Entry Correlates and Motivations of Older Adults Participating in Organized Exercise Programs

Maarten Stiggelbout, Marijke Hopman-Rock, and Willem van Mechelen

This study reports entry correlates and motivations of older adults participating in organized exercise programs in the Netherlands, as determined in a descriptive explorative study (N = 2,350, response rate 86%). Participants were community-dwelling older adults (50+ years) who enrolled and started in 10 different exercise programs. Entry features were analyzed for differences in age, sex, marital status, education, living situation, body-mass index, lifestyle, and health status. Motivations for entering an exercise program were determined using homogeneity analyses. More Exercise for Seniors (MBvO) attracted relatively older seniors, whereas organized sports mainly attracted younger ones. Walking, MBvO, and gymnastics attracted more women, whereas skating and table tennis were reported to attract more male participants. Badminton and cycling attracted relatively higher educated participants, whereas MBvO attracted relatively lower educated participants. Three distinct motivational constructs were found: relax and enjoy, care and cure, and competition. Public health and recruitment implications of these findings are discussed.

Keywords: physical activity, health behavior, health promotion, aging

Regular participation in exercise has been associated with a variety of health benefits in those 50 years of age and older, such as improved cardiovascular, respiratory, and muscle function and the reduction of risk factors associated with disease states (American College of Sports Medicine [ACSM], 1998; U.S. Department of Health and Human Services, 1996). Given the numerous benefits of exercise, the ACSM has proclaimed that a targeted exercise prescription offers a benefit that cannot be achieved with any other therapeutic modality (ACSM). The guidelines for health-enhancing physical activity state that all adults should participate in 30 minutes of moderate intense physical activity during preferably all—but at least five—days of the week (ACSM). These guidelines also are applied to older adults. Despite the potential benefits of exercise, however, many older Dutch people...
are still not physically active enough (Hildebrandt, Ooijendijk, Stiggelbout, & Hopman-Rock, 2004). Therefore, it is important to promote physical activity and exercise in older adults.

Determinant and correlation studies found that several factors are of major importance for the 50+ population to start participating in an exercise program (Brawley, Rejeski, & King, 2003; Clark, 1999; King, Rejeski, & Buchner, 1998; Resnick, Magaziner, Orwig, & Zimmerman, 2002; Resnick & Nigg, 2003; Sallis, 2003; Sallis, Bauman, & Pratt, 1998; Stiggelbout, Hopman-Rock, Crone, Lechner, & van Mechelen, 2005; Stiggelbout, Hopman-Rock, Tak, Lechner, & van Mechelen, 2005; Trost, Owen, Bauman, & Brown, 2002):

- Personal factors: age, sex, socioeconomic class, working or not, (past) exercise behavior
- Social and cultural factors: influence of a treating physician, social support of friends and family
- Environmental factors: type, location, and quality of physical activities; travel time; physical environment with sufficient possibilities to be physically active (e.g., parks, walking trails, bicycling lanes, physical activity clubs for older adults); low cost

To study people’s transition from a (partly) sedentary lifestyle to a physically active lifestyle, the transtheoretical model is often applied (Prochaska & DiClemente, 1983). The stages-of-change construct constitutes the central organizing construct of the transtheoretical model. Prochaska and DiClemente suggest that individuals engaging in a new behavior move in an orderly progression through the stages of precontemplation (not intending to make changes), contemplation (considering a change), preparation (making small changes), action (actively engaging in the new behavior), and maintenance (sustaining the change over time). In the 1990s, Marcus and Owen (1992) modified the original stages-of-change construct and processes of change to describe behavioral change with respect to physical activity behavior. To the best of our knowledge, no research has been done concerning the correlates associated with voluntary entry of older adults into specific exercise programs and their motivations for these choices. Knowledge of these correlates and motivations could be important in advising other older adults who are considering entering an exercise program. The underlying study is aimed to explore these correlates and motivations.

Consequently, our research questions of this study were

- What correlates are associated with voluntary entry (enrollment and actual participation) in 10 different exercise programs for older adults?
- How can motivations associated with entrance in these 10 exercise programs be categorized, reduced, compared, and described?

**Population and Methods**

A descriptive explorative study was carried out on participants’ voluntary entry into 10 different exercise programs. These 10 different types of exercise program are representative of exercise programs for the 50+ population in the Netherlands: More Exercise for Seniors Gymnastics (MBvO in Dutch), organized sports in sports
clubs (more specifically, athletics, badminton, cycling, gymnastics, skating, and table tennis), physiosport (i.e., fitness programs delivered by physical therapists or sports physical therapists), exercise for heart patients (HIB in Dutch), and walking for exercise (further referred to as walking).

All the physical activity programs are specifically aimed at the target group. For instance, gymnastics and MBvO-gymnastics (MBvO-gym) are group-based physical activity programs consisting of several types of strength-, suppleness-, and balance-training activities. These are mainly ground activities (on the mat), sometimes aided by using a chair, seldom involving an apparatus. In athletics the emphasis is on jogging for seniors.

Over a period of 15 months, all newly enrolled and actually started participants in these 10 different exercise programs were asked to participate in the study. Inclusion criteria were age over 50 years and not being a member of any type of organized sports or physical activity organization directly before the study, implying that all participants in our study were in the action stage of the stages-of-change model (Prochaska & DiClimente, 1983). This does not imply, however, that participants had to be fully inactive before the study.

**Measurement of Entry Correlates**

All data were collected using a postal questionnaire. The questionnaire covered a number of areas:

- **Demographic data**: age, sex, marital status, level of education, and living situation.
- **Physical activity**: evaluated using questions derived from the Dutch Monitor of Physical Activity and Health (Ooijendijk, Hildebrandt, & Stiggelbout, 2002), which covers compliance with Dutch public health guidelines (Kemper, Ooijendijk, & Stiggelbout, 2000) during an average week in the summer and winter.
- **Other lifestyle components**: alcohol consumption (yes/no, and how many glasses per week) and smoking (nonsmokers, former smokers, and smokers).
- **Body weight and height**: used to calculate body-mass index (BMI; kg/m²)
- **Health status**: measured with the RAND-36, a multidimensional health questionnaire (Ware & Sherbourne, 1992) that has been translated into Dutch (van der Zee & Sanderman, 1993). In this study, five of the nine RAND-36 subscales were used: vitality (Cronbach’s alpha .82), pain (Cronbach’s alpha .88), mental health (Cronbach’s alpha .85), general feeling of health (Cronbach’s alpha .81), and change in health status (a one-item subscale: no alpha available). Each subscale was scored 0–100, with 100 being the best score. Selection of the five subscales was based on expert opinion about the relevance of the scale.
- **Motivation for joining the specific exercise program**: Sixteen different motivation categories were distinguished—appearance, peer contact, acceptance by others, challenge, exercising together, health, fitness, weight reduction, quality
of the instructor, social contact, self-esteem, recreation, pleasure, relaxation, doctor’s advice, and competition. Answer options were yes or no.

Participants were given a questionnaire as soon as they had enrolled in the program and were asked to fill it out within a week, receiving a reminder after 2 weeks. In this manner the response time was kept relatively short.

**Statistical Analysis**

Analysis included computing descriptive statistics of demographics, lifestyle factors, and health status (\%, \( M \), and \( SD \)) of the participants who actually started in the programs. Participants were divided into preference subgroups (i.e., the 10 exercise programs). Through homogeneity analysis (Homals) using SPSS 12.0, we examined whether the motivational categories could be reduced to fewer dimensions (categories without responses were removed before the analysis). The Homals technique performs multiple correspondence analysis of two or more categorical variables treated as if the categories are unordered (so 2 is not higher or more than 1). This can be viewed as a type of principal-components analysis of categorical variables. The output includes a plot of the category quantifications, which gives insight into the relationships between the variables in the analysis. The method is iterative by nature and searches for the “best” solution to represent the number of imported items on two dimensions. Similar groups are represented in the same area (these points have a relatively smaller distance to one another). The groups derived from the Homals analyses were then univariate compared on demographics, lifestyle, and health status for nominal variables using a \( \chi^2 \) test, and for numerical variables with an ANOVA test. A \( p \) level of .05 was regarded as statistically significant.

**Results**

A convenience sample of more than 400 local intermediaries (exercise and sport instructors) agreed to recruit participants for the project. After recruitment and giving their informed consent, 2,350 people received the questionnaire and 2,020 completed and returned it (total response 86%). It was revealed that 6% of people who enrolled in the activity did not actively participate in the programs. These nonparticipants were not taken into our study because of nonresponse.

**Demographics**

MBvO-gym attracted relatively older participants (\( M = 67.7 \) years), followed by gymnastics (\( M = 63.2 \) years). The participants in athletics were relatively younger (\( M = 54.8 \) years; Table 1 and Figure 1). There were exercise programs with mainly female participants, such as MBvO-gym (85.7%), walking (85.6%), and gymnastics (73.9%), and with mostly men, such as cycling (87.1%), table tennis (82.9%), and HIB (76.8%; Table 1 and Figure 2). Participants with high education levels enrolled in athletics. A lower level of education was associated with MBvO enrollment. Most participants in the study lived in a multistory house. More older adults who lived in a service flat enrolled in MBvO than in the other programs.
<table>
<thead>
<tr>
<th></th>
<th>Athletics(^{(n = 133)})</th>
<th>Badminton(^{(n = 134)})</th>
<th>Cycling(^{(n = 263)})</th>
<th>Gymnastics(^{(n = 99)})</th>
<th>Skating(^{(n = 36)})</th>
<th>Table tennis(^{(n = 86)})</th>
<th>Fysiosport(^{(n = 186)})</th>
<th>HIB(^{(n = 334)})</th>
<th>MBvO-gym(^{(n = 583)})</th>
<th>Walking(^{(n = 166)})</th>
<th>Total(^{(N = 2,020)})</th>
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<td>56.6</td>
<td>63.2</td>
<td>56.0</td>
<td>59.0</td>
<td>59.4</td>
<td>59.7</td>
<td>67.6</td>
<td>59.6</td>
<td>61.1</td>
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<td>66.1</td>
<td>87.1</td>
<td>26.1</td>
<td>56.3</td>
<td>82.9</td>
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<td>84.8</td>
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<td>90.6</td>
<td>92.1</td>
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<td>90.1</td>
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<td>6.4</td>
<td>7.1</td>
<td>11.3</td>
<td>5.3</td>
<td>5.3</td>
<td>6.0</td>
<td>30.7</td>
<td>9.6</td>
<td>9.6</td>
<td>13.0</td>
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<tr>
<td>Education, %</td>
<td>36.7</td>
<td>24.8</td>
<td>24.5</td>
<td>17.4</td>
<td>28.1</td>
<td>21.1</td>
<td>21.3</td>
<td>14.0</td>
<td>7.1</td>
<td>21.9</td>
<td>18.0</td>
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<td>45.8</td>
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<td>35.5</td>
<td>45.2</td>
<td>43.8</td>
<td>44.7</td>
<td>50.0</td>
<td>43.0</td>
<td>33.5</td>
<td>56.8</td>
<td>42.0</td>
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<td>17.5</td>
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<td>40.0</td>
<td>37.4</td>
<td>28.1</td>
<td>34.2</td>
<td>28.7</td>
<td>43.0</td>
<td>59.4</td>
<td>21.3</td>
<td>40.0</td>
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<tr>
<td>Living situation, %</td>
<td>82.5</td>
<td>68.8</td>
<td>73.3</td>
<td>65.2</td>
<td>78.1</td>
<td>78.9</td>
<td>76.7</td>
<td>77.1</td>
<td>59.0</td>
<td>81.5</td>
<td>71.3</td>
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<tr>
<td>multistory house</td>
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<td></td>
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<tr>
<td>Lifestyle, % physical activity</td>
<td>36.6</td>
<td>28.4</td>
<td>29.5</td>
<td>41.7</td>
<td>37.5</td>
<td>31.6</td>
<td>29.3</td>
<td>38.1</td>
<td>36.5</td>
<td>32.9</td>
<td>34.6</td>
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<tr>
<td>smoking</td>
<td>9.2</td>
<td>25.7</td>
<td>12.3</td>
<td>10.4</td>
<td>3.1</td>
<td>23.7</td>
<td>33.3</td>
<td>8.6</td>
<td>12.7</td>
<td>11.6</td>
<td>13.2</td>
</tr>
<tr>
<td>BMI 30+, %</td>
<td>5.0</td>
<td>8.3</td>
<td>4.3</td>
<td>8.9</td>
<td>3.4</td>
<td>6.8</td>
<td>17.2</td>
<td>13.2</td>
<td>14.7</td>
<td>12.4</td>
<td>11.1</td>
</tr>
<tr>
<td>Alcohol consumption, %</td>
<td>10.8</td>
<td>18.4</td>
<td>13.3</td>
<td>25.2</td>
<td>9.4</td>
<td>18.4</td>
<td>21.3</td>
<td>31.8</td>
<td>43.2</td>
<td>19.2</td>
<td>26.9</td>
</tr>
<tr>
<td>no alcohol</td>
<td>51.7</td>
<td>43.1</td>
<td>45.7</td>
<td>35.7</td>
<td>40.6</td>
<td>43.4</td>
<td>36.0</td>
<td>36.1</td>
<td>20.1</td>
<td>37.0</td>
<td>34.8</td>
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<tr>
<td>&gt;5 glasses/week</td>
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*Note.* HIB = exercise for heart patients; MBvO-gym = More Exercise for Seniors gymnastics program.
Lifestyle Factors

**Physical Activity.** Overall compliance with the public health guidelines for physical activity was 34.6%. There were, however, differences between the several exercise programs regarding this feature. In gymnastics participants relatively
often complied with the health-enhancing physical activity guidelines. Badminton, physiosport, and cycling were associated with the lowest compliance.

**Smoking.** In total, 13.2% of the participants reported smoking behavior. Fysiosport was associated with the most smoking.

**Alcohol Consumption.** MBvO-gym, HIB, and gymnastics were associated with the highest abstinence (non-alcohol drinking). Most alcohol was consumed (more than five glasses a week) by participants in athletics.

**Health Status.** Cycling had the highest frequency of healthy participants in terms of general feeling of health (i.e., a score >75 points), and HIB and MBvO-gym had the lowest frequency of healthy participants. In all participants, change in health-status score was low, and the differences between groups were not very distinct. Athletics, cycling, and badminton were associated with a relatively high vitality score. Athletics and cycling were associated with relatively high scores on mental health, and athletes and cyclists reported relatively little pain. MBvO-gym, HIB, and physiosport were especially associated with relatively low overall health-status scores, and athletics, cycling, and badminton were associated with relatively high overall health-status scores.

The participants with the highest BMI participated in physiosport and MBvO. Widowed participants participated more frequently in MBvO.

**Motivational Groups**

Homogeneity analysis of the data on motivation and type of exercise is illustrated in Figure 3. There were 11 categories left after correction for five nonresponse categories: appearance, peer contact, acceptance by others, challenge, and exercising together. Figure 3 reveals three groups of motivational categories that can be identified as relax and enjoy (dominated by relaxation, pleasure, quality of the instructor, and fitness), cure and care (dominated by doctor’s advice, health, weight reduction, and self-esteem), and competition (dominated by recreation and competition). Participants in MBvO fit into the relax-and-enjoy motivation group, participants in physiosport and HIB fit into the cure-and-care motivation group, and participants in the six organized sports fit into the competition motivation group (Figure 3).

Participants in walking fit into all three motivational groups. ANOVA on the three motivation groups revealed several statistical differences: Relax-and-enjoy exercisers were relatively older participants, were more often widowed, and often had a lower education; care-and-cure exercisers had a relatively higher BMI, and their general health tended to be lower; competition exercisers were less often obese, had a higher education, and were more often male (Table 2).

**Discussion**

This study reports on correlates associated with entry (enrollment and actual participation) and motivational factors in older participants of organized exercise programs in the Netherlands. In a sample of \( N = 2,350 \) the response to the questionnaire was 86%, which is very high. This is one of the few studies on this
Figure 3 — Exercise dimensions: specific exercise programs versus motivations for participation.
issue in which older adults enter an exercise program voluntarily; most such studies are directed toward people who are recruited actively for the study purpose. Only a very small proportion (6%) of enrollees did not start in the program after enrolling. It would be advisable to study why people who enroll in physical activity programs drop out before they even start.

A few adults over 70 years of age participated in the organized exercise programs in our study; when they did participate, it was associated with MBvO activities. The younger seniors in this study were participating in organized sports activities (especially athletics, skating, cycling, and badminton). This is in accordance with the literature, which states that as they age, people tend to change from sports to other (often less competitive) exercise formats (Visser, Launer, Deurenberg, & Deeg, 1997). It is also known that there is a general decrease in participation in physical activity with increasing age (King, Blair, Bild, & Dishman, 1992; Ooijendijk et al., 2002). The most popular activities among seniors are cycling, walking, swimming, and gardening (Ooijendijk et al.). This study suggests that in older adults MBvO tended to be the most popular exercise program. More than 300,000 seniors participate in MBvO programs on a weekly base (Kroes & De Greef, 2000).

There were more women than men in our study sample. There are also more women than men in this age group in the Netherlands, so our sample is representative of the general older population. There is a possibility, however, that women are more likely to join organized physical activities then men are.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Relax and enjoy</th>
<th>Care and cure</th>
<th>Competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years, M (SD)</td>
<td>65.6 (8.3)</td>
<td>59.6 (7.4)</td>
<td>57.5 (6.4)</td>
</tr>
<tr>
<td>General health, RAND-36, M (SD)</td>
<td>65.5 (17.2)</td>
<td>62.3 (18.4)</td>
<td>73.2 (15.6)</td>
</tr>
<tr>
<td>Vitality, RAND-36, M (SD)</td>
<td>65.0 (16.4)</td>
<td>62.3 (18.4)</td>
<td>71.5 (15.1)</td>
</tr>
<tr>
<td>BMI, kg/m\textsuperscript{2}, %, (n)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>20–25: normal</td>
<td>41 (294)</td>
<td>32 (164)</td>
<td>48 (352)</td>
</tr>
<tr>
<td>30+: obese</td>
<td>14 (101)</td>
<td>15 (77)</td>
<td>6 (42)</td>
</tr>
<tr>
<td>Gender, %, (n)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>17 (127)</td>
<td>64 (331)</td>
<td>69 (519)</td>
</tr>
<tr>
<td>female</td>
<td>83 (614)</td>
<td>36 (189)</td>
<td>31 (232)</td>
</tr>
<tr>
<td>Marital status, %, (n)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>married or living together</td>
<td>60 (443)</td>
<td>81 (419)</td>
<td>77 (574)</td>
</tr>
<tr>
<td>widowed</td>
<td>25 (182)</td>
<td>6 (32)</td>
<td>8 (59)</td>
</tr>
<tr>
<td>Level of education, %, (n)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>highest</td>
<td>11 (79)</td>
<td>18 (92)</td>
<td>24 (177)</td>
</tr>
<tr>
<td>lowest</td>
<td>19 (137)</td>
<td>9 (44)</td>
<td>7 (48)</td>
</tr>
</tbody>
</table>

\textit{Note.} Score is from 0 to 100 (with the SD) on the RAND items general health and vitality.

\textsuperscript{a}Kruskal–Wallis one-way ANOVA. \textsuperscript{b}Chi-square test.
Vigorous activity levels and sports activities are generally lower among women than men. When lower and moderate activity-intensity levels are included the gender differences in activity levels between women and men diminishes or even disappears (King et al., 1992).

The absolute number of participants in the various exercise programs was different: MBvO was overrepresented ($n = 463$), and skating ($n = 32$) was underrepresented. This might be because every township in the Netherlands has at least one MBvO group, whereas there are only few speed-skating rinks in the country, and the distance to the facility could have been a barrier to participation. This argument also is applicable for HIB groups and physiosport at the time of the study (there were only approximately 90 physiosport centers and about 140 HIB organizations nationwide). The results of our study might be seen as representative for the Netherlands, both related to type of exercise and number of older adults participating in specific exercise programs.

The number of participants that met the health-enhancing physical activity guidelines in our study was relatively low. Only gymnastics reported over 41% of participants to comply with the guidelines, whereas in the whole population this was 46% (Hildebrandt et al., 2004). Most others were under 40%; badminton was 28.4%, and cycling was 29.5%. These results show that the study population is certainly an interesting population in terms of need of more exercise, because they underreported their physical activity.

In a focus-group interview we carried out among older adults before the start of our study, it was mentioned that health is often an important determinant for older adults to enroll and start in an exercise program or to remain active. In our study the most important motivation to enter a program was indeed health, followed by enhancing fitness and relaxation. Hereby, our study offers comparable evidence of health as an important motive for exercise in older adults, independent, however, of the type of exercise program.

Jongert et al. (2005) distinguished three motivational constructs of importance for enrolling in a fitness program. Eleven motivation questions in our study could be reduced to the same three constructs: relax and enjoy, care and cure, and competition. In our study we applied a homogeneity analysis for data reduction on the motivation questions. Participants in MBvO might be categorized as relax-and-enjoy exercisers. Participants in physiosport and HIB fit into the category care and cure. Fysiosport and HIB participants often join their programs after enduring illness or injury and therefore are prone to join an exercise program that tackles the underlying problems. Older adults with specific physical problems might be sent to such programs.

The participants of the six organized sports fit into the category of competition. The explanation for this might be simple, because people joining actual sports often choose their program for the element of competition.

It was quite interesting that people who participated in walking covered all the motivation constructs, which means that walking for exercise is a preferable option for nearly all seniors. In terms of exercise promotion and public health this should be seen as important, because walking might be advised to many seniors, and it is also an exercise form that has a low threshold for participation: It can be done nearly everywhere, it is healthy with little risk of injury, and it is inexpensive (one needs little equipment).
There were several differences in the distribution of correlates between the three motivational groups. Older participants and widowed participants were more often found in the relax-and-enjoy exercise group. Therefore, we should offer older and widowed people programs like MBvO. As expected, people with a relatively high BMI and relatively low health status were more often found in the care-and-cure exercise group, so these people should be offered programs like HIB or physiosport. Competitive exercise was often associated with a BMI <25, being male, and being more highly educated. All this information offers an interesting potential for exercise promotion for seniors in the future. For instance, we could try to recruit new members for the relax-and-enjoy exercise groups in widowed people or among people with a lower education status, or we could target our attention to recruiting participants for care-and-cure exercise groups in people with relative higher BMI and those with relatively low health status. Finally, we could target our attention to recruiting participants into competitive exercise groups at males with a higher education. In primary care one could advise older adults with a relatively low health status and higher BMI to join a physiosport group, or when they have suffered heart failure to join a HIB group; older adults with no direct health problems might be advised to join an MBvO or walking group, and older adults who tend to be more competitive might be advised to join a sports club, which offers exercise programs fitting such older adults.

This study had a number of limitations. Ten different exercise programs were identified as being representative for the 50+ population in the Netherlands, but exercise programs such as tennis and golf—also quite popular—have not been taken into account. Hereby we lack certain popular types of exercise. Nonetheless, one of the main criteria for a type of exercise to be part of our study was the fact that the national sports association had a specific policy related to seniors in the Netherlands for the exercise, which was not the case in tennis and golf. In addition, several nonorganized exercise forms are popular in seniors, such as swimming and gardening. This study, however, only accepted participants who joined an organized exercise group or club. Another limitation is the cross-sectional aspect of the study—no hard conclusions can be derived from it. It does, however, offer clear indications for future research in this area, especially on the usefulness of the motivational subgroup labels in recruitment.

### Conclusion

Differences in demographics, lifestyle factors, and health status between newly started participants in 10 popular exercise programs for older adults in the Netherlands were found.

More Exercise for Seniors (MBvO) attracted relatively older seniors, whereas organized sports mainly attracted the younger ones. Walking, MBvO, and gymnastics attracted more women, whereas skating and table tennis were reported to attract more male participants. Badminton and cycling attracted relatively higher educated participants, whereas MBvO attracted relatively lower educated participants.

Three separate constructs of exercise motivation were identified: relax and enjoy, cure and care, and competition. The results of the study offer interesting information for exercise promotion and advice for older adults.
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References


