and cognitive tasks and under visual constraints.

The programme also includes a number of walking exercises and the practice of fall techniques, derived from martial arts, in forward, backward and lateral directions.

4.2 Results for the directors questionnaire

4.2.1 *Programme directors' educational backgrounds*

Most of the 11 programme directors had an education in Exercise/Sport Science (Table 11). Three directors were educated in Other Health Professions and three directors marked another education (namely Physiotherapy, Social and Communication Sciences, and Biology/Psychology/Statistics/ Epidemiology).

Table 11 Educational backgrounds of PA Programme Directors selected by Dutch national Experts (sorted)

	PA Programme Director											Total
	A	B	C	D	E	F	G	H	I	J	K	
Exercise/ Sport Science	1	1				1	1	1			1	6
Other Health Profession				1					1	1		3
Other	1		1		1							3
Medicine												
Missing data												
Total												12

4.2.2 *Catchment areas of programmes*

Table 12 presents the catchment areas of the programmes. Most programmes were classified as national and only three were limited to the local level.

Table 12 Geographical classification of the programmes

	Number
National	8
Regional	0
Limited to a city/town	2
Limited to a local neighbourhood	1
Missing data	
Total	11

4.2.3 *Ages of programmes*

The majority of the PA programmes (five) existed 1 to 5 years (Table 13). Three programmes (*GALM*, *MBvO Amsterdam*, *MBvO Noord-Holland*) existed more than 10 years, two existed 6 – 10 years (*In Balance*, *Healthy & Vital*) and one programme (*EPE*) existed less than 1 year.

Table 13 Length of time the programme has existed

	Number
Less than 1 year	1
1 to 5 years	5
6 to 10 years	2
More than 10 years	3
Missing data	
Total	11

4.2.4 *Components of overall programmes*

Most programmes comprise of multiple components, usually a combination of community-based exercises in groups, home-based exercises and falls prevention programmes (table 14). Only one programme (*GALM*) was comprised of one component, namely community-based senior fitness programme. Nine of eleven programmes included Community-based senior fitness programmes performed in groups. Five programmes included individual home-based exercises and five programmes included falls prevention programmes. Four programmes included Exercise referral/General practitioner referral programmes. Also, four programmes included Community-based senior chair based programmes. Two PA programmes included Medical condition-specific programmes (cardiac rehabilitation, pulmonary rehabilitation, arthritis programmes, osteoporosis programmes, and walking exercises). Additionally, inclusion of educational programmes to enhance an active lifestyle or to train social competence was mentioned.

Table 14 PA Component programmes included in the overall programmes (sorted)

	Number
Community based senior fitness programmes (groups)	9
Home based exercise programmes (individual)	5
Falls Prevention Programmes	5
Community based senior chair-based programmes	4
Exercise referral / General Practitioner referral programmes	4
Medical condition-specific programmes	2
Cardiac rehabilitation	1
Pulmonary rehabilitation	2
Arthritis programmes	2
Other medical condition-specific programmes	3
Other programmes	2
Masters (elite competitor) programme	0

Most programmes (nine out of eleven programmes) were best described as land-based group activities that were performed indoors (Table 15). One programme (*COOL*) was best described as land-based individual activities performed indoors. Two programmes (*Care 70+*, *COACH*) were performed indoors as well as outdoors and one programme (*MBvO Noord-Holland*) was land-based as well as water-based.

Table 15 Description of the overall programmes

	Number
Group activity	10
Individual activity	2
Indoors	11
Outdoors	2
Water-based	1
Land-based	9

Most programmes used multiple facilities (Table 16). Only two programmes used just one facility (*COOL* used sheltered housing and the *NFP programme* used a sport/physical recreation facility). Most programmes could be carried out in sport / physical recreation facilities or could be performed in community centres. Only two programmes (*Healthy & Vital* and *EPE*) could be (in part) carried out in the participant's private dwelling. Other facilities mentioned by the experts were a practitioners exercise hall and a physiotherapy practice.

Table 16 Types of facilities used by the overall programmes (sorted)

	Number
Sport / physical recreation facility	7
Community centre	7
Sheltered housing, assisted living facility, care home or nursing home	5
Day resources centre	4
Participant's private dwelling	2
Other	2

4.2.5 Characteristics of programmes' clients

Most programmes are aimed at persons 65 years and older and most programmes had no maximum age³. Most programmes had an average age for participants of 75 years.

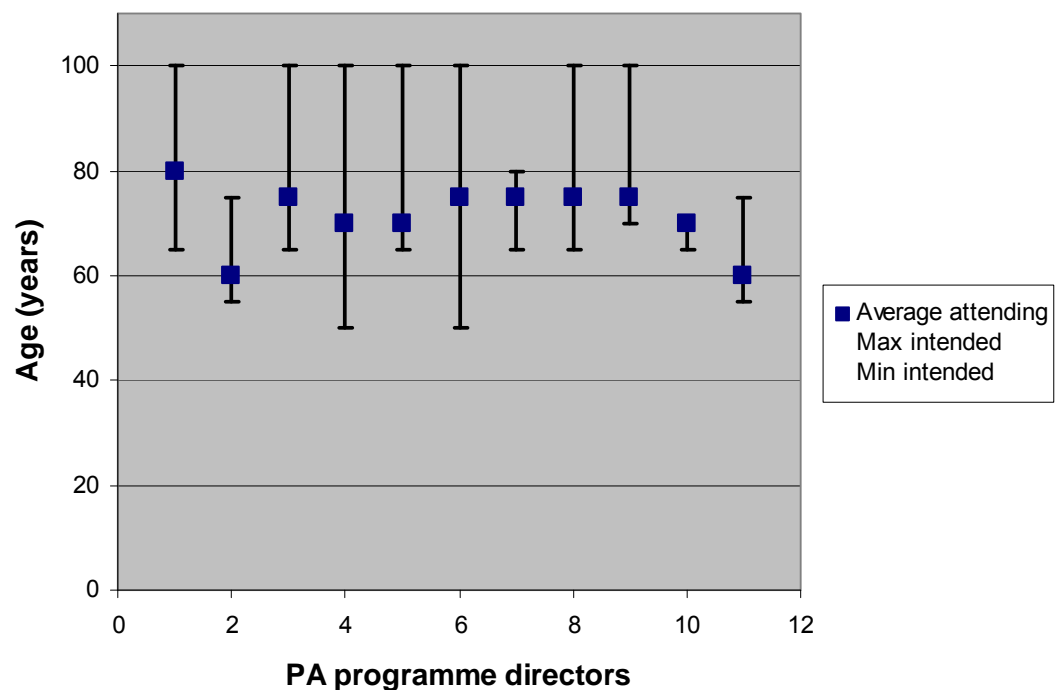


Figure 3 Age groups for whom the overall programme is intended and the average age of participant actually attending a typical session of the programme

Four PA programmes were intended for community-dwelling older adults (*ACTOR*, *Healthy & Vital*, *Care 70+*, and *NFP*) and one specifically for institution-dwelling older adults (*COOL*) (Table 17). Four programmes (*ACTOR*, *In Balance*, *MBvO Noord-Holland*, and *COACH*) were intended for both community-dwelling and institution-

³ 100 was the highest possible answer

dwelling older adults but in different groups and two programmes (*MBvO Amsterdam*, *EPE*) were intended for both community-dwelling and institution-dwelling older adults together in the same exercise group.

Table 17 'Category' of participants (by type of dwelling) for whom the overall programme is intended

	Number
Community- dwelling older adults	4
Institution – dwelling older adults	1
Both, together (in the same group)	2
Both separately (in different groups)	4
Total	11

Most PA programmes were intended for older participants that had a good or moderate functional mobility (Table 18). Two programmes (*ACTOR* and *EPE*) were aimed at all levels of functional mobility. Three programmes (*GALM*, *Healthy & Vital*, *COACH*) were specifically aimed at older adults that walk outdoors with no walking aid and no assistance or supervision by another person. Three programmes (*MBvO Noord-Holland*, *Care 70+*, *NFP*) were intended for older adults that walk outdoors without any form of assistance and also for older adults that walk outdoors with a walking aid but need no assistance or supervision. The *MBvO Amsterdam* programme was the only programme that was aimed at older adults that walk outdoors without walking aids, with walking aids, that need assistance walking outdoors, and that never walk outdoors. The *In Balance* programme was the only programmes aimed at older adults that need walking aids or assistance walking outdoors. One programme (*COOL*) was aimed at older adults that require a walking aid outdoors, need assistance walking outdoors, or never walk outdoors.

Table 18 'Category' of participants (by level of functional mobility) for whom the overall programme is intended

	Number
Frequently walks vigorously or runs	2
Walking outdoors with no walking aids and no assistance or supervision by another person	9
Walks outdoors with a walking aid but no assistance or supervision by another person	8
Walks outdoors only with assistance or supervision by another person	5
Never walks outdoors	4

Table 19 shows that with seven out of eleven PA programmes 75% of the participants were women. Three programme directors registered that 50% of the participants were older women (*COOL*, *GALM*, and *COACH*) and one director answered that 100% of the participants was female (*Care 70+*).

Table 19 PA Programme Directors' estimates of the proportion of participants in their overall programme that are women

	Number
0%	0
25%	0
50%	3
75%	7
100%	1
Don't know	0
Total	11

4.2.6 Characteristics of programmes' classes

Group sizes over the overall programmes varied mostly between 6 and 20 participants (figure 4).

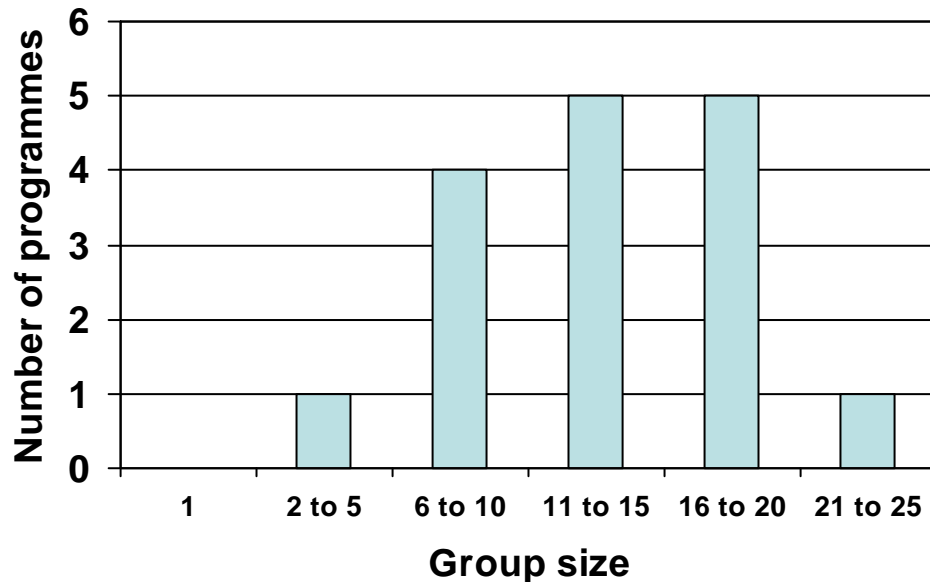


Figure 4 Group sizes used in the overall programmes

In a typical session the ratio of instructors to participants is either one instructor to 11-25 participants (7 out of eleven programmes) or one instructor to 2-10 participants (4 out of eleven programmes).

Most directors stated that for an individual it is offered to participate in the programme once per week (figure 5), or 2 to 4 times per week. In almost all programmes an individual usually participates once per week (figure 5). With two programmes individuals usually participate twice per week (*COOL* and *NFP*). The *COACH* programme was the only programme during which an individual usually participates eight times per week or more.

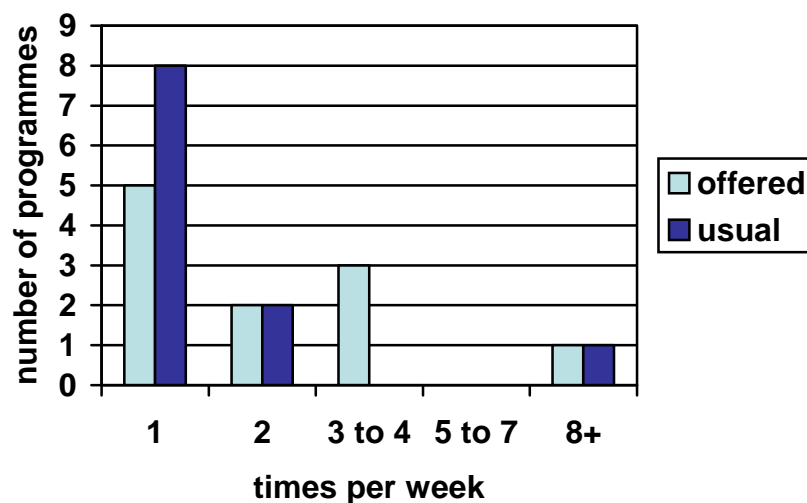


Figure 5 The maximum possible frequency (offered) and the usual frequency with which individuals participate in the overall programme.

Most programme directors (5 out of 11) stated that 75% of current participants had attended the overall programme for at least one year (irrespective of the frequency), while three directors noted that none of the current participants had attended the programme for at least one year (*ACTOR*, *EPE*, *NFP* programme). The director of *MBvO Amsterdam* indicated that all participants attended the programme all year. One director did not know the proportion of participants that attended their programme for at least one year (*COOL*).

4.2.7 Objectives, outcomes, monitoring and feedback

Table 24 demonstrates that most PA programmes are aimed to promote health and to improve physical function. Also the opportunity to socialise, prevent diseases and to improve self esteem/confidence were important aims of the programmes. Improved competitive performance and improved mood are not mentioned by the directors as important aims of the programmes.

Six directors mentioned (in addition) other aims: pleasure (2 times), fall prevention, improve condition, maintain independence, and improve internal locus of control.

Table 24 PA Programme Directors' responses concerning the two most important overall aims of their programme, from the point of view of its sponsoring organisation

	Number
Health promotion	5
Improved physical function	5
Opportunities to socialise	3
Disease prevention	2
Improved self esteem / confidence	2
Improved competitive performance	0
Improved mood	0
Other	6

Eight programme directors stated that participant satisfaction is formally measured 1-2 times per year. With two programmes (*Healthy & Vital* and *EPE*) participant satisfaction was never measured and one programme director (*MBvO Noord-Holland*) did not know whether participant satisfaction is measured during the programme.

With almost all PA programmes, participants are formally surveyed as to what their aims of being involved in the overall programme are (table 26). With eight PA programmes the programme is adjusted according to the participants' aims. *ACTOR* is the only programme that does not adjust the contents of the programme in accordance with the aims of the participants. Also eight directors registered that objective outcome measures are recorded for participants at regular intervals (e.g. physiological, psychological measures). The directors of *Healthy & Vital*, *MBvO Amsterdam*, and *MBvO Noord-Holland* indicated that they do not measure outcomes objectively.

Table 26 PA Programme Directors' responses concerning whether participants are formally surveyed for the aims of their involvement in the programme, programmes are adjusted according to participants' aims, and objective outcome measures are recorded for participants at regular intervals

	survey of aims	adjusted for aims	outcomes measured
Yes	10	8	8
No	0	1	3
Don't know	1	2	0
Total	11	11	11

The mostly used objective outcome measures were: *Strength or explosive power*, *Balance* and *Social support*, followed by *Body composition* (Table 27). *Fear of falling*, *Pain*, *Quality of life* and *Loneliness* are among the other measures mentioned. Objective outcome measurements not used were *Maximal oxygen uptake* and *Bone density*.

Table 27 Objective measures used at regular intervals (sorted)

	Number
Strength or explosive power	5
Balance	5
Social support	5
Body composition	4
Sub maximal test of aerobic fitness	3
Joint range of motion	3
Mood / depression	2
Maximal oxygen uptake (directly measured)	0
Bone density	0
Other	5

4.2.8 Pre-participation assessment

In six out of eleven PA programmes potential participants are required to have a health check to be eligible for entry to the programme (*ACTOR*, *GALM*, *COOL*, *Care 70+*, *NFP*, and *COACH*), which in most cases consists of the completion of a health screening tool or the assessment by a healthcare professional (Table 28). With the *GALM* and *COACH* programmes the health screening tool is combined with the assessment by a doctor. The programme director of the *NFP* programme mentioned that if considered necessary a bone density measurement was carried out.

Table 28 The type of health check required for a potential participant to be eligible for entry to the programme

	Number
Completion of a health screening tool	3
Assessment by a doctor	2
Assessment by a doctor who is a sports medicine specialist or by the programme doctor	2
Assessment by some other healthcare professional	1
Assessment by an exercise instructor	1

Six of the eleven programme directors indicated that entry to the programme requires the completion of a health screening tool by the potential participant. Four of these screening tools were identified by the directors by name and were considered internationally recognised (tables 29a and 29b)

Table 29a Health screening tools used to screen eligible participants

	number
PAR-Q questionnaire	3
Groningen Fitness test	2
Senior Fitness test	1
Test battery (Berg Balance Scale, 10m walking test, Timed up and go test, Step test, fear of falling)	1

When a health screening tool is required for entry to the programme, the screening tool was adapted for the programme with three programmes (*GALM*, *In Balance*, and *COACH*). With *GALM* and *COACH* the screening tool used was the PAR-Q questionnaire.

Table 29b PA Programme Directors' responses concerning whether their health screening tool is internationally recognised and whether it had been adapted for their programme

	Internationally recognised	Adapted for the prog.
Yes	4	3
No	2	3
Not applicable	5	5
Total	11	11

For five out of six programmes that use health screening tools, the directors indicated that the screening tools included questions regarding dizziness. Two directors indicated that the health screening tool used in their programme included questions regarding eyesight and/or hearing.

If a potential problem has been identified by the health screening tool, most programme protocols require the applicant to obtain 'approval' from their doctor (table 30). The programme director of *NFP* stated that in addition to the approval from the doctor a bone density measurement was carried out in case of a risk for osteoporosis. The director of *ACTOR* indicated that the applicant need only to sign a liability waiver; but that these applicants are advised to check with their doctor and that the instructor takes into account the identified problem during the programme. With the *In Balance* programme the health screening tool is focused on fall risk and not so much on whether or not to include an individual.

Table 30 PA Programme Directors' responses concerning what is done so that an applicant can be permitted to enter a programme after a potential problem has been identified by the health screening tool (sorted)

	Number
Applicant must obtain 'approval' from their doctor	4
The applicant need only sign a liability waiver	1
Applicant must obtain 'approval' from a doctor who is a sports medicine specialist or from the programme doctor	1
Other (screening is focused on fall risk)	1
Applicant must obtain 'approval' from any healthcare professional	0
It is not possible for the applicant to be permitted to enter the programme	0

4.2.9 Programme content

Almost all PA programmes (10 of the 11) target multiple aspects of fitness. According to the directors most PA programmes aim to improve Strength, Coordination & balance, and Joint range of motion (Table 31). Explosive power was not identified as an aspect of fitness targeted in the programmes. Four other aims were identified by the directors: Mood/Behaviour (*COOL*), Social activity (*MBvO Amsterdam*), Cognition (*EPE*). The programme director of *ACTOR* indicated that physical activity is considered merely an instrument and not a goal in itself and therefore no components or aspects of physical fitness were directly targeted.

Table 31 Component(s) or aspect(s) of physical fitness which the PA Programme aims to improve (sorted)

	Number
Strength	10
Coordination – Balance	10
Joint range of motion	8
Endurance	6
Body composition	2
Bone density	2
Explosive power	0
Other	4

Table 32 shows the modalities of physical activity offered in the programmes. Most PA programmes offered more than one type of modality (on average 3 types of modalities), usually including Recreational Movement activities (10 programmes) and Adapted Exercise activities (9 programmes). One PA programme (*Healthy & Vital*) offered one modality of physical activity, Exercise to music. The most frequently mentioned Recreational Movement activities were Movement to exercise, Exercise to music, and Dance. The most frequently mentioned Adapted Exercise activities were Falls prevention and Chair-based exercise.

Table 32 Modalities of physical activity offered in the programme (sorted by category)

	Number
Aquatics	
Aqua exercises	4
Swimming	2
Cycling	
On Road/ Paths	1
Off Road/ Track/ Hills	0
Group Sports/ Ball Games	
Boules	4
Badminton	3
Bowling	2
Tennis	1
Billiard Sports	0
Golf	0
Minigolf	0
Short tennis	0
Recreational Movement	
Movement to exercise	9
Exercise to music	7
Dance	5
Derived from Yoga	4
Derived from Pilates	2
Derived from Tai Chi	2
Derived from Qigong	2
Running	
Indoor running (not on treadmill)	0
Outdoor running/ Track	0
Orienteering	0
Skiing	
Cross Country Skiing	0
Downhill (Alpine Skiing)	0
Ski Touring	0
Walking	
Outdoor Walking groups	3
Indoor Walking (not on treadmill)	2
Outdoor Walking on path/ track	1
Nordic Walking	1
Rambling or Hill Walking	0
Trekking	0

	Number
Machine based equipment	
Other	3
Treadmill	2
Cycle	2
Rowing	2
Stepper	2
Cross – trainer	2
Circuits	1
Cable machines/ fixed resistance	1
Dumbbells / Free weights	1
Physioballs (Swiss balls/ exercise balls) for balance	1
Resistance balls/ bands/ tubes	1
Balance disks/ wobbleboards	0
Competitive sport	
Any type	0
Adapted exercise	
Falls prevention	6
Chair-based exercise	5
Osteoporosis prevention	3
Other	3
Back pain prevention	2
Pelvis Floor exercise	2
Cardio rehab	1
Pulmonary rehab	1

The majority of the programme directors (7 out of 11) indicated that progression⁴ was always part of their overall programme. Two programmes (*GALM*, *COACH*) only used progression in the first few weeks. One director stated that progression was never part over the overall programme (*ACTOR*).

Almost all PA programmes start each session with a warm up and end each session with a cool down (figure 6). One programme does not usually include a warm up (*COOL*) and one programme does not usually include a cool down (*NFP programme*). With most PA programmes the warm up/cool down period usually has a length of 1 – 5 minutes or 6 – 10 minutes.

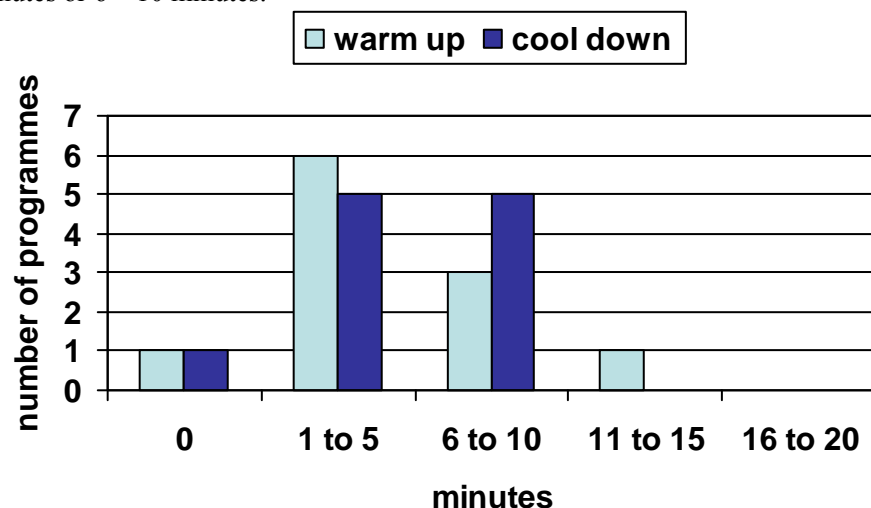


Figure 6 Length of a usual warm up at the beginning of a session and length of a usual cool down at the end of a session

⁴ Progression' defined as a systematic increase in the intensity or resistance, the frequency and/or duration of exercise

Most programme directors estimated that the length of a usual workout component of a session in their programme is 30 minutes or 40 minutes (figure 7). The programme director of the *NFP programme* estimated the length of the workout component being more than 60 minutes.

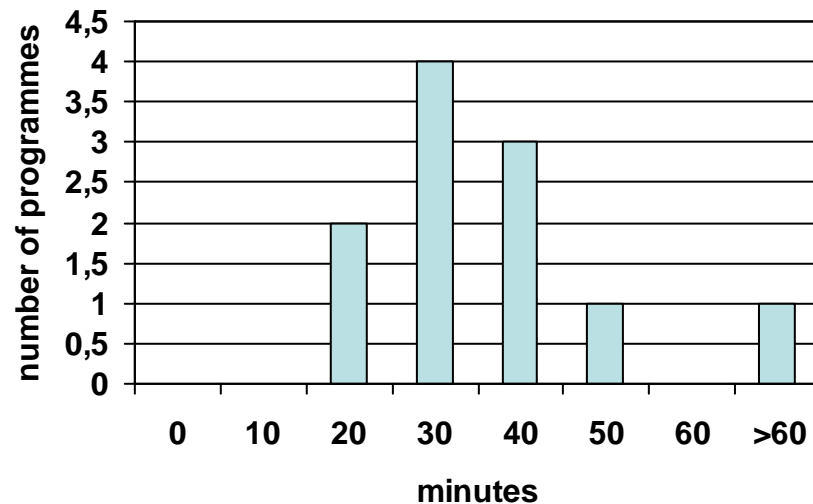


Figure 7 Length of a usual workout component of a session in the programme

Table 33 presents the way in which the PA programmes cater for the exercise needs of older people with chronic medical conditions. Nine programme directors indicated that exercises can be adapted, with participants included in the mainstream older person's group(s). Two programmes (*NFP programme* and *In Balance*) can not be catered to the exercise needs of older persons with chronic medical conditions.

Table 33 PA Programme Directors' responses concerning how, within this programme, they cater for the exercise needs of older people with chronic medical conditions

	Number
Adapted exercise, with participants included in the mainstream older person's group(s)	9
This is not possible	2
Adapted exercise, with participants in disease-related groups	0
Adapted exercise, with participants in frailty-related or disability-related groups	0

4.2.10 Instructors' qualifications and training

According to the programme directors the minimum level of qualification in the Netherlands required for instructors delivering the PA programme to older participants is a higher level (old age specific) qualification. Only one director (*COOL*) indicated that for his/her PA programme the minimum level is a basic (entry level) qualification. The director of *NFP programme* stated that instructors of his/her programme were physiotherapists who followed a course to deliver the programme.

Although the majority of the programme directors are of opinion that a higher level qualification is required to deliver their programmes, only 4 directors (*ACTOR*, *COACH*, *Healthy & Vital*, *MBvO Amsterdam*) estimated that 100% of instructors guiding/supervising older participants actually have the entry level qualification (figure

8). Most directors estimate that 50% to 75% of the instructors have the entry level qualification.

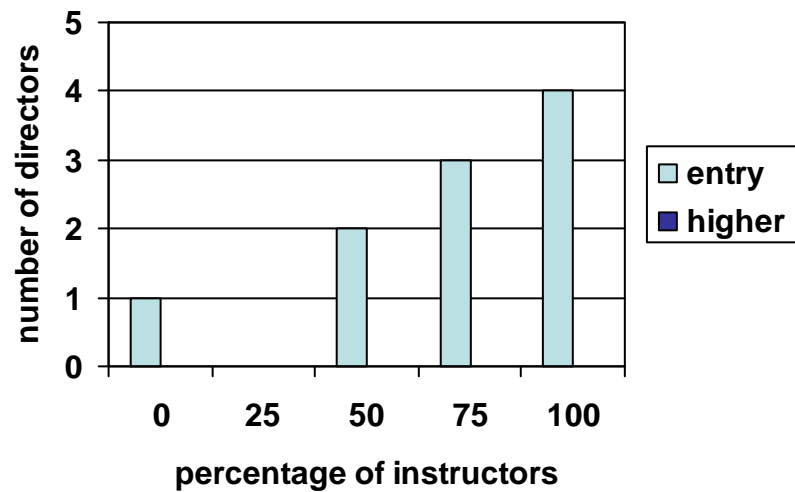


Figure 8 PA Programme Directors' estimates of the proportion of instructors guiding/supervising older participants, in this programme, that have the entry level qualification or the higher level qualification

Eight of the eleven programme directors stated that instructors have to be a member of a professional register in order to provide the programme. The directors of three programmes (*In Balance*, *COOL*, *MBvO Noord-Holland*) indicated that instructors do not have to be a member of a register.

Most programmes include some form of in-service training for the instructors. Usually 5 to 10 hours in-service training is provided each year (Table 34).

Table 34 PA Programme Directors' estimates of the number of hours in-service training provided each year for the instructors in this programme

	Number
5 hrs	2
10 hrs	3
15 hrs	0
20 hrs	1
Don't know	2
Not applicable	3
Total	11

Nearly half of the programmes do not involve the contribution of unpaid volunteers (Table 35). Of the programmes that do incorporate the contribution of unpaid volunteers, the contribution usually involves providing refreshments or transportation for the participants, doing administration, and assisting the instructor. In one programme (*Healthy & Vital*) a volunteer provides health education for the older participants.

Table 35 PA Programme Directors' responses concerning ways that unpaid volunteers contribute to this programme (sorted)

	Number
Not at all	3
Not applicable	2
Refreshments	3
Instructor's assistant	2
Administration	2
Transport	2
'Buddying' a participant	1
Peer mentoring participants	1
Instruction	0
Other (health education)	1

4.2.11 Client safety

Five programme directors indicated that their programme has specific protocols to be followed in emergency situations, whereas five directors stated that their programme does not have such protocols. Also, five directors stated that their programme has specific protocols and/or procedures to be followed in respect of equipment use, storage or maintenance, while six directors stated that their programme does not have such protocols.

Of the five programmes that have protocols for emergency situations, four programmes (*GALM*, *COACH*, *MBvO Amsterdam*, *Care 70+*) include annual staff training in the protocol, one (*COOL*) every 6 months. Three PA programmes have specific protocols for equipment use (*GALM*, *COACH*, *NFP*). The *GALM* and *COACH* programme train staff regularly in following these protocols.

4.2.12 Finance, transport and refreshments

Most programme directors estimate that the total cost of their PA programme per participant per session is more than € 10 (Table 36). The director of *ACTOR* estimates the costs between € 2 and € 5. Two programme directors did not know the cost of providing their programme (*COOL* and *EPE*). The total cost includes the cost of the room, lightning, heating, maintenance, instructor's fee, and administration but excludes transport and refreshments.

Table 36 PA Programme Directors' estimates of the total cost (per participant per session) of providing their programme (excluding transport and refreshments but including the cost of the room, lighting, heating, maintenance, instructor's fee, administration)

	Number
Up to €2	0
More than €2, up to €5	1
More than €5, up to €10	2
More than €10	6
Don't know	2
Total	11

With most PA programmes each participant pays nothing or approximately 25% of the costs (Table 37). Four programme directors did not know what proportion of the costs is paid by each participant. Two of the six programmes that cost € 10 or more (*Care 70+*, *NFP*) do not involve payment by the participants and two of the programmes that cost € 10 or more involve participants paying 25% of the costs (*GALM*, *COACH*).

Table 37 PA Programme Directors' estimates of the proportion of cost paid by each participant in their programme

	Number
0%	3
5%	0
10%	0
25%	3
50%	0
75%	1
100%	0
Don't know	4
Total	11

Table 38 presents information on transport and refreshments during the programmes. Most PA programmes do not provide transport for the participants in their programme or provide transport only for some participants and/or for only some sessions. Refreshments, however, are provided more commonly. Six of the eleven directors indicate that refreshments are provided to everyone during the programme and three directors state that refreshments are provided during some sessions.

Table 38 PA Programme Directors' responses concerning whether transport and refreshments are provided for participants in their programme

	Transport	Refreshments
Yes, to everyone	0	6
Yes, selectively	5*	3**
No	6	2
Don't know	0	0
Total	11	11

*some participants, some sessions

**some sessions

Two directors (*COOL*, *ACTOR*) knew what proportion of the cost of transport is paid by each participant in their programme (Table 39). During the *ACTOR* programme participants pay the total cost of transport and during the *COOL* programme the transport was free of charge for the participants. With the *COOL*, *Care*, and *NFP* programmes refreshments are free of charge, whereas the *Healthy & Vital*, *MBvO Amsterdam*, *MBvO Noord-Holland* charge 100% of the costs for refreshments. The director of *ACTOR* indicated that the participants' proportion of the costs for refreshments may vary between locations.

Table 39 PA Programme Directors' estimates of the proportion of the cost of transport and of refreshments that is paid by each participant in their programme.

	Transport	Refreshments
0%	1	3
5%	0	0
10%	0	0
25%	0	0
50%	0	0
75%	0	0
100%	1	3
Don't know	3	3
Total	5	9

4.2.13 Publicity, marketing and promotion

Table 40 presents the methods which have been used by the programme directors to publicise, market or promote their programme.

All but one programme (*COOL*) used multiple methods, usually through newspapers, radio and TV, leafleting, word of mouth, websites, and 'bring a friend'. The *COOL* programme used only word of mouth to publicise and promote the programme.

Promotion through newspapers and/or magazine was mostly done through features and advertisements in local newspapers. Features and advertising in national/regional newspapers was only used by the *NFP* programme.

Promotion through radio / TV (usually features on local radio and on local TV) was used by six of the eleven programmes.

Six directors used leafleting as a method to promote their programmes. All six of these programmes used neighbourhood leafleting, but also leafleting in community centres for older people and leafleting in health premises were used. None of the programmes used leafleting in Sport halls for promotion.

Most directors (73%) used word of mouth as a means to promote their programme and approximately half of the programmes used websites (55%) and/or encouraged participants to bring a friend to the programme (46%). Only one programme (*EPE*) used discounts for promotional purposes and none of the directors used multiple session booking as a way to promote their programme.

Under the category "Other" directors named: "Door-to-door visits" (*GALM*, *COACH*), "Personal invitation with a letter" (*ACTOR*, *COACH*), "Through general practitioners" (*In Balance*, *Care*).

Table 40 PA Programme Directors' responses concerning the methods which have been used to publicise, market or promote their programme

	Number	%
Features in local newspapers	9	82
Advertising in local newspapers	5	46
Features in elder-oriented magazines	4	36
Advertising through elder-oriented organisations	2	18
Features in national/ regional newspapers	2	18
Advertising in national/ regional newspapers	1	9
Advertising in elder-oriented magazines	1	9
Features on local radio	5	46
Features on local TV	5	46
Advertising on local radio	2	18
Features on national/ regional TV	2	18
Advertising on national/ regional radio	1	9
Advertising on local TV	1	9
Advertising on national/ regional TV	1	9
Features on national/ regional TV	1	9
Neighbourhood leafleting	6	55
Leafleting in community centres for older people	3	27
Health premises leafleting	2	18
Sports hall leafleting	0	
Word of mouth	8	73
Websites	6	55
Bring a friend	5	46
Open days	4	36
Talks to local groups	2	18
Discounts	1	9
Multiple session bookings	0	
Other	5	46

In order to improve the recruitment of new participants and/or improve the motivation of the existing participants, more than half of the programme directors indicated that

they had found it useful to capitalise on existing national or regional campaigns that were related to aspects of aging and health (Table 41). Four programmes did not try to capitalise on previous campaigns (*ACTOR*, *COOL*, *Healthy & Vital*, *EPE*). Almost all programme directors found it useful to build partnerships with local healthcare professionals or organisations.

Table 41 PA Programme Directors' responses concerning whether their programme had found it useful to

	Yes	No	Have not tried	Don't know	Total
capitalise on national or regional campaigns	6	0	4	1	11
build partnerships	9	0	1	1	11

5 ‘Succesful’ PA Promotion Strategies

5.1 Description of promotion strategies

In total five promotion strategies were included into the analysis (in alphabetical order):

BIG! Move:

BIG stands for **B**eweging in **G**edrag (Exercise in Behaviour), ‘Move’ signifies the change. The goal of Big!Move is to support local communities to influence their own health by healthy behaviour. It comprises of local health promotion in primary care. People can participate in dance activities at local community centres or in swimming, walking or cycling groups. An important element is the exploratory interview. During this interview a health profile is set up using a checklist, based on the WHO ICF-classification. Apart from illnesses, the checklist also charts the participant’s social environment, as well as external and personal factors. Big!Move takes a year and is consists of four phases. It forms a bridge between health care and individual participation in local activities. During the course participants are encouraged to participate in local activities and to organise activities themselves. The Big!Move method is adapted to specific groups: Superkids for schoolchildren and Big!Move for the elderly (in local homes for the elderly).

Fall prevention for the elderly implementation of the ‘Vallen Verleden Tijd’ programme (NFP programme):

Regional implementation of the *NFP programme* through physical therapists based in hospitals, nursing homes, physiotherapy centres etc.

FLASH! campaign, Exercise with fun 55+:

FLASH stands for **F**ietsen, **L**open, **A**ctiemomenten, **S**porten en **H**uishoudelijk werk (Bicycling, Walking, Action moments, Sports and Domestic work). The main goal of this campaign is to stimulate persons to pursue a more active lifestyle. The campaign stresses the fact that everyday activities can be beneficial for their health. This sub campaign *Exercise with fun 55+* was aimed at older adults of 55 years and older living in institutions, and comprises of several activities such as special events (Exercise Tour, week of exercise) and a mass media campaign.

GALM:

GALM stands for **G**roningen **A**ctive **L**iving **M**odel and the goal is to get non-active or insufficiently active seniors aged 55-65 to become and stay active. The orientation is towards healthy seniors as well as those suffering from a chronic disease and/or physical handicap. Basically it comprises of several phases which are covered in an 18-month period for a GALM project: Approaching the target group (mailing + home visit), Fitness test 1, Introductory exercise program (12 weeks), Physical activity advice, Continued exercise program (30 weeks), Fitness test 2, Continuation of physical activity.

GALM can be seen as a promotion strategy with several projects and programs which aim at sub groups of elderly: *GALM*, *GALM+* (Age groups 65-75), *ACTOR* (Older adults with loneliness), *SCALA* (Sport stimulating strategy for people with a chronic disease: life long activity), *COACH* (Individual activities), *SMALL* (For small communities), *GALLOM* (Elderly immigrants)

Walking Routes:

Initiative which aims at creating (guidelines for) developing recreational walking routes for people who use walking aids like rollators and wheelchairs. Guidelines can be used for developing routes at the local level. It addresses several aspects such as criteria for selecting routes, design and technical aspects.

5.2 Results for the directors questionnaire**5.2.1 *Promotion strategy directors' educational backgrounds***

Most directors were educated in the field of exercise/sport science and physiotherapy.

Table 42 Educational backgrounds of the Directors of the PA Promotion strategies selected by Dutch national Experts (sorted)

PA Promotion Strategy Directors						
	A	B	C	D	E	Total
Exercise/ Sport Science	1	1	1			3
Other				1	1	2
Other Health Profession					1	1
Medicine						0

5.2.2 *Prevailing national context*

Although some directors indicated that there are regulations or laws concerning physical activity promotion, the examples given by them included only national recommendations such as a national initiative to increase sports and exercise in all ages (NASB, National Action Plan for Sport and Physical Activity) and guidelines to describe the minimum needed level of physical activity (NNGB: Dutch Guidelines for Health Enhancing Physical Activity).

Table 43 Dutch PA Promotion Strategy Directors' responses concerning whether there are laws or other regulations for promotion of physical activity in general, especially for older adults, and whether there are any national level recommendations

	PA promotion	PA promotion OA	National level recommendations
Yes	3	2	3
No	1	2	2
Don't know	1	1	0
Total	5	5	5

5.2.3 *Description of promotion strategies*

Most promotion strategies were developed at non-governmental level by welfare/community organisations or research/dissemination organisations (table 44). One strategy was specifically developed and delivered in primary care (GP's). None of the strategies is delivered by national governmental organisations, although most strategies are aimed at to be delivered nationally (table 45). All mentioned settings in table 46 are used to encourage physical activity in. Group based exercise is the most used strategy, although two strategies also offer an independent setting.

Table 44 Sectors to which belong the organisations that developed, and delivered, their promotion strategy

	Developed	Delivered
Government		
National		
Regional		1
Local	1	1
Non Governmental		
Commercial		1
Welfare/community organisation	2	2
Research organisation	2	2
Other	3	2

Table 45 Levels at which promotion strategies are aimed to deliver

	Number
National	4
Regional	2
Limited to a city/ town	1
Limited to a local neighbourhood	2

Table 46 Settings in which directors consider their promotion strategy encouraged physical activity

	Number
Centre based	4
Home based	2
Outdoors	3
Other	0
Group exercise	5
Independent exercise	2
Other	0

Primary Health Care settings, community centres and welfare organisations are the most used organisations in the promotion strategy (table 47). Likewise, health professionals are the most used intermediaries to reach the intended population (table 48), followed by community social workers and exercise instructors. Sports coaches aren't used at all as an intermediary.

Table 47 Settings/ organisations which are taking part in the promotion strategy (sorted)

	Number
Primary health care	5
Community centres	4
Welfare organisations	4
Social institutions	2
Work place	1
Other	0
Don't know	0

Table 48 PA Promotion Strategy Directors' responses concerning the intermediaries used to reach the intended population (sorted)

	Number
Physiotherapists	4
Medical Practitioners	3
Other Allied Health Care Professionals	3
Occupational therapists	2
Exercise/ dance instructors	2
Community/Social Workers	2
Nurses	1
Physiotherapy/ OT Assistants	1
Volunteers	1
Other	1
Sports coaches	0
None	0
Don't know	0

All but two promotion strategies (*walking routes* + *Fall Prevention*) are based on theoretical models (table 49). Three strategies use the ASE-model as well as the Trans Theoretical Model. One strategy director (*BIG! Move*) indicated they used Complex Adaptive Systems theory (CAS), the Minimal Intervention Strategy and Community Based Interventions (CBA).

Table 49 Theoretical basis(es) which was/were used to develop and/or deliver their promotion strategy (sorted)

	Number
None	1
ASE* – Model	3
Transtheoretical Model	3
Other	1
Health Belief Model	0
Protection Motivation Theory	0
Theory of Reasoned Action	0
Theory of Planned Behaviour	0
Don't know	0

* Attitude, Social influence and self-Efficacy

Most strategies ran between 1-5 years (figure 9). One intervention (*Falls prevention*) ran for 1 year with a limited grant and now continues on a local basis. *GALM* is the longest running strategy.

All strategies run continually, with two (*FLASH* and *Falls Prevention*) running locally for some period but with a continual national support.

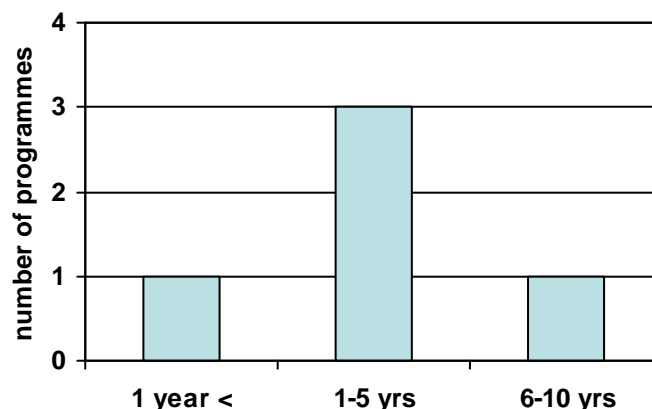


Figure 9 Directors' estimates of the time for which their promotion strategy has run

5.2.4 Characteristics of strategies' target populations

With the exception of *GALM* most strategies do not have a maximum age defined for their target population (figure 10). One strategy also is not limited to older adults (*BIG! Move*), and one is aimed at older adults but not limited because of the nature of the strategy (*Walking routes*).

All mentioned categories of participants in table 50 are targeted by the five strategies, with community dwelling older adults being the most prominent group. Although some minority groups are targeted, most strategies do not cater for specific cultural differences (table 51) with the exception of *GALM* which also addresses groups with different language and income levels.

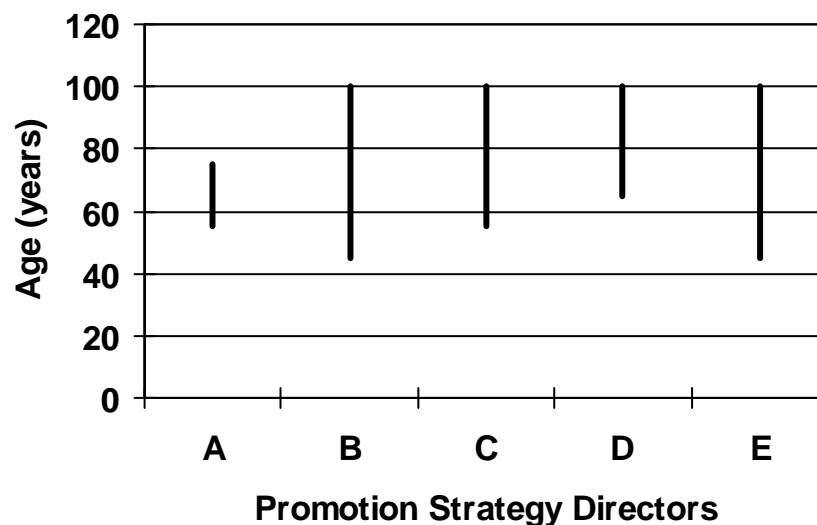


Figure 10 Directors' estimates of the upper and lower age limits of those for whom the strategy is intended

Table 50 Category of participants targeted by the promotion strategy (sorted)

	Number
Community – dwelling older adults	3
All older adults	2
Institution – dwelling older adults	2
Other	2
General population (including older adults)	1
Older adults with chronic conditions	1
Ethnic minority older adults	1

Table 51 Specific cultural differences were catered for in the promotion strategy (sorted)

	Number
None	4
Different language	1
Different income levels	1
Other	1
Different cultural perceptions	0
Different education levels	0
Don't know	0

All levels of functional mobility are included in the five promotion strategies (table 52). One strategy addresses all levels (*BIG! Move*), one strategy only the three lowest levels

(*Walking routes*) and one specifically the two groups that walk outdoors independently (*Flash*).

Table 52 Category of individual (by level of functional mobility) included in the promotion strategy

	Number
Frequently walks vigorously or runs	2
Walks outdoors with no walking aids and no assistance or supervision by another person	3
Walks outdoors with a walking aid but no assistance or supervision by another person	4
Walks outdoors only with assistance or supervision by another person	2
Never walks outdoors	2

5.2.5 Design of promotion strategies

Two out of five strategies screen the target population's readiness for change (*GALM* and *BIG! Move*). Most of the mentioned approaches to encourage behaviour change in table 53 are used by the strategies. Improved knowledge, access, motivation, skill and fear reduction are the most used approaches.

Table 53 Approaches used in the strategy to encourage behaviour change in relation to physical activity (sorted)

	Number
Improved knowledge	4
Improved access	4
Improved motivation	4
Improved skill	4
Fear reduction	3
improved safety	2
improved time management skills	1
Reduction in misconceptions about ageing	1
Don't know	0

All but one strategy (*Falls Prevention*) are designed to surmount barriers to physical activity. The most targeted barriers are perceived poor health and lack of energy/motivation (table 54). Lack of time, environmental barriers and misconceptions about ageing are only targeted by one strategy (*BIG! Move*).

Table 54 Barriers to physical activity for which the promotion strategy was designed to surmount (sorted)

	Number
Perceived poor health	4
Lack of energy / motivation	4
Symptoms associated with chronic conditions	3
Fear of injury	2
Acute exacerbation of chronic conditions	2
Lack of skill	2
Lack of time	1
Environmental barriers	1
Misconceptions about ageing	1
Other	0
Don't know	0
Not applicable	0

Of the three approaches mentioned in table 55, environmental and policy approaches are only used by two strategies (*BIG! Move* and *Walking Routes*). All but one strategy use information approaches, mainly community wide and mass media campaigns.

Social support, albeit by family, health professionals or others is also mentioned by several directors.

Table 55 Approaches used and judged by the directors to be effective in achieving the aims of their physical activity promotion strategy

	Used	Effective
INFORMATION APPROACHES		
Community wide campaigns	4	4
Group-based health education focused on information provision	2	1
Mass media campaigns	3	3
Point of decision prompts	1	1
Other	1	1
BEHAVIOURAL AND SOCIAL APPROACHES		
Individually-adapted behaviour change	2	2
Education with TV/video/DVD	1	0
Family-based social support	2	1
Health Professional social support	2	2
Non-family social support	3	3
Other	1	1
ENVIRONMENTAL AND POLICY APPROACHES		
Enhanced access to physical activity	1	1
Outreach activities	1	0
Transportation policy	1	1
Infrastructure changes to promote non-motorised transit	1	1
Urban planning approaches	1	1
Other	0	0
Don't know	0	1

The nature of the message on physical activity mostly concerns a general message (used by all strategies) or advice (table 56). It is usually conveyed by means of the media and intermediates (table 57). Only *BIG! Move* does not use media, post or internet. Other means mentioned include word to mouth (2x), personal home visits and a national 55+ fair.

Table 56 Nature of the message(s) used in the promotion strategy (sorted)

	Number
General message	5
General advice	3
Specific advice	2
Specific warning	1
Other	1
General warning	0
Don't know	0

Table 57 Ways to convey the message(s) used in the promotion strategy to the target population (sorted)

	Number
Media	4
Intermediates, healthcare professionals	4
Other	4
Post	2
Events (e.g. Falls Awareness Day)	2
Internet / e-mail	1
Models / opinion	0
Don't know	0

5.2.6 *Evaluation and sustainability of effect of promotion strategies*

Four out of five directors indicate that their strategy has been evaluated; only *Walking Routes* has not. Although they all claim to have evaluated the population reached (table 58), it proved to be difficult for directors to estimate the proportion of the target population reached. Only *GALM* was able to give an estimate (50% reached), but this strategy has been running longer than any of the other strategies. In addition to behaviour change (*GALM* and *FLASH*) and cost effectiveness (*GALM* and *Falls Prevention*) directors also mentioned the evaluation of the implementation method (*BIG! Move*), awareness and policy intentions with the management (*FLASH*) to be evaluated.

The effectiveness of the approaches to achieve the aims of their strategy as mentioned in table 55 coincides with the methods used.

Table 58 Aspects of the promotion strategy which had been evaluated since it was implemented

	Number
Population reached	4
Behaviour change	2
Cost effectiveness (e.g. total costs)	2
Other	1
Don't know	0
Not applicable	0

According to four directors (not *Falls Prevention*) their strategy is planned to maintain the behaviour change by using mostly positive reinforcement/feedback awards and buddy groups. Other methods include social support and promotion days (table 59). Additionally the director for *FLASH* also mentions working conferences for managers and a new national campaign.

Table 59 Tools used in the promotion strategy to maintain behaviour change (sorted)

	Number
Positive reinforcement / feedback rewards	3
Buddy groups	3
Social support	2
Promotion days	2
Opportunities to socialise	1
Other	1
Printed material posted	0
Telephone	0
Financial incentives	0
Don't know	0
Not applicable	0

5.2.7 *Finance*

Only two directors were able to estimate the cost of their strategies per year (€ 537.000 and € 1,6 million per year). The level of the campaign usually coincides with the source of the funding. National strategies are funded by national governments (*GALM*, *FLASH* and *BIG! Move*) and local strategies by city or local governments (*Walking Routes* and *GALM*). Additionally sources mentioned by the instructors include national developing funds, scientific budgets, insurance companies, sponsorships and contribution from participants.

Table 60 Source of the funding to run the promotion strategy

	Number
NATIONAL / REGIONAL GOVERNMENT	
Health budget	2
Social care budget	0
Leisure / sport budget	2
Other	2
CITY / LOCAL GOVERNMENT	
Health budget	2
Social care budget	1
Leisure / sport budget	3
Other	1
OTHER SOURCES	
Lottery	0
Charity	0
Other	1

6 Concordance with guidelines

6.1 Results systematic search for evidence based guidelines

Approximately 5120 titles were considered. Of these, over 650 abstracts were reviewed and, from them, 325 full publications were reviewed. Fifty-five publications met all 5 criteria for inclusion in the inventory, where they have been listed under the following subheadings: habitual physical activity and PA promotion, resistance training, exercise referral, cardiovascular conditions, exercise testing and screening, hypertension, stroke, hypercholesterolemia, diabetes, obesity, osteoporosis, falls, osteoarthritis and chronic pain. Appendix F gives an overview of the selected guidelines and references.

6.2 Concordance of pa programmes with guidelines

For comparison of the included programmes with (international) general guidelines for physical activity programmes in older adults we used the 2007 recommendations from the American College of Sports Medicine (ACSM) and the American heart Association (AHA). Because these guideline recommends that physical activity programmes for older adults should include muscle strengthening, aerobic, and flexibility exercises, the included programmes were further compared with specific guidelines for these exercise modes. Table 61 presents the concordance of the physical activity programmes with the guidelines for muscle strengthening, aerobic, and flexibility exercises for older adults. Because several programme directors indicated that their programme targets falls prevention, the programmes were also compared to the recommendation for exercise programmes for the prevention of falls according to the American Geriatrics Society, the British Geriatrics Society, and the American Academy of Orthopaedic Surgeons Panel.

Several PA programmes involve a method in which the older participants themselves choose the type of physical activity they want to carry out during the programme. During the *ACTOR* programme, the participants themselves are stimulated to organise group activities. During the *GALM*, *MBvO Amsterdam*, *MBvO Noord-Holland*, and *COACH* programmes the older participants can usually choose from a variety of sports activities and / or exercise programmes. This makes it difficult to compare these programmes with the guidelines, because not all activities meet the guidelines and it is impossible to determine which activities are followed by the participants. For each following domain, first the recommendations from the selected guidelines are mentioned, followed by the concordance of the programmes.

6.2.1 General physical activity programme

GUIDELINES OF THE ACSM FOR PHYSICAL ACTIVITY FOR OLDER ADULTS:

1. Older adults should maintain a physically active lifestyle.
2. A physical activity programme should include aerobic activities, muscle strengthening activities and flexibility exercises.
3. Older adults with substantial risk of falls should perform exercises that maintain or improve balance.
4. Older adults should perform moderate-intensity aerobic physical activity for a minimum of 30 minutes on five days each week or vigorous-intensity aerobic activities for a minimum of 20 minutes on three days each week.

5. Muscle strengthening activities should be performed at least twice each week.
6. Flexibility exercises should be performed at least two days each week for at least 10 minutes each day
7. Older adults should have a plan for obtaining sufficient physical activity that address each recommended type of activity. Those with chronic conditions for which activity is therapeutic should have a single plan that integrates prevention and treatment. For older adults that are not active at recommended levels, plans should include a gradual or stepwise approach to increase physical activity over time.
Older adults should also be encouraged to self-monitor their physical activity on a regular basis and to re-evaluate plans as their abilities improve or as their health status changes.

THE AMERICAN ACADEMY OF FAMILY PHYSICIANS recommends according to the FITT-PRO (Frequency, Intensity, Type, Time, and Progress) approach to the prescriptions for a general exercise programme for older adults:

1. A frequency of preferably seven days per week 30 minutes or more of continuous or accumulated physical activity
2. Activities should be of moderate intensity assessed by one of the following criteria: a) Able to speak but not sing comfortably during exercise; b) somewhat difficult (Borg RPE at 12 tot 14); c) Maximum heart rate of 65 to 75 percent (or 55 to 64 percent for patients who are unfit).
3. Increase intensity over time to maintain moderate intensity criteria.

Most PA programmes were in accordance with the recommendation to incorporate exercises aimed at muscle strength, endurance and flexibility. Besides *ACTOR* all programmes targeted muscle strength and flexibility. The PA programmes *In Balance*, *Healthy & Vital*, *MBvO Noord-Holland*, and *NFP programme* did not target endurance. According to the programme director of *ACTOR* this programme does not specifically aim to enhance physical fitness or functional ability. The primary purpose of *ACTOR* is socialising, enhancing self efficacy and having fun. This makes it difficult to compare with current guidelines, because these guidelines usually are based on studies to improve physical parameters such as muscle strength and flexibility. All programmes, except for *ACTOR*, meet the recommendation to include balance and coordination exercises.

Although it was not directly asked in the questionnaire, the descriptions of the programmes by the directors suggest that several programmes include a plan for the older participants for obtaining sufficient physical activity. *ACTOR* encourages the older adults to organise physical activities themselves to enhance self efficacy and empowerment. During the programmes *COACH* and *Healthy & Vital* participants are taught how to incorporate physical activity in their daily life. *EPE* aims to decrease older adults' barriers to be physically active. Both the *GALM* programme and *Healthy & Vital* encourage and enable participants to continue the physical activities after the programme finishes.

The director of *COACH* was the only one that reported that the programme included self-monitoring of the physical activity on a regular basis. During the programme participants are provided with feedback through pedometers.

Although many programme directors indicated that their programmes aim to promote a more active lifestyle, only one programme (*COACH*) incorporated a frequency of at least seven days per week 30 minutes or more of continuous or accumulated physical activity. *COOL* and *NFP programme* were provided two times per week and all other programmes were performed only once per week, excluding home exercise advice.

All programmes seem to include activities of at least moderate intensity and almost all programme directors indicated that their programme includes an increase in the intensity over time. Only the director of *ACTOR* stated that progression was never part of the overall programme and the directors of *GALM* and *COACH* stated that progression was only part of their programme for the first few weeks.

Table 61 Concordance of programmes with guidelines based on the results of the questionnaire. Items marked Red indicate that the programme is not in concordance with the guideline for that item. Items marked green indicate that items are in accordance with the guideline.

	Strength training (ACSM)	Endurance training (ACSM)	Coordination and Balance (ACSM)	Flexibility (ACSM/AAFP)	Fall Prevention (AGS/BGS/AAOSP)
Programme					
ACTOR	Not aimed at strength	Not aimed at endurance	Not aimed at coordination / balance	Not aimed at flexibility	1. > 10 weeks 2. No specific balance training 3. No Tai Chi-like exercises
GALM	1. Once per week 2. No information on number of exercises 3. No information on number of repetitions 4. No specific resistance training Only progressive for first few weeks	1. Once per week Moderate intensity 2. Duration 30 minutes 3. Walking, swimming, ball sports, dance are optional	1. Activities instead of exercise Ball sports, dance, Yoga are optional 2. Once per week 3. Community dwellers 4. No specific balance/coordination exercises Only progressive for first few weeks	1. Once per week 2. Yoga optional 3. No information on performance of stretches 4. Only progressive for first few weeks	1. > 10 weeks 2. No specific balance training 3. No Tai Chi-like exercises
In Balance	1. Once per week 2. No information on number of exercises 3. No information on number of repetitions 4. No specific resistance training Progressive	Not aimed at endurance	1. Exercises 2. Once per week Community dwellers 3. Specific balance/coordination training (Tai Chi) Progressive	1. Once per week 2. Qigong and Tai Chi 3. No information on performance of stretches 4. Progressive	1. > 10 weeks 2. Balance training 3. Tai Chi

	Strength training (ACSM)	Endurance training (ACSM)	Coordination and Balance (ACSM)	Flexibility (ACSM/AAFP)	Fall Prevention (AGS/BGS/AAOSP)
Programme					
COOL	1. Twice per week 2. No information on number of exercises 3. No information on number of repetitions 4. Resistance training Progressive	1. Twice per week 2. Moderate intensity 3. Duration 45 minutes 4. Machine-based walking, cycling, rowing included	1. Exercises 2. Twice per week 3. Institutionalized 4. No specific balance/coordination exercises Progressive	1. Twice per week 2. No specific flexibility exercises 3. No information on performance of stretches 4. Progressive	Not aimed at fall prevention
Healthy & Vital	1. Once per week 2. No information on number of exercises 3. No information on number of repetitions 4. No specific resistance training Progressive	Not aimed at endurance	1. Exercises 2. Once per week 3. Community dwellers 4. Balance/coordination exercises included Progressive	1. Once per week 2. Stretching / Range of motion routine 3. No information on performance of stretches 4. Progressive	Not aimed at fall prevention
MBvO Amsterdam	1. Once per week 2. No information on number of exercises 3. No information on number of repetitions 4. Resistance training optional Progressive	1. Once per week 2. Moderate intensity 3. Duration 55 minutes 4. Walking, swimming, machine-based cycling, rowing included	1. Exercises optional 2. Once per week 3. Community dwellers 4. Dance, Tai Chi, Yoga optional Progressive	1. Once per week 2. Yoga, Pilates, Tai Chi optional 3. No information on performance of stretches 4. Progressive	1. > 10 weeks 2. Balance training optional 3. Tai Chi optional

	Strength training (ACSM)	Endurance training (ACSM)	Coordination and Balance (ACSM)	Flexibility (ACSM/AAFP)	Fall Prevention (AGS/BGS/AAOSP)
Programme					
MBvO Noord-Holland	1. Once per week 2. No information on number of exercises 3. No information on number of repetitions 4. No specific resistance training Progression unknown	Not aimed at endurance	1. Exercises optional 2. Once per week 3. Community dwellers 4. Dance, Tai Chi, Yoga and specific coordination exercises optional Progression unknown	1. Once per week 2. Yoga, Pilates, Tai Chi, Qigong optional 3. No information on performance of stretches 4. Progression unknown	1. > 10 weeks 2. Balance training optional 3. Tai Chi, Qigong optional
Exercise is (part) of everyone	1. Once per week 2. No information on number of exercises 3. No information on number of repetitions 4. Resistance training optional Progressive	1. Once per week 2. Moderate intensity 3. Duration 45 minutes	1. Exercises 2. Once per week 3. Community dwellers 4. No specific balance/coordination exercises Progressive	1. Once per week 2. Stretching routine optional 3. No information on performance of stretches 4. Progressive	Not aimed at fall prevention
Care 70+	1. Once per week 2. No information on number of exercises 3. No information on number of repetitions 4. Resistance training Progressive	1. Once per week 2. Moderate intensity 3. Duration 60 minutes 4. Walking included	1. Exercises 2. Once per week 3. Community dwellers 4. No specific balance/coordination exercises Progressive	1. Once per week 2. No specific flexibility exercises 3. No information on performance of stretches 4. Progressive	1. > 10 weeks 2. Balance training optional 3. No Tai Chi-like exercises

	Strength training (ACSM)	Endurance training (ACSM)	Coordination and Balance (ACSM)	Flexibility (ACSM/AAFP)	Fall Prevention (AGS/BGS/AAOSP)
Programme					
Nijmegen Falls Prevention	1. Twice per week 2. No information on number of exercises 3. No information on number of repetitions 4. No specific resistance training Progressive	Not aimed at endurance	1. Exercises 2. Twice per week 3. Community dwellers 4. Specific balance/coordination exercises Progressive	1. Twice per week 2. No specific flexibility exercises 3. No information on performance of stretches 4. Progressive	1. Not longer than 10 weeks 2. Balance training and Fall technique training 3. No Tai Chi-like exercises
COACH	1. > 8 times per week 2. No information on number of exercises 3. No information on number of repetitions 4. No specific resistance training Only progressive for first few weeks	1. > 8 times per week 2. Moderate intensity 3. Duration 30 minutes 4. Walking, swimming, ball sports, dance are optional	1. Activities instead of exercises Ball sports, dance, Yoga are optional 2. > 8 times per week 3. Community dwellers 4. No specific balance/coordination exercises Only progressive for first few weeks	1. > 8 times per week 2. Yoga optional 3. No information on performance of stretches 4. Only progressive for first few weeks	1. > 10 weeks 2. No specific balance training 3. No Tai Chi-like exercises

6.2.2 *Muscle strengthening exercises*

The programmes that (according to the programme directors) target muscle strength and incorporate strength exercises are: *GALM*, *In Balance*, *COOL*, *Healthy & Vital*, *MBvO Amsterdam & Noord-Holland*, *EPE*, *Care 70+*, *NFP programme*, and *COACH*.

GUIDELINES OF THE AMERICAN COLLEGE OF SPORTS MEDICINE (ACSM) recommend for strength training for older adults that:

1. Frequency should be at least 2 times per week
2. Each training sessions should include 8 to ten exercises involving the major muscle groups
3. Muscle groups should be trained in 10 to 15 repetitions
4. Muscle-strengthening activities should include a progressive-weight training programme, weight bearing callisthenics, and similar resistance exercises that use the major muscle groups.

Only three PA programmes (*COOL*, *NFP*, and *COACH*) meet the first criteria of having a frequency of at least 2 times per week. From the information gathered with the EUNAAPA questionnaire it was not possible to determine whether the training sessions of the PA programmes included 8 to 10 exercises and whether the exercises involved the major muscle groups. Nor was it possible to determine whether muscle groups were trained in 10 to 15 repetitions.

From the modalities of physical activity offered in the programme it seems that only the *COOL*, *MBvO Amsterdam*, and *Care 70+* programmes include some kind of weight training resistance exercise that target major muscle groups. All three programmes include machine-based exercises, such as rowing, stepper, cable machines and dumbbells.

Although most programme directors indicated that their programme targeted muscle strength, only one programme (*COOL*) actually seems to be in concordance with the guidelines for strength training.

6.2.3 *Endurance exercises*

The programmes that (according to the programme directors) target endurance are: *GALM*, *COOL*, *MBvO Amsterdam*, *EPE*, *Care 70+*, *COACH*.

GUIDELINES OF THE AMERICAN COLLEGE OF SPORTS MEDICINE (ACSM) recommend for Aerobic Activities for older adults that:

1. A minimum of 5 days per week for moderate intensity, or a minimum of 3 days per week for vigorous intensity.
2. Moderate intensity at 5 to 6 on a 10-point scale; vigorous intensity at 7 to 8 on a 10-point scale.
3. Moderate intensity activities should accumulated be performed for at least 30 minutes per day in bouts of at least 10 minutes each; continuous vigorous activities should accumulated be performed for at least 20 minutes per day.
4. Walking, running, swimming, and cycling are recommended

Of the programmes that target endurance, only the *COACH* programme met the first criteria of having a frequency of at least 5 times per week for moderate intensity. Most programmes are only performed once per week (*GALM*, *MBvO Amsterdam*, *EPE*, *Care 70+*) or twice per week (*COOL*). All programmes included activities or exercises that

were of moderate intensity and that were performed at least for 30 minutes. Common activities are walking, swimming and dancing.

Only the COACH programme fulfils all recommendation for endurance training. Other PA programmes that incorporate the right type of activities and or exercises are usually not performed frequently enough to improve endurance according to the guidelines.

6.2.4 *Coordination and Balance exercises*

The programmes that (according to the programme directors) target coordination and balance are: *GALM, In Balance, COOL, Healthy & Vital, MBvO Amsterdam & Noord-Holland, EPE, Care 70+, NFP programme, COACH*.

GUIDELINES OF THE AMERICAN COLLEGE OF SPORTS MEDICINE (ACSM) recommend for Balance exercise for older adults that:

1. Because research has focused on balance exercise rather than balance activity (e.g., dancing), only exercise is currently recommended.
2. The preferred types, frequency, and duration of balance training are unclear and not specified in the clinical guideline. However, balance exercise three times each week is one option, as this approach was effective in a series of four fall prevention studies.
3. The recommendation applies only to community-dwelling older adults because of insufficient data in long-term care settings and hospital settings.
4. Supervised and progressively more difficult postural exercises that either reduce the base of support (e.g., one-leg stands), perturb the center of gravity (e.g., circle turns), stress postural muscles (e.g., heel stands), or reduce other sensory input (e.g., vision) are recommended.

Of the programmes that target coordination and balance two PA programmes (*GALM* and *COACH*) included activities (usually dance and ball sports), whereas the guidelines conclude that currently only exercise can be recommended. Although the preferred frequency for balance and coordination training remains unclear, the guidelines notice that a frequency of three times per week demonstrated positive results. Most programmes that target balance and coordination are provided once per week (*GALM, In Balance, Healthy & Vital, MBvO Amsterdam & Noord-Holland, EPE, Care 70+*) or twice per week (*COOL, NFP programme*). The guidelines state that recommendations only apply to community-dwelling older adults. The *COOL* programme is the only PA programme that targets the balance and coordination of older adults living in an institutionalised setting. Remarkably, of the 10 programmes that target balance and coordination, five programmes (*GALM, COOL, EPE, Care 70+, COACH*) do not include specific balance and/or coordination exercises and therefore do not meet the first and fourth criterium.

Of all programmes the *NFP* programme seems to be most in line with the international guidelines for balance and coordination training. *In Balance, Healthy & Vital*, and *MBvO Amsterdam* programmes also look promising, with the exception of the low frequency.

6.2.5 *Flexibility exercises*

The programmes that (according to the programme directors) target flexibility are: *GALM, In Balance, COOL, Healthy & Vital, MBvO Amsterdam & Noord-Holland, EPE, Care 70+, NFP programme, COACH*.

GUIDELINES OF THE AMERICAN COLLEGE OF SPORTS MEDICINE (ACSM) AND THE AMERICAN ACADEMY OF FAMILY PHYSICIANS recommend for flexibility exercise for older adults that:

1. Flexibility exercise should be performed at least two days per week for at least 10 minutes. Preferably, flexibility exercises are performed on all days that aerobic or muscle-strengthening activity is performed.
2. A general stretching routine involving major muscle and tendon groups with 10-30 seconds for a static stretch and 3-4 repetitions for each stretch is recommended.
Use of a Balance Ball, Yoga, Pilates are also recommended
3. Stretches should be performed in a “stretch and hold” fashion—avoid “ballistic” or “bouncing” stretches.
4. Add new stretches to the routine, progress from static poses to dynamic moves, or reduce reliance on balance support.

Of the programmes that target flexibility only *COOL*, *NFP programme* and *COACH* are performed two times per week or more. Although the directors of *COOL* and *Care 70+* programmes indicated that their programme target flexibility, to our knowledge no general stretching routine or activities such as Yoga or Pilates are included in the programmes. The other programmes usually incorporate Yoga, Pilates or Tai Chi. From the information gathered with the EUNAAPA questionnaire it was not possible to determine whether stretches were performed in a “stretch and hold” fashion. All but two programmes included progression in their exercises. The programme director of *GALM* and *COACH* indicated that progression was only part of the programme during the first few weeks.

Of the PA programmes that target flexibility, the *In Balance*, *Healthy & Vital*, and *MBvO Amsterdam* seem to be most in line with the guidelines, though all these programmes are only performed once per week (with the exception of the home exercise advice).

6.2.6 *Fall Prevention*

The programmes that (according to the programme directors) incorporate fall prevention are: *ACTOR*, *GALM*, *In Balance*, *MBvO Amsterdam* & *Noord-Holland*, *Care 70+*, *NFP programme*, *COACH*

According to the GUIDELINE OF THE AMERICAN GERIATRICS SOCIETY, THE BRITISH GERIATRICS SOCIETY, AND THE AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS PANEL ON FALLS PREVENTION an exercise programme for the prevention of falls should incorporate:

Single Interventions Exercise

1. Optimal type, duration and intensity of exercise is unclear
However, evidence shows successful programmes are consistently longer than 10 weeks
2. The strongest evidence was found for balance training (less evidence for strength and aerobic training). Older people who have recurrent falls should be offered long-term exercise and balance training
3. Tai Chi is promising type of balance training, but in long-term care no evidence for benefit of Tai Chi was found

Single interventions Educational Behavioral programmes

Although studies of multifactorial interventions that have included behavioural and educational programmes have demonstrated benefit, when used as an isolated intervention, health or behavioural education does not reduce falls and should not be done in isolation.

While eight programme directors indicated that their programme aimed at fall prevention, only four programmes (*In Balance*, *NFP programme*, *MBvO Amsterdam*, and *MBvO Noord-Holland*) are partially in accordance with the guidelines for exercise programmes for fall prevention.

In Balance includes Tai Chi-based exercises that are generally recommended in most guidelines for the prevention of falls in older adults. The *NFP programme* targets specific balance exercises and situation that have a high fall risk (walking on uneven surfaces, transfers, and double tasks). The *More Exercise For Seniors* programmes both include balance exercises, usually Tai Chi. However, all activities of the MBvO programmes are optional and tailored to the wishes and abilities of the older participants. A participant may very well choose not to include specific balance training in their activities.

The AGS guidelines state that it is unclear what the optimal frequency and intensity is for fall prevention programmes. Most guidelines, however, recommend a training frequency of at least twice per week, whereas *In Balance*, *MBvO Amsterdam*, and *MBvO Noord-Holland* are provided only once per week. A drawback of the *NFP* programme is that it is offered for only 5 weeks, while guidelines indicate that successful fall prevention exercise programmes are consistently 10 weeks or longer.

6.3 Concordance of pa promotion strategies with guidelines

Compared to programmes, the number of (specific) guidelines for or with additional aspects of promotion strategies is limited. Guidelines do not always differentiate between recommendations for strategies or programmes. Therefore the recommendations for promoting PA in older adults as stated for programmes can also be used to evaluate promotion strategies. Additionally some specific recommendations are made concerning strategies to promote physical activity in older adults.

To critically compare the five selected promotion strategies the following guidelines were used:

- American College of Sports Medicine (ACSM) and the American Heart Association (AHA) (2007)
- NHS Health Development Agency (HAD) (2005)
- National Blueprint (Sheppard et al. 2003;25)
- WHO (Edwards P and Tsouros A, 2006.)

The relevant aspects from these guidelines are summarised below.

It proved to be difficult to compare the five selected promotion strategies to these guidelines since not all relevant information was collected through the questionnaire.

Summary of guidelines selected to compare with PA Promotion Strategies

ACSM

Summary of physical activity recommendations for older adults – 2007 (from Nelson et al, 2007)

1. To promote and maintain good health, older adults should maintain a physically active lifestyle. Level of evidence: I (A)⁵
2. They should perform moderate-intensity aerobic (endurance) physical activity for a minimum of 30 min on five days each week or vigorous-intensity aerobic activity for a minimum of 20 min on three days each week. Level of evidence: I (A)
Moderate-intensity aerobic activity involves a moderate level of effort relative to an individual's aerobic fitness. On a 10-point scale, where sitting is 0 and all-out effort is 10, moderate-intensity activity is a 5 or 6 and produces noticeable increases in heart rate and breathing. On the same scale, vigorous-intensity activity is a 7 or 8 and produces large increases in heart rate and breathing. For example, given the heterogeneity of fitness levels in older adults, for some older adults a moderate-intensity walk is a slow walk, and for others it is a brisk walk.
3. Combinations of moderate- and vigorous-intensity activity can be performed to meet this recommendation. Level of evidence: IIa (B)
These moderate- or vigorous intensity activities are in addition to the light intensity activities frequently performed during daily life (e.g., self care, washing dishes) or moderate-intensity activities lasting 10 min or less (e.g., taking out trash, walking to parking lot at store or office).
4. In addition, at least twice each week older adults should perform muscle strengthening activities using the major muscles of the body that maintain or increase muscular strength and endurance. Level of evidence: IIa (A)
It is recommended that 8–10 exercises be performed on at least two nonconsecutive days per week using the major muscle groups. To maximize strength development, a

⁵ ACC/AHA approach to assigning the classification of recommendations and level of evidence. Classifications of recommendation (COR) I, II, and III are used to summarize indications (suggested phrases for writing recommendations)

Class I: Conditions for which there is evidence and/or general agreement that a given procedure or treatment is useful and effective (should; is recommended; is indicated; is useful/effective, beneficial)

Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure or treatment

IIa: Weight of evidence/opinion is in favor of usefulness/efficacy (is reasonable; can be useful, effective or beneficial; is probably recommended or indicated)

IIb: Usefulness/efficacy is less well established by evidence/opinion (may/might be considered, may/might be reasonable, usefulness/effectiveness is unknown, unclear/uncertain or not well established)

Class III: Conditions for which there is evidence and/or general agreement that the procedure/treatment is not useful/effective and in some cases may be harmful (is not recommended; is not indicated; should not; is not useful/effective, beneficial; may be harmful)

Levels of evidence (LOE) for individual class assignments (with suggested language to be used with each level)

A: Data derived from multiple randomized clinical trials

B: Data derived from a single randomized trial or from nonrandomized studies

C: Consensus opinion of experts

resistance (weight) should be used that allows 10–15 repetitions for each exercise. The level of effort for muscle-strengthening activities should be moderate to high.

5. Because of the dose-response relationship between physical activity and health, older persons who wish to further improve their personal fitness, reduce their risk for chronic diseases and disabilities, or prevent unhealthy weight gain will likely benefit by exceeding the minimum recommended amount of physical activity. Level of evidence: I (A)

6. To maintain the flexibility necessary for regular physical activity and daily life, older adults should perform activities that maintain or increase flexibility on at least two days each week for at least 10 min each day. Level of evidence: IIb (B)

7. To reduce risk of injury from falls, community-dwelling older adults with substantial risk of falls should perform exercises that maintain or improve balance. Level of evidence: IIa (A)

8. Older adults with one or more medical conditions for which physical activity is therapeutic should perform physical activity in a manner that effectively and safely treats the condition(s). Level of evidence: IIa (A)

9. Older adults should have a plan for obtaining sufficient physical activity that addresses each recommended type of activity. Level of evidence: IIa (C)
Those with chronic conditions for which activity is therapeutic should have a single plan that integrates prevention and treatment. For older adults who are not active at recommended levels, plans should include a gradual (or stepwise) approach to increase physical activity over time. Many months of activity at less than recommended levels is appropriate for some older adults (e.g., those with low fitness) as they increase activity in a stepwise manner. Older adults should also be encouraged to self-monitor their physical activity on a regular basis and to reevaluate plans as their abilities improve or as their health status changes

NHS/NICE published an evidence into practice briefing on promotion of physical activity among adults, including suggested actions for older adults (Cavill e.a., 2006):

In summary the following strategies are advised:

- Tailor to needs of participants
- Offer a range of activities
- targeted according to age group, levels of independence and stated preferences for types of pa
- incorporate existing networks and facilities that older persons use
- partnership of health and voluntary agencies
- based on behavioural theories
- reach inactives
- promote local opportunities for pa (e.g. moderate (home based) walking)
- combine health and pa sectors (especially primary care)

The **National blueprint** (Sheppard e.a., 2003) identified 18 priority strategies for older adults ≥ 50 in the area of home and community, marketing, medical systems, public policy and research. The table below summarizes them:

Table Blueprint strategies

Cross-cutting	Strategy 1	Strategy 2	Strategy 3
<ul style="list-style-type: none"> cross boundaries in the areas of community, research, marketing, public policy, and health broad, comprehensive partnerships in which a wide variety of organizations come together to achieve mutually beneficial outcomes. 	Create a national clearinghouse to disseminate effective, tested public education, social marketing materials, and public policy information on physical activity and aging	Develop a population-segmented mass marketing campaign to increase knowledge and awareness levels related to physical activity and fitness among the ≥50 population	Develop a national consensus document that recommends training standards for preparing physical activity instructors for working with older adults.
Home and community			
<ul style="list-style-type: none"> efforts at the local level to develop partnerships between community groups, agencies, and services promoting physical activity to better serve the needs of middle aged and older adults 	Identify professionals in the community who can serve as resources for information and assistance to programs and groups working in the areas of aging and physical activity	Establish and provide technical assistance to national, regional, and local partnerships among health, aging, urban/community planning, transportation, environmental, recreation, social service, and the private sector organizations	Provide community organizations with a template for good physical activity programs
Marketing and communication			
<ul style="list-style-type: none"> Share information about best practices and model programs in the area of physical activity. 	Establish a comprehensive physical activity trade association to provide support and assistance to businesses and corporations that share an interest in increasing physical activity levels among the older adult population	Develop a national program that would provide incentives for communities to increase physical activity levels among the aged ≥0 population	Support efforts to develop physical activity programs and messages that are targeted to specific segments of the aged ≥50 population
Medical systems			
<ul style="list-style-type: none"> provide physical activity guidelines and best practices to healthcare professionals to help educate patients, to provide physical activity prescriptions for chronic illnesses, and to maintain physical and mental well-being. Partnerships between medical professionals and local community resources are needed to help refer patients to local physical activity opportunities. 	Disseminate information on physical activity guidelines and best practices to the medical community	Develop partnerships between medical professionals and the community to facilitate patient referrals to local physical activity resources	Develop resources for clinicians to use in making personalized physical activity recommendations/prescriptions for their patients
Public policy strategies			
<ul style="list-style-type: none"> at the local, state, and national levels. specific tactics will include the development of a cohesive legislative agenda, regular meetings with lawmakers, and the development of a unified consensus statement on the benefits of physically active lifestyles. 	Develop a coalition to conduct public policy analysis and to identify unified public policy strategies in the area of physical activity and aging	Educate policymakers about the importance of physical activity for the middle-aged and older population. Include information that provides examples of effective policy in this arena	Generate information on the cost effectiveness of increasing regular physical activity among the older population to help support public policy, program development, and reimbursement efforts
Research strategies			
<ul style="list-style-type: none"> increase our understanding of the complex interactions among health, physical activity, and the aging process evidence-based guidelines are needed with respect to the types and amounts of physical activity needed to enhance health and functional outcomes. research findings must be translated to maximize their implementation in community-based programs. 	Identify valid and reliable measures of physical activity and physical function that are appropriate for different segments of the aged ≥50 population	Develop evidence-based guidelines on types and amounts of physical activity needed to enhance health and functional outcomes in the aged ≥50 population with a special emphasis on chronic illness and disabilities	Conduct research to understand better what motivates individuals to participate and remain involved in community, home-based, and work-site programs and/or self-directed activities

From: Sheppard et al. The national blueprint consensus conference summary report; strategic priorities for increasing physical activity among adults aged ≥ 50. Am J Prev Med 2003;25(3Sii) 209-213.

WHO

Promoting PA requires the involvement and cooperation of all levels of government with clear roles and commitments for each level.

Other barriers to active living include fears about crime and road safety, transport emissions and pollution, problems with access and/or a lack of recreation and sport facilities and negative about PA and active transport.

Certain groups are particularly vulnerable to social exclusion, including older people (especially those who live alone).

Key barriers for older people include:

- accessibility
- safety issues related to weather and road traffic
- ageism
- isolation

The ability to make convenient walking trips from home to destinations such as stores, parks and trails, the perception of having safe and aesthetically pleasing surroundings for walking and ready access to green spaces are associated with increased PA levels among older people.

Other recommendations include:

- Policies and procedures should highlight and promote health clubs that are accessible and meet the needs of older adults. They should also work with the mass media to combat ageism and stereotypes about older adults.
- There is a need for involving older people in the planning, assessment and development stages of building or improving facilities or spaces that encourage active living.
- Enter into partnerships with community agencies, voluntary organizations, religious organizations, and sports clubs etc to promote active living for older people.

Almost all promotion strategies target different groups such as older adults with physical limitation or from socially deprived backgrounds. With the exception of *GALM* most do not restrict participation by age, although some indicate specifically to address 65+. Almost all strategies work together with other sectors (especially the health sector) and promote local opportunities.

In all five strategies, primary care settings are used (including medical and allied health professionals), followed by community centres.

Most promotion strategies are based on behavioural theories (with the exception of *Fall Prevention* and *Walking Routes*).

Most strategies direct their activities on the individual as well as the community level. Some strategies (such as *BIG! Move*) focus especially on contribution from the community, while other strategies stress the individual approach. All strategies do use groups to encourage older adults to become more physically active.

Most strategies specifically address barriers for becoming physically active (with the exception of *Falls Prevention*). Some strategies address specifically the topic of safety and risk management (*Walking Routes* and *Big! Move*).

All in all there seems to be a good concordance of the selected promotion strategies with the selected guidelines. Unfortunately it was not possible to evaluate all relevant recommendations because the questionnaires did not provide all the relevant information.

7 Conclusions & Recommendations

7.1 Selection and response of experts

In total 11 experts agreed to participate, which were well distributed between the national/regional and local level, and among the predefined sectors (e.g. sport, health and education). Also, there was a good distribution in educational background and areas of practice, although there was an over representing in community dwelling vs. institution dwelling concerning the client group.

There was some overlap between the experts and selected directors. This was mainly due to one programme/strategy with several applications (*GALM*). This proves that the difference in the Netherlands between developing, implementing and running a program or strategy is not so clear. An important reason for this could be the fact that most strategies and programmes are developed and evaluated by scientific organisations. If proven effective other organisations usually take over the work of running the program, but the developers usually stays connected in some way to the initiative, and are therefore probably nominated by experts.

7.2 National qualifications

Most of the selected directors had none or limited knowledge on national qualifications in the supervision/guidance of physical activity, although most find it important to have special qualifications for supervising or guiding PA in older adults. Also the existence of professional registers for PA instructors is not well known among the selected experts. Apart from two general national registers for Dutch (allied) health care workers, the only additional registers that were mentioned are for specific programmes or strategies.

7.3 Selection of programmes and strategies

Although more programmes and strategies were nominated, only 11 programmes and 5 strategies were included in the final analysis. The reduction in the number of strategies is due to double nominations, non response and re-categorizing two nominated programmes as strategies. In both cases the directors indicated that the nominations were actually best regarded as a programme. The distinction between programme and strategy proved to be difficult in some cases, or nominations could easily be viewed as applicable to both categories. Especially the different applications of the *GALM* strategy were difficult to place. Therefore we analysed them in both categories, as nominated by the experts and after consultation with the director. All in all the analysed programmes and strategies represent a wide variety of initiatives to stimulate physical activity in older adults.

7.4 Programmes

The Dutch experts that identified the successful PA programmes gave a wide range of different programmes that often differ in primary aim, the exercises and methods used. This makes it difficult to compare the programmes and identify common features of successful Dutch PA programmes. For instance, the aims of the different programmes were among others socialising, improving fitness, improving physical activity, health

education, promote health, and improve self esteem. Also several PA programmes involve a method in which the older participants themselves choose the type of physical activity they want to carry out during the programme. Usually the activity choices are dependent on the local circumstances. For instance, when a swimming pool is available participants can also choose swimming or aqua exercises. This makes it difficult to compare the programmes among each other and to the international guidelines. Furthermore, several PA programmes encourage the participants to carry out exercises at home in their free time. For instance during the programmes *COACH* and *Healthy & Vital* participants are taught how to incorporate physical activity in their daily life. These activities are not included in this inventory, but may very well contribute to the success of the programme.

Although the eleven identified successful programmes of this inventory are different and are difficult to compare, the results of this inventory demonstrate several common features. Common characteristics of successful physical activity programmes are:

- The programme is comprised of multiple components, usually a combination of community-based group exercises, home-based exercises and falls prevention exercises.
- The programme is provided in multiple facilities, preferably in sport / physical recreation facilities, community centres and/or sheltered housing facilities.
- The programme targets persons 65 years and older living in the community that have a good to moderate functional mobility.
- Group size during the programme is between 10 and 21 persons with one instructor.
- The programme primarily aims to improve health and physical function. Secondary aims are socialising, prevent disease and improve confidence.
- The programme targets multiple aspects of fitness, mostly strength, coordination & balance, and flexibility.
- The contents of the programme is adjusted to the goals of the participants.
- During the programme participant satisfaction, muscle strength and power, balance and social support is measured regularly.
- During the programme recreational movement activities (movement to exercise, exercise to music and dance) and/or adapted exercise (fall prevention and chair-based exercise) are provided.
- The programme is progressive and the workout component of a session is between 30 and 40 minutes.
- The total cost of the programme per participant per session is more than € 5 with each participant paying 0% to 25% of the costs.
- During the programme refreshments for the participants are free.
- No reimbursement of costs for transport
- The programme uses multiple methods (preferably through newspapers, radio and TV, leafleting, word of mouth, websites, and bring a friend) to publicise, market or promote the programme.

Remarkably, hardly any of the successful PA programmes are completely in line with current guidelines for general PA programmes for older adults. Although all programmes include activities of at least moderate intensity and increase in the exercise intensity over time, most successful programmes do not meet the required frequency of at least seven days per week 30 minutes or more of continuous or accumulated physical activity. Also, the recommendation to incorporate a self-monitoring system of the physical activity carried out by the participants is not included by most programmes.

Most PA programmes are also not in line with the recommendations according to the FITT-PRO (Frequency, Intensity, Type, Time, and Progress) approach. Most programmes are not provided or followed frequently enough and/or do not include the preferred type of activity in order to yield effects on the exercise aims of the programmes. Of the PA programmes that target muscle strength, only one programme (*COOL*) actually seems to be in concordance with the guidelines for strength training. Usually the programmes fail to meet the recommendation to include some kind of weight training or resistance exercise or the programmes are not provided frequently enough. Of the programmes that target endurance only the *COACH* programme fulfils all recommendation for endurance training. Other PA programmes do not incorporate the right type of activities or exercises are usually not performed frequently enough to improve endurance according to the guidelines. Of the 10 programmes that target balance and coordination, half of the programmes do not include specific balance and/or coordination exercises and therefore do not meet current recommendations. The programmes that target flexibility usually incorporate Yoga, Pilates or Tai Chi. However, not including the advised home exercises of several programmes, the exercise are followed not often enough. While eight programme directors indicated that their programme aimed at fall prevention, only four programmes (*In Balance*, *NFP programme*, *MBvO Amsterdam*, and *MBvO Noord-Holland*) are partially in accordance with the guidelines for exercise programmes for fall prevention. Usually, the programmes fail to meet the required frequency or duration for providing the programme.

Although the PA programmes of this overview are identified as being successful, most programmes are not in concordance with current international recommendations for PS programmes for older adults. Most programmes fail to meet the recommended quantity/frequency and/or do not include the preferred type of activity in order to yield effects on the exercise aims of the programmes.

On the other hand it can be questioned wheather the current guidelines for promotion and/or provision of safe and effective PA by older people are adequate in evaluating PA programmes and strategies. Moest of the current guidelines are intended to provide recommendations on the types and amounts of PA to improve and maintain health. The selected programmes can be viewed as an import first step in motivating and learning older adults how and when to exercise safe and effectively. Continuing and increasing at the end of the program can be achieved more easily.

7.5 Promotion strategies

Unfortunately it was not possible to include more than five successful promotion strategies which limit our conclusions on this point.

Even so we can conclude that most strategies are especially designed for older adults, although some also include younger adults. Although some differentiation is possible between the strategies, participants with all functional levels can be included. Only one strategy aims for specific cultural differences. This means that almost any older adult can be addressed to improve their physical activity.

More strategies then not were developed on a theoretical basis which is in concordance with current guidelines. It seems that successful strategies are long-lasting since, most of the included strategies had been running for more than 1 year. There seems to be a wide variety of addressed barriers, approaches to encourage behaviour and used information approaches.

The wide range of possible strategies makes it difficult to draw conclusions on the essential ingredients of successful strategies. The comparison with current guidelines on PA also does not provide clear outcomes for this, although some key issues (theoretical basis, create partnerships, address barriers etc.) seem to be covered in the selected strategies.

Flexibility within and differentiation between promotion strategies should contribute to a maximum reach and stimulation of older adults in becoming (more) physically active.

7.6 Limitations

The method used for the selection of successful programmes and strategies has some limitations. Because the number of included experts was limited and programme directors had little time to react some successful programmes may have been missed. The directors of NIB-TV, BOG and SCALA did not respond in time for inclusion in the current report. Since 2000 the PA programme *The Netherlands on the Move TV (NIB-TV)* is active. *NIB-TV* is a television concept that is broadcast on weekdays at 6.45 a.m. and 9.08 a.m. on one of the Dutch

public channels (Nederland 1). In the 15 minutes that the program lasts, there are five physical activity blocks: (1) warming-up; (2) co-ordination; (3) cardio-fitness; (4) strength; and (5) cooling-down. In between the exercise blocks of 1.5 to 2.5 minutes, health education and tips on local and national physical activity events are provided. Each day approximately 130.000 primarily older adults watch the programme.

BOG stands for “*Bewegen voor Ouderen in Groepsverband*” which translates “*Exercise for Seniors in Groups*”. *BOG* involves exercises that target activities of daily living under supervision of a physiotherapist. *BOG* targets older adults that suffer a loss of muscle strength, mobility and/or coordination, older adults that experience difficulties in carrying out daily tasks such as walking and dressing oneself. Exercises are performed once per week in groups. *SCALA* is a promotion strategy that incorporates the promotion of sports activities for older adults with chronic disease or physical limitations. The *SCALA* strategy is linked to the *GALM* activities and consists of a physical fitness test and the reference to sport activities. More than 37 cities in the Netherlands carried out *SCALA*-projects.

The included programmes and strategies are difficult to compare because they often differ in (among others) primary aim, exercises used, and methods used. This together with the small number of programmes and strategies, makes it difficult to identify common features of the programmes and strategies that may contribute to the success of the programmes and strategies.

Also, with nominating successful programmes and strategies, the experts were free to interpret successful. Several experts considered a PA programme successful when the programme was proven effective for improving health outcomes, improving mental health, or increasing independence. Other experts considered a programme successful when it proved to be feasible and well accepted by the older participants. Or when a great number of older adults has followed the programme for a longer period of time. Promotion strategies were considered successful when it appealed to the interests of the older adults, the strategy was fun, safe, and accessible for older adults. Other experts found a strategy successful when it reached a great number of older adults or when it involved no costs for the older adults. The different interpretations of the term successful by the experts may also have contributed to the many differences between the identified programmes and strategies.

7.7 Conclusion

The current report gives an overview of current successful PA programmes and PA promotion strategies for older adults in the Netherlands, as identified by Dutch experts from the Sport, Health care, Social care, and Educational sectors. In general, the results demonstrate that a wide range of successful programmes and promotion strategies is currently applied in the Netherlands. Although this overview does not cover all PA programmes and PA promotion strategies and the included interventions are different in aim and method used, several common characteristics could be identified that may contribute to the successfulness of the programmes and strategies in terms of acceptance by and reach of the older populations.

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 achj.rademaker@avans.nl
- **Care programme for senior people**
 Praktijk voor oefentherapie Cesar "het Noorderbad" Groningen (Practice for Cesar Therapy "het Noorderbad" Groningen)
www.oefentherapiecesarnoorderbad.nl
 Annemieke Uneken, Oefentherapeute Cesar (therapist Cesar)
 Oosterhamrikkade 66
 9714 BG Groningen
 otcesar-noorderbad@planet.nl
- **Vallen Verleden Tijd (Nijmegen Falls Prevention Program)**
 Sint Maartenskliniek
www.maartenskliniek.nl
 Ellen Smulders, Physical therapist (MSc)
 Hengstdal 3
 6522 JV Nijmegen
 e.smulders@maartenskliniek.nl
- **COACH**
 Center for Human Movement Sciences, UMCG, University of Groningen
www.coachmethode.nl, www.rug.nl
 Dr. M.H.G. de Greef, associate professor
 P.O. Box 196
 9700 AD Groningen
 m.h.g.de.greef@rug.nl

C Identification details of ‘successful’ PA Promotion Strategies

- **De Methode Big!Move (Big!Move Method)**
Big!Move institute
www.bigmove.nu
Marijn Aalders, Director of content, Big!Move trainer and physical therapist
Gezondheidscentrum Velserspolder
Alfred Doblinstraat 56
1102 VL Amsterdam
marijnaalders@gmail.com
- **FLASH Campagne bewegen met plezier 55+ (FLASH Campaign Exercise with pleasure 55+)**
Nederlands Instituut voor Sport en Bewegen (NISB) (Netherlands Institute for Sport and Exercise)
www.nisb.nl
Jaap de Graaf (general manager campaigns) en Ger Kroes (Campaign leader)
P.O. Box 64
6720 AB Bennekom
jaap.degraaf@nisb.nl, ger.kroes@nisb.nl
- **Groningen Actief Leven Model GALM (Groningen Active Living Model GALM)**
Center for Human Movement Sciences, UMCG, University of Groningen
www.rug.nl, www.galm.nl
Dr. M.H.G. de Greef
P.O. Box 196
9700 AD Groningen
m.h.g.de.greef@rug.nl
- **Valpreventie voor ouderen: implementatie van het ‘Vallen verleden tijd’ programma (Fall prevention for elderly: implementation of the ‘Falls past time’ program)**
St. Maartenskliniek, Research, Development & Education
www.maartenskliniek.nl
H. Rijken
PO Box 9011
6500 Nijmegen
h.rijken@maartenskliniek.nl
- **Looproutes voor mensen met hulpmiddelen (Walking routes for people with walking disabilities)**
NIGZ (Netherlands Institute for Health Promotion and Disease Prevention)
www.nigz.nl, www.woerdenactief.nl
Maarten Stiggelbout, Senior Advisor
P.O. Box 500
3440 AM Woerden
mstiggelbout@nigz.nl

D Search strategies

The following two search strategies were used for Ovid Medline and adapted for the other databases.

Search 1 – Provision of physical activity for older people

- 1 exp exercise\$ /
- 2 (exercise\$ or physical activity or exercise prescription).mp
- 3 1 or 2
- 4 exp aged/ or exp "aged, 80 and over" /
- 5 (aged or elderly or senior\$ or older adult or older person\$ or older people).mp
- 6 4 or 5
- 7 guideline.pt
- 8 practice guideline.pt
- 9 exp guidelines/
- 10 exp health planning guidelines/
- 11 7 or 8 or 9 or 10
- 12 exp consensus/
- 13 (guideline\$ or consensus or position stand or standard\$ or recommendations\$).ti
- 14 11 or 12 or 13
- 15 3 and 6 and 14

Search 2 – Promotion of physical activity for older people

- 1 exp exercise\$ /
- 2 (exercise\$ or physical activity).mp
- 3 1 or 2
- 4 exp health promotion\$ /
- 5 (health promotion\$ or promotion strategy or promotion strategies or health behaviour\$ or campaign\$).mp
- 6 4 or 5
- 7 exp aged/ or exp "aged, 80 and over" /
- 8 (aged or elderly or senior\$ or older person\$ or older people or older adult\$).mp
- 9 7 or 8
- 10 guideline.pt.
- 11 practice guideline.pt
- 12 exp guidelines/ (61574)
- 13 exp health planning guidelines/
- 14 exp consensus/
- 15 (guideline\$ or consensus or position stand or recommendation\$ or standard\$).ti
- 16 10 or 11 or 12 or 13 or 14 or 15
- 17 3 and 6 and 9 and 16

E Overview selected programmes and promotion strategies by physical activity experts

PA Expert		Nominated as		Director		
ID*	Question-naire	Program	Strategy		Question-naire	Comment/status*
A	YES	Healthy and Vital		N	YES	Programme
			In Balance	C	YES	->Programme
B	YES	Healthy and Vital		N	YES	->Programme (2 nd nom.)
			GALM	A	YES	Strategy
C	NO	MBvO-Amsterdam		O	YES	Programme
			Coach	A	YES	->Programme
			30 minutes	C	YES	Excluded (own programme, has not started yet, 2nd strategy)
D	YES	MBvO-Noord-Holland		P	YES	Programme (2 nd nom but different version)
			BOG	Q	NO	Excluded (no reply)
E	YES	GALM		A	YES	Programme
			FLASH	R	YES	Strategy
F	NO	GALM		A	YES	->Programme (2 nd nom)
			SCALA	A	NO	Excluded (no reply)
G	YES	GALM		A	YES	->Programme (3 rd nom)
			GALM	A	YES	->Strategy (2 nd nom)
H	YES	COOL		S	YES	Programme
			Inform doctors	T	NO	Excluded (no reply)
I	YES	Actor		U	YES	Programme
			Walking routes	B	YES	Strategy
J	YES	Exercise is part of everyone		V	YES	Programme
			BIG! Move	W	YES	Strategy
K	YES	Nijmegen Falls		X	YES	Programme
			Fall prevention	Y	YES	Strategy
L	YES	Care 70+		Z	YES	Programme
			NIB-TV	R	NO	Excluded (no reply)
M	YES	GALM		A	YES	Programme (4 th nom)
			GALM	A	YES	Strategy (3 rd nom)

* Each letter stands for a unique director or expert. This means that Expert A and Director A are the same person.

F Citation details of evidence based guidelines

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