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Impact of reminder calls on the attendance of geriatric patients in general fitness classes

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A – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

Summary **Background.** One of the most important recommendations for senior citizens is to do moderate physical activity regularly. Physical exercises improve body coordination and prevent injuries. According to Statistics Poland, more than 75% of Polish senior citizens are physically inactive.

Objectives. The aim of the study was to assess whether the organisation of general fitness classes by a GP and physiotherapists can improve the physical condition of senior citizens and whether reminder calls can reduce senior patients' absence from these classes.

Material and methods. The size of the study group was established on the basis of a study conducted by Statistics Poland, according to which more than 80% of Polish people above 60 years of age declare no physical activity. It was assumed that during an appointment, a GP can motivate a senior patient to participate in general fitness classes. In addition to the above intervention, participants to the study group received reminder calls once a week. 40 groups of 6 individuals each were created. 50 female senior patients were selected in order to assess patients' physical condition right before and after and 15 weeks after the fitness programme using the Senior Fitness Test (SFT).

Results. 224 persons divided into 39 groups participated in the study. 19 groups made up a control group (108 persons), and 20 constituted a study group (116 persons). A statistically significant difference ($p < 0.05$) was observed for attendance in the general fitness classes in the group addressed with reminder calls. A statistically significant improvement of Senior Fitness Test results was observed for 4 out of 6 tests performed among 50 women before and after the fitness programme.

Conclusions. Organisation of general fitness classes for senior patients by a GP can improve the physical condition in this group of patients. Reminder calls can reduce patients' absence from general fitness classes.

Key words: general practitioners, geriatrics, exercise test.

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Background

An increase in the proportion of elderly people in the population is a growing challenge for GPs nowadays [1]. The course of the aging process can vary, and it can be affected by certain lifestyle elements, such as diet and physical activity. The World Health Organization and the European Union recommend elderly people to undertake moderate physical activity for at least 30 minutes 5 days a week [2]. Strength and motor coordination training is important for this age group as it prevents senior citizens from injuries [3, 4]. Regular physical activity can improve the independence of elderly people and thus their quality of life [5]. Despite considerable evidence of the positive effect of physical activity, its level in Poland is below the European average. A survey by Statistics Poland shows that more than 75% of the population over 60 years of age (79.3%) are physically inactive [6]. The study presented in this paper aimed at assessing whether the organisation of general fitness classes for senior citizens by the GP can improve physical fitness in this group of patients. Another important goal was to examine whether reminder calls can reduce the level of patients' absence from general fitness classes.

Material and methods

The size of the study group was established based on the assumption that the patient would attend 26 out of 30 fitness classes over 15 consecutive weeks, which would account for 70% attendance. Patients were motivated to participate in the classes during family doctor appointments. The GP presented the benefits of physical activity to heath and explained to patients the possible benefits of regular exercise and presented the WHO indications concerning the activity level recommended for an older population (over 65 years of age).

The patients from the study group received reminder calls from the GP medical receptionist once a week in advance before the fitness classes. It was assumed that reminder calls would increase the attendance to 85%. To demonstrate such a difference in attendance levels, the number of the participants to the study had to exceed 121. Therefore, forty 6-person groups were assumed. Every tenth personal identification number (PESEL) was picked from among 3,000 patients, using a random number generator in Excel. Over 300 randomly selected patients were invited for medical consultations with the GP who was responsible for the final selection of the study group. 224 persons (165

female, 59 men) divided into 39 mixed (male female together) groups participated in the study. 19 groups built a control group (108 persons), and 20 constituted a study group (116 persons).

Exclusion criteria covered patients with two or more pathologic fractures, general poor health preventing moderate physical activity, dementia, hearing problems and no telephone at home. Inclusion criteria for patients enrolled in the programme was being over 65 years of age with no contraindications to physical activity, which was assessed by a GP. The included patients were assigned to groups following the order of applications. Fitness classes were conducted in 6-person groups by a physiotherapist and lasted for 30 minutes twice a week for 15 consecutive weeks. Groups addressed with reminder calls were randomly selected. Patients from "reminder" groups received a weekly reminder call encouraging them to continue participation in the classes. Patients from the control group did not receive reminder calls. After the end of the fitness programme, attendance in classes was compared in the groups based on attendance lists.

Table 1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Patient over 65 years of age and below 80 years of age, no contraindications to physical activity at a moderate level, written consent for participation in the study	two or more pathologic fractures, general poor health preventing moderate physical activity, dementia, hearing problems, no telephone at home, lack of written consent for participation

Additionally, the group of 50 women was invited to participate in additional assessment. These women voluntarily agreed to have their fitness level assessed at the beginning and after 15 weeks of the fitness programme. The Senior Fitness Test (SFT) was used to measure the women's fitness level [7]. The aim of the fitness programme was to strengthen the muscles of the upper and lower limbs and improve the range of motion in the joints. Each participant exercised at her own pace.

Statistical analysis was performed using IBM SPSS Statistica 21 and Microsoft Excel 2007.

The project received a positive opinion from the Bioethics Committee of the CMKP under Resolution No. 71/PB/2013 of 30.10.2013.

Results

The study group consisted of 224 persons assigned to 39 groups, 19 of which constituted the control group (108 persons) and 20 the study group (116 persons). Attendance in the 20 groups subject to reminder call intervention (the study group) accounted for 2,765 classes of the total of 3,507 classes, which is 78.84% vs 68.54% in the control group, where the patients attended 2,198 out of the total of 3,207 fitness classes. The results are presented in Table 2 below.

In Table 3, statistically significant differences between the fitness tests of 50 women who regularly participated in the fitness classes are presented. The tests were done before and after the fitness programme.

Table 3. Fitness test results for the group of 50 volunteers (female) who agreed to have their fitness level assessed before and after the 15-week fitness programme

Test	Significance $p < 0.05$
1. Chair stand	0.000**
2a. Left arm curl	0.000**
2b. Right arm curl	0.000**
3a. Left upper-body bending	0.063
3b. Right upper-body bending	0.042*
4a. Left back scratch	0.000**
4b. Right back scratch	0.000**
5. Stand up and go	0.109
6. Raise the knees	0.000**

Statistically significant differences ($p < 0.05$) are marked with *, statistically significant differences ($p < 0.01$) are marked with **.

Table 3. shows the differences in the results of the Senior Fitness Test from the beginning and after the 15 weeks of training.

Discussion

Certain studies confirm the positive role of GPs in encouraging patients to exercise regularly [8–13]. The physical activity of senior citizens in Poland is below average compared to other EU countries [14, 15]. Therefore, it is an important task of primary health care to educate patients. In the study presented in this paper, it was assumed that the GP could perform a motivational intervention during a medical consultation aimed at the determination of contraindications to participation in the study. Since more than 200 elderly patients decided to take on the fitness classes during the 4 months of initial qualification for the study, it can be concluded that elderly Poles want to be active, but they need motivation and organisation of physical activities. This aspect requires in-depth research to find factors that could increase patients' willingness to engage in physical activity and continue this at a moderate level. A substantial problem for GP practice and physiotherapy centres is patients' failure to turn up for scheduled appointments. Our study shows that regular phone calls can statistically significantly increase attendance in classes. An increase in attendance from 68% to 79% could be economically beneficial; however, this would require higher involvement of the medical receptionists. We can hypothesise the reason for an increase in attendance: Maybe it was just the reminder for patients, maybe calling them made them more responsible for participation. This is an important topic as finding the reason which made the patients more eager to participate could lead to an even better level of participation. It is also possible that there are many other factors and that the personality of the receptionist plays an important role in this process, just as in telemarketing. This aspect of our study requires additional research performed in cooperation with psychologists.

Changes in the fitness of 50 women who had attended fitness classes and agreed to the Senior Fitness Test (SFT) [7] at

Table 2. Number of participants in the study by groups

	Number of persons	Maximum number of fitness classes	Attendance	Attendance
Study group	116	3,507	2,765*	78.84%
Control group	108	3,207	2,198	68.54%

A statistically significant difference ($p < 0.05$) was observed for attendance in the fitness classes in the group subject to reminder call intervention (the study group). Statistical differences are marked with *.

the beginning and end of the fitness program were analysed. The exercises in the programme were selected according to the guidelines of the American College of Sports Medicine, the American Heart Association and the WHO [2]. Currently, all global guidelines recommend elderly people do training that involve aerobic (oxygen), resistance (strength) and stretching (flexibility) exercises. These recommendations are based on evidence that systematic resistance and aerobic exercises can increase muscle strength in elderly persons by approximately 20–30%. Our study also showed a statistically significant improvement in the functioning of senior women in 4 out of 6 tests. The obtained efficiency of the muscles of the lower and upper limbs, the flexibility of the shoulder girdles and overall endurance clearly improved, which resulted in the reported satisfaction of the participants in the study. The lack of impact of physical exercise on the improvement of agility and motor coordination can be explained by the relatively high level (though in line with the standards for age) of agility and coordination of the patients at the beginning of the fitness programme [16]. However, it is also possible that these motor aspects were not emphasised enough in the fitness programme. The lack of impact of physical exercise on the flexibility of lower limbs and the spine in senior patients is most likely because, unfortunately, at a certain age, the possibilities of improving the mobility of the spine or the flexibility of the muscles of the lower limbs are rather small, and any improvement would require months, not just weeks, of regular physical exercise.

A comparison of the results of our own study with the results of the Senior Fitness Test [7] shows that the patients were within the norms for their age. It is worth emphasising that moderate-intensity aerobic training for at least 3 months slows down the accumulation of age-related fat, improves exercise capacity and has a cardioprotective effect [5]. It was observed that resistance exercises resulted in an improvement in walking stability, and the simultaneous performance of aerobic and resistance exercises could reduce the risk of falls by an average of 17% [4].

When planning general fitness classes for senior citizens, it should be considered that participation in the classes will depend on the patient's current health condition, physical condition, exercise capacity and patient's motivation. The type of weights can be individually chosen based on previously performed fitness and functional tests [12–14]. Regular rehabilitation fitness exercises (kinesiotherapy) can bring about benefits not only in reducing disability in everyday life but also to the emotional sphere as they reduce stress and anxiety, improve mood and well-being and have a positive impact on the quality of life [5]. Apart from the physical and mental aspects of everyday functioning, patients also gain benefits in social life. This is because persons undergoing rehabilitation regain self-confidence, which results in better integration opportunities and the possibility to perform current functions. The effect of general fitness programmes implemented for the elderly can also be seen in the reduction of health and social care costs. Thus, it is worth organising geriatric physiotherapy in medical facilities.

In Poland, it might be problematic for GPs to organise general fitness classes for their patients due to the lack of space in and financial resources of primary health care centres. It seems to be good practice to cooperate with municipal centres, district offices and nearby physiotherapy centres or Universities of the Third Age and to jointly organise such activities. Since there is scientific evidence of the impact of physical activity on the improvement of health and better functioning of senior citizens, finding financial resources to organise activities for them should not be difficult, and it may even be worth considering commercial activity in this respect.

In future studies on larger groups of patients, it is recommendable to examine whether the activation of senior patients influences changes in the health condition of this group and, secondarily, whether this translates to the number of GP appointments.

Conclusions

1. Regular reminder calls can statistically significantly increase patient participation in physiotherapy activities.
2. A 15-week fitness programme of 30 minutes twice a week statistically significantly increased the strength and fitness of the lower limbs, as well as the strength, fitness and mobility of upper limbs, in senior citizens.
3. A 15-week fitness programme of 30 minutes twice a week did not influence either the agility or coordination or flexibility of lower limbs and the spine in senior citizens.

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Conflicts of interest: The authors declare no conflicts of interest.

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