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## ORIGINAL

### IMPACT EXERCISE STRATEGIES IN THE QLRH OF THE SEDENTARY ADULTS

### IMPACTO DE LAS ESTRATEGIAS DE EJERCICIO FÍSICO EN LA CVRS DE ADULTOS SEDENTARIOS

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#### ABSTRACT

The aim of the study was to analyze the effectiveness of different intervention strategies of exercise and relate the perception of quality of life related to health

(QLRH) in sedentary older adults. It involved 100 subjects, aged between 60 and 70, who were randomly divided into four groups: control, recommend, prescribe and monitor. The exercise intervention lasted 6 months. The SF-36 questionnaire was used for the assessment of QLRH. The monitoring and prescription groups had higher values in all domains in the intragroup analysis. Physical function and health and mental health obtain the highest significant values between groups ( $p < .05$ ). There are no significant differences at all in any domain among prescription and monitoring groups. However, the monitoring group obtained higher values in mental health, but were not in physical health.

**KEY WORDS:** Quality of life related to health, elderly, sedentary, exercise prescription at home and monitored.

## RESUMEN

El objetivo del estudio fue analizar la eficacia de diferentes estrategias de intervención del ejercicio físico y relacionarlas con la percepción de la calidad de vida relacionada con la salud (CVRS) en adultos mayores sedentarios. Participaron 100 sujetos, con edades comprendidas entre los 60 y 70 años, que fueron divididos aleatoriamente en cuatro grupos: control, recomendación, prescripción y monitorización. La intervención de ejercicio físico tuvo una duración de 6 meses. Para la valoración de la CVRS se utilizó el cuestionario SF-36. Los grupos monitorización y prescripción obtuvieron los mayores valores en todos los dominios en el análisis intragrupos. La función física y la salud general y mental obtienen los mayores valores significativos entre grupos ( $p < .05$ ). Entre los grupos prescripción y monitorización no existen diferencias significativas en ninguna dimensión. Sin embargo el grupo de monitorización obtuvo valores superiores en salud mental, no siendo así en salud física.

**PALABRAS CLAVE:** tercera edad, ejercicio físico, intervención, calidad de vida.

## INTRODUCTION

The continuous growth of the population over 60 years is mainly influencing social politics in developed countries. It is therefore necessary to make efforts in order to increase the welfare and quality of life for the adult population (Lima, Fernández-Berrocal, Extremera, & Sue, 2006).

The quality of life in old age seems to be closely related to the self-perceived health status (Castellon & Aleixandre, 2001). However, the health encompasses many dimensions, including physical, functional, social and psychological wellbeing (Phelan, Anderson, LaCroix, & Larson, 2004) and there are only a few studies that have covered them entirely. Physical health has been significantly associated with the state of being of older people and has been associated in turn with different dimensions that are indicators of emotion, vitality, mental

health and prevention of diseases (Queiroz, Carral, & Fernández-Berrocal, 2004; Lyubomirsky, King, & Diener, 2005).

The literature shows that people who do regular physical activity (PA) have better self-esteem and self-concept from adolescence to adulthood (Moreno, Hellín, González-Cutre & D., Martínez, 2011; García, Marín & Bohórquez, 2012). On the contrary, a sedentary lifestyle has been described as one of the main factors in the negative self-perception of health and physical self-concept in old age (Aspiazu, Cruz, Villagrasa, Abanades, García et al. 2002; Infante, Goñi & Villaroel, 2011).

To avoid a sedentary lifestyle is necessary that all seniors participate in regular physical activity programs, thus avoiding inactive lifestyle and encouraging physical activity habits that improve their quality of life (Chodzko-Zajko, David, Singh, Minson, Nigg et al. 2009). From this perspective, it is essential to establish the need for physical activity in the lifestyle of the elderly. The field of internal or family medicine strongly recommends patients physical activity as a tool to improve their health and quality of life, however, there are few over 60 who exercise on their own regularly. On this basis, social policies have chosen to establish active aging programs in which physical activities led by a monitor (Zunzunegui, & Béland, 2010) are included.

However, there are various factors that influence the fact that the older person does not join monitored physical activity programs. The difficulty of access to facilities, distance, low self esteem, shyness, incompatible schedules, motivation or the types of activities pose a number of problems that can cause the older person does not join these programs (Booth, Owen, Bauman, Clavisi, & Leslie, 2000). This is the reason why older people who practice physical activity and sport are still few compared to other social groups (Campos, Jiménez-Beatty, González, Martín & Del Hierro, 2011). In recent years and in light of these difficulties exercise prescription in the community and at home has been studied. However, there is still disagreement about the efficacy of physical activity or exercise at home. Most home interventions have focused on the treatment of one or two physical qualities (Yamauchi, Islam, Koizumi, Rogers, Rogers et al., 2005). Recent research has focused its efforts on encouraging physical activity within an active lifestyle, associating the PA at home to everyday tasks and relating them to functional fitness (Serrano, Lera & Espino, 2013). The few studies that used structured and global programs of physical condition at home showed substantial differences within the programming of the group itself and the exercises were adapted to the needs of each subject (Van Roie, Delecluse, Opdenacker, De Bock, Kennis et al ., 2010). Thus, we have found no studies that compare simultaneously a methodology that encourages PA, a methodology that prescribes (programming and structuring) exercise at home and a methodology for regular physical activity monitored in a gym. It has been suggested that fitness (defined as a state or ability for physical activity) is a more consistent predictor in terms of health than the PA integrated in the lifestyle of older adults (Dionne, Ades & Poehlman, 2003). However, the

appropriate methodology to achieve this seems to be one of the major drawbacks.

Within this framework, we find that the relationship between the methodology used in the intervention of physical activity and / or exercise (recommendation, registration or monitoring) and the perception of all dimensions of quality of life related to health (QLRH) in this population of older people is unknown.

On the other hand, numerous studies suggest that physical exercise is associated with positive effects on QLRH, however, in most of these studies the adult population is constantly treated as clinical population sample. Thus, it is not known exactly whether this relationship exists in adults over 60 years who, despite their sedentary lifestyle, are healthy. The aim of this study was to test and compare the effectiveness of different methodologies of physical activity intervention on the quality of life of healthy, sedentary older adults.

## **MATERIAL AND METHODS**

### **Participants**

100 adults (37 men and 63 women) ranging in age between 60-70 years who are sedentary and healthy have participated in this study. Those who were suffering from diseases and / or cardiovascular, pulmonary or joint problems that limited the practice of physical exercise were used as exclusion criteria. In order to check the sedentary lifestyle the The Rapid Assessment of Physical Activity (RAPA) scale was used in its Spanish version (Topolski, Logerfo, Patrick Williams, Walwick, et al., 2006). The selection was made in combination with the Health Care Service from the Autonomous Region, through the primary health care centers. For three months various meetings and interviews were held with relevant medical staff to exchange information about the performance-capture protocol, in which guidelines were established so all primary care physicians in that town should offer the same information to their patients. Before the final addition to the program, the initial sample of 112 subjects who met the criterion of inactivity was subjected to medical examination. Those who suffered from any of the health problems mentioned above were discarded. After applying all the criteria the final selection was summarised until the sample of 100 subjects was complete.

The subjects were informed verbally and in writing of the objectives and methodology of work, with special consideration of the risks and possible inconvenience that may be caused by the study. This research was developed in compliance with the Charter of Helsinki for human research and all participants were asked for informed consent. The sample was divided randomly in four groups of 25 subjects each (Table 1) and it was controlled with locking (with regard to sex, the randomization of women was carried out on one side and that for men on the other, and with regard to age so the average difference within a group could not exceed 3 years).

1. Control group: in which no type of action was performed.
2. Group under recommendation: from its health care center, the primary care physician advised the participants both verbally and in writing about the practice of physical activity. All subjects received the same information through a preset script. Once a month they delivered a check sheet to their doctor.
3. Group under exercise prescription: The participants within this group were given a physical exercise program to develop independently at home. Over a period of three days they were taught how to carry out the activities on the program and also how to warm up and stretch. Every three weeks they went to the health care center where they visited their doctor and then met with a Bachelor of Science in Physical Education and Sport who revised them and updated the scheduled task.
4. Group under a monitored fitness program. The program consisted of one hour training by three days a week, under the direction of a monitor specialized in physical activity. All sessions were supervised and witnessed by the same BA.

**Table 1:** Description of the sample. Pre / post (before and after the intervention) of the 4 groups

GROUPS	Age	Size (cm)	Weight (kg)	
	Pre and Post	Pre and Post	Pre	Post
<b>CONTROL</b>	65,3 (+/- 3,8)	160,7 (+/- 8,1)	73,6 (+/- 15,6)	73,7 (+/- 15,1)
<b>RECOMENDACIÓN</b>	66 (+/- 2,5)	158,5 (+/- 8,8)	77,7 (+/- 14,8)	77,3 (+/- 14,5)
<b>PRESCRIPTION</b>	64,6 (+/- 5,1)	159,6 (+/- 9,6)	70,7 (+/- 8,1)	68,8 (+/- 7,3)
<b>MONITORING</b>	65,7 (+/- 3,1)	159,5 (+/-9,9)	72,1 (+/-11,8)	71,3 (+/- 11,2)
Average	65,4 (+/- 3,9)	159,6 (+/- 9)	73,5 (+/- 13)	72,8 (+/- 12,6)

To remain in the studio a minimum of compliance or attendance of 77.7% every three weeks was established, which corresponded to 7 of the 9 sessions scheduled in each block.

### Procedures and Training Program

We used as an independent variable a well structured exercise program based on all the components of fitness and developed from the recommendations of the American College of Sports Medicine (ACSM, 2013). A Bachelor of Science

in Physical Education and Sports was responsible for the development of programs for prescription and monitoring; likewise he established a protocol of recommendation in collaboration with primary care physicians. The program consisted of aerobic endurance work (60%), strength (30%) and flexibility (10%) in each workout for three days a week over a period of 6 months.

In a recent study, it is suggested that those who engage in physical activity with a mean frequency (three or four days per week) had better perceived general self-efficacy than those who practiced with a lower or higher frequency (Reigal & Videra, 2013). The exercises were increasing in intensity every three weeks. Adaptations of home exercises were adapted to the constraints of space and the gymnastic instruments typical of a sports center. However, a protocol was established so that the prescription program group respected the same load, intensity and orientation as the monitoring group.

#### *Monitoring Group Program*

Each session began with a warm up of 5-10 minutes and ended with a cooling activity based on stretches. The main part of the session consisted of two circuits, one of strength (15-20 min) and one of endurance (25-30 min). The strength circuit was formed by different stations where they could work on the strength of different muscle groups; in each station a certain time of work and a certain time off were marked.

There was a progression in intensity and workload by increasing exercise time in 5 s and decreasing the time of rest in 5 s every three weeks; This way, during the first week each station lasted 25 s of work and one minute of rest, and the last week it consisted of one minute of work and 25 s of rest. In order to Respect the principle of individualization the subjects only performed as many repetitions as they could within the time of work.

The endurance circuits were organized into 16 areas and were based on a "fartlek" model. In the first week the monitor set the pace (similar to trotting) for 8 spaces, while for the other 8 spaces (called active recovery) the exercises could be performed on foot. Every three weeks an active recovery zone was eliminated and the monitor increased the rate for the 8 areas of active work.

#### *Prescription Group Program*

The training methodology based on times of work and times of rest of the program allowed to set the planning for the prescription group within the same terms as for the monitoring group. The strength and flexibility work could be done at home and the endurance work was oriented to the surrounding natural space although the subject himself decided where to carry out the program autonomously.

## Assessment instruments

To evaluate the perception of quality of life related to health the Spanish version of the SF-36 Health Survey (Alonso, Prieto, & Anton, 1995) was used, which was administered by personal interview by a researcher who was familiar with this type of test. Its validation to Spanish (Vilagut, Ferrer, Rajmil, Rebollo, Permanyer-Miralda et al., 2005) and the availability of reference qualities for the Spanish population (Lim & Taylor, 2005) are very important values of this questionnaire. The SF-36 has 36 questions that are scored to measure eight dimensions of quality of life related to physical and mental health. For each dimension, the items are coded, aggregated and transformed into a scale whose parameters go from 0 (worst health state for that dimension) to 100 (best health state).

For data analysis we used the statistical package IBM SPSS 19. Internal consistency of the SF-36 was calculated and it showed a Cronbach's alpha value of .82. Analysis was performed by using the Kruskal-Wallis  $\chi^2$  (ANOVA) for the nine variables and the four groups and with a 95% N.C.; Robustness was the main criterion for selecting this test. For the correlation analysis the Pearson test was applied for the same reason. Subsequently, for two to two pre / post-intervention comparisons within each experimental group we used the Mann-Whitney's U-test of comparison of means by transformation into ranks. Finally, for the pre-post intervention analysis we used the Wilcoxon's test (nonparametric) for unrelated samples since we have two repeated measures.

## RESULTS

Compliance with the program in the prescription group was equal to 84.2% and 91.1% for the monitoring group. Figure 1 shows the flowchart of the participants during the study.

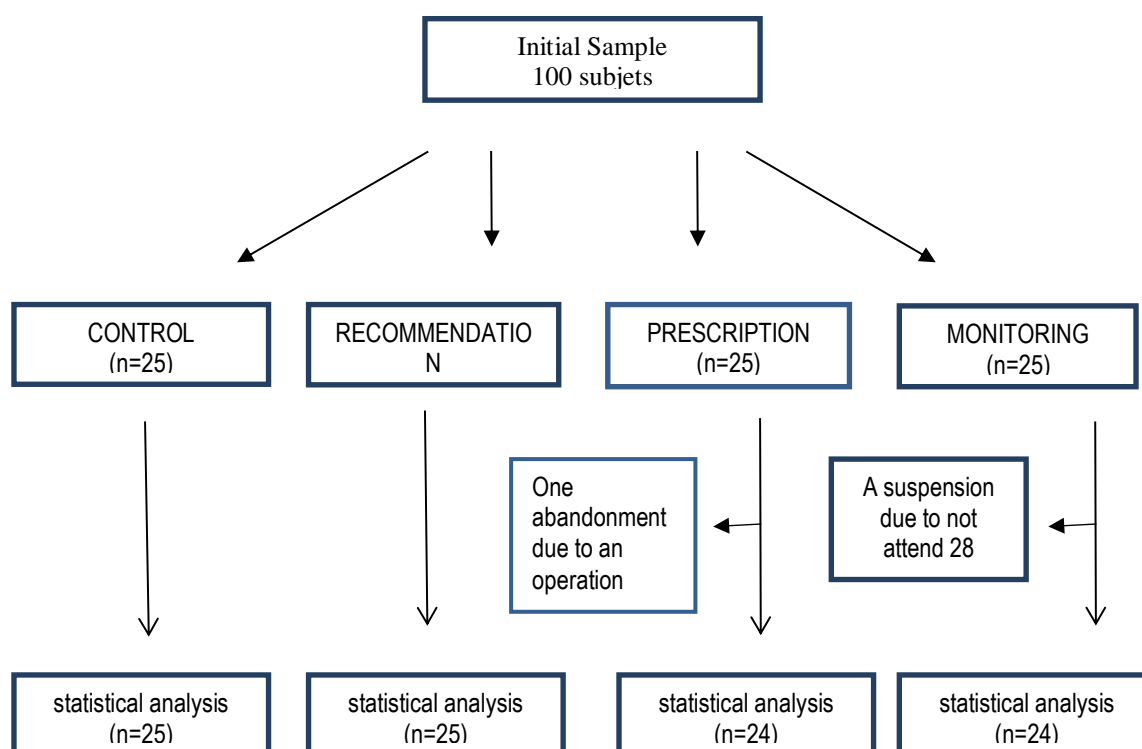


Figure 1: Flowchart showing participation

### Analysis INPUT-groups

Results are shown considering that an analysis of variance (INPUT) pre- and post-intervention was carried out in order to detect the impact caused by it. On the other hand, it is also possible to detect the impact by analyzing the groups by following a longitudinal analysis comparing each group with itself before and after the intervention (INTRA).

The comparative results for each of the dimensions after the intervention taking into account all groups simultaneously (analysis of variance between groups) are shown in Table 2. The highest number in terms of statistical significances is found within the next dimensions: Physical Function, General Health and Mental Health: All these significances have probability values less than  $p = 0.05$  which proves the impact of the intervention.

The groups that followed a scheduled work methodology with an activity controlled personally or monitored (prescription or monitoring) obtained a significant improvement over the control group in Physical Function, Chronic Pain, General Health and Mental Health. Besides, the monitoring group also scored significances in other dimensions except for the emotional role, although it is noteworthy that in this group the maximum possible score after the intervention was obtained.



**Table 2:** Differences between groups in the difference between moments (pre-post)

Dimension SF-36	Groups: 1-Control, 2-Recommendation, 3-Prescription 4-Monitoring (Kruskal-Wallis)
Physical Function	1-3 (p < .01); 1-4 (p < .001); 2-3 (p < .05); 2-4 (p < .01)
Physical Role	1-4 (p < .05)
Chronic Pain	1-2 (p < .05); 1-3 (p < .01); 1-4 (p < .01)
General Health	1-3 (p < .001); 1-4 (p < .001); 2-3 (p < .001); 2-4 (p < .01)
Vitality	1-4 (p < .05); 2-4 (p < .05)
Social Function	1-4 (p < .05); 2-4 (p < .05)
Emotional Role	
Mental Health	1-3 (p < .05); 1-4 (p < .01); 2-3 (p < .01); 2-4 (p < .001)
Health State	1-4 (p < .05); 2-4 (p < .01)

### Analysis intra –groups (pre-post intervention)

The monitoring and prescription groups had the highest values in all QLRH domains related to physical health, i.e. physical function, role limitations due to *physical health* problems, *chronic pain*, and *general health* than in the control group and the recommendation group. But between the first two groups (monitoring and prescription), no significant differences were found except in the dimension of chronic pain where the monitoring group improved by 17% compared to 8% of the prescription group. The recommendation group does not obtain a significant improvement in any dimension. In the case of chronic pain the evolution observed in the visual analysis of means indicates a departure from the average values which is gradual from the control group where there are no noticeable difference to the monitoring group where the difference between the means starts to increase gradually. In the case of Vitality, simple recommendation is not enough and in order to find differences at least prescription is necessary, the same is true for the social function and mental health variables. In the case of the Health state variable there is a drop in score for the control group and the differences are clear in comparison to both "prescription and monitoring" groups where there are no differences between them, i.e., t in this case, both prescription and monitoring have the same effect.

**Table 3:** Averages by groups before (PRE) and after (POST) the intervention.  
(U-de Mann-Whitney)

Dimension Scale SF-36	GRUPO			
	Control (pre / post)	Recommendatio n (pre / post)	Prescription (pre / post)	Monitoring (pre / post)
Physical Function	93,86 / 91,34	86,66 / 86,94	86,13 / 90,40**	90,26 / 95,74**
Physical role	91,50 / 89,00	84,00 / 86,00	83,00 / 86,50	88,00 / 96,50*
Chronic Pain	77,70/ 75,76	67,30 / 70,67	65,76 / 73,56*	72,06 / 89,37**
General Health	77,60 / 75,04*	70,85 / 71,13	60,64 / 71,80***	76,16 / 82,08*
Vitality	71,667 / 70,00	65,16 / 64,49	62,16 / 67,66	72,66 / 85,17*
Social Function	84,80 / 84,80	80,40 / 80,80	75,20 / 79,20	86,40 / 97,20**
Emotional Role	86,66 / 89,22	88,66 / 92,00	94,00 / 94,00	91,33 / 100,00*
Mental Health	67,60 / 66,80	70,40 / 67,33*	72,13 / 77,33**	77,60 / 87,20**
State of health	68,00 / 65,60	66,40 / 68,00	62,40 / 75,20 *	65,60 / 75,20**

(\* p <.05 \*\* p < .01 \*\*\*p < .001)

## DISCUSSION

The aim of this study was to test and compare the effectiveness of different methods of intervention of physical activity in regards to quality of life related to the health of healthy, sedentary older adults throughout six months of intervention.

The results of this study support the hypothesis that regular physical activity is positively associated with better QLRH in all dimensions (Table 2). The more time physical activity is carried out, the better the self-perception of health (León-Prados, Fuentes González-Jurado, Fernández, Costa, et al., 2011). The better the perception of older people about their health status, the better their quality of life (De-Juanas Limón & Navarro, 2013). Overall, the increase of psychological well-being is significantly higher in the exercise groups than in the control group, just as it happened in a study by De Gracia & Marcó, (2000) in which people over 60 years were divided into four groups, two of exercise, one of social control and one group of control on a waiting list.

In the present study, considering that the group which carried out a well-structured and supervised programme in terms of attendance and intensity was the monitored one, statistically significant differences in regards to the control group in the 9 dimensions of the SF-36 were found. These results are consistent with other research conducted with adults over 60 years (Byberg et al., 2009). An active lifestyle improves physical function in older adults (Acree, Longfors, Fjeldstad, Fjeldstad, Schank, et al., 2006), which possibly contributes

to increased levels of QLRH in the areas related to physical health. Among the indicators of physical health in improving the quality of life for older people, functional capacity is primarily included (Del Pozo-Cruz, Rodríguez, Alfonso-Rosa, Del Pozo-Cruz, Grimaldi et al., 2013).

The results of this study show similar positive changes in both exercise groups (prescription and monitoring) compared to the control group in three of the four dimensions related to physical health (physical function, role limitations due to physical health problems and general health). However, the improvement in the dimension of chronic pain perceived by the monitoring group is especially relevant when compared to the other groups, including the prescription group.

In a study about sedentary older adults, the usual level of physical activity was associated with less physical pain, but not with other domains of QLRH (Stewart, Turner, Bacher, DeRegis, Sung, Tayback, et al., 2003). According to the authors, it is possible that the range in the level of physical activity was too narrow in sedentary older adults, which would limit the influence of physical activity on those QLRH domains. These results agree with those of this study in which the prescription group and the monitoring group made possible to widely differentiate the ranges of physical activity compared to the control groups and on the contrary, this margin was narrow between them.

On the other hand, considering that the sample studied in this investigation were healthy older adults, it is reasonable to think, as in other studies (Van de Vliet, Knapen, Onghena, Fox, Van Coppenolle et al., 2002, Goñi et al., 2010) that, after a certain age, people consider themselves to be physically well based more on their self-perceived functional ability than on their physical condition or competence.

Thus, the few differences found between prescription groups and monitoring groups in most dimensions related to physical health (except body pain) can be explained because in older people increased physical self-perception could influence on the perception of health even more than the physical activity itself (Campos, Huertas, Colado, López, Pablos et al., 2003). However, chronic pain is a further objective dimension and allows the subject to evaluate its intensity more accurately. The independent relationship between the level of physical activity and the domain of health in general agrees with that observed in sedentary older adults (King, Whipple, Gruman, Judge, Schmidt, et al., 2002). But Stewart, et al., (2003) argue that even in the absence of regular exercise and just by carrying out a relatively small physical activity a better health status is perceived in regards to the quality of life.

In the present study, despite the slight improvement of this dimension within the recommendation group, it is not close to that within the groups under structured exercise. These results are in line with those reported by other studies that found an association between physical activity and the dimensions of "physical

role" and "vitality", and not with the other dimensions (Wanderley Silva, Marques, Oliveira, Mota, et al., 2011).

A physically active lifestyle is also positively associated with components of mental health in the elderly (Dugan et al., 2009). Other studies suggest a minimal impact of physical activity on the domains of mental health and role limitations due to emotional health problems (Stewart et al., 2003, Acree et al., 2006).

In this study, the only group that showed significant changes in all the QLRH dimensions related to mental health (*Vitality, Social Function, Emotional Role and Mental Health*) after the intervention was the monitoring group, considering that this group was the only one in which the subjects performed physical activity together, it seems logical that this is due to factors of social relations rather than the physical activity itself. This idea is shared by other research that suggests that older people who perform regular physical activity on social programs have more intelligent and adaptive to daily life emotional skills and styles of response (Fernández-Berrocal, Alcaide, Extremera & Pizarro, 2006; Salovey, 2006). In this sense, Triado et al. (2009) stated that the ideal day for an adult involves active activities socially developed.

It is worth stressing that in the emotional role dimension of this research the monitoring group reached the maximum score, while for the prescription group the emotional role did not vary with the intervention. This dimension was also the most evolved in a recent study among adult women from 50 to 81 years old (Madrigal, 2010).

This could be because physical activity within monitoring programs helps promote social support and social interaction, which are key components for the emotionally positive aging (Chon, Woo, & Kwan, 2006), and it also reduces depressive symptoms significantly which benefits emotional performance (Barriopedro, Eraña & Mallol, 2001; Palmer, 2005). In the current study, the monitoring group was the most committed since the program altered the habits of the participants the most.

In short, the data obtained from this study support the hypothesis that physical exercise has a major influence on QLRH in sedentary adults, either through exercise at home under prescription or with the presence of a monitor in sports facilities. Between the two methods of intervention no significant differences were found in the dimensions related to physical health. Campos et al. (2011) proved the desire of older people to have a specialized monitor in sports centers, being even more latent in the smaller municipalities. However, this study does not reveal the reason for their request and there may be the possibility that this request is due to monitoring and / or the control of an exercise program rather than to the monitor itself.

This scenario could occur in people who can not overcome the physical and psychological barriers of accessing to sports facilities (no access group). The strength of the results obtained in physical health in the prescription group (at home) breaks new ground for social policies to promote physical activity in no access groups.

However, when the older adult is in a low mental or emotional status, physical activity programs should be supported by working groups. In the present study significant differences were found in the psychosocial dimensions of the monitoring group.

Future research should use the methodology of prescription with groups that work in communities where drawbacks such as distance, schedules, difficulty of access, motivation and social support are reduced. These groups have already been studied in nursing homes, primarily for clinical conditions, but have not been studied in healthy, sedentary communities with a clear focus on health prevention. Besides, the use of different methodologies is suggested in the same study as a feature that shows the strength of the results.

A major limitation was the short duration of the intervention. Our study was based on an intervention of six months considering the weather of the Asturian community. Several studies have proved their effectiveness in the perception of quality of life after three months of intervention (Reeder, Chad Harrison, Ashworth, Sheppard et al. (2008); Ashworth, Chad, Harrison, Reeder, & Marshall, 2005). However, Serrano-Sánchez et al. (2013) suggest that programs should be long-term in order to increase their effectiveness in sedentary elderly people. Another limitation was the lack of a motivational strategy for the prescription group. In this sense, Opdenacker et al., (2008) suggest contact, supervision and monitoring by telephone, in exercise programs at home for seniors.

Understanding the factors that influence the behavior of older adults when performing physical activity is essential to develop effective intervention strategies that approach the problem of lack of physical activity in this population, and by doing so, improve the health and quality of life of older adults while a significant impact is obtained in healthcare costs.

On the other hand, it would be advisable to check whether the differences between methodologies remain after the positive effect that occurs in the first weeks of training. In this case, an intermediate evaluation after 12 weeks is suggested or adding a group of active subjects for comparison. Similarly, it is possible that the combination of the methodology of prescription at home with monitoring may be productive for much of the older population, so it would be advisable to carry out studies in this line.

## CONCLUSIONS

Medical recommendation for physical activity seems to not be sufficient so that the elderly appreciate improvements in their quality of life. However, exercise programs at home and monitoring programs improve the perception of quality of life of older adults in the dimensions related to physical health, with no significant differences between both groups. These results provide new procedures of intervention to people who for various reasons can not or do not want to have access to a sports center.

Group work provided by monitoring methodology is crucial in improving perceptions of psychosocial dimensions related to quality of life. Monitoring, therefore, is advisable in populations at a low emotional state.

Finally, collaboration between professionals of Physical Activity and primary care physicians becomes increasingly necessary for a proper exercise prescription. The psychophysical knowledge of the subject would help to guide him towards the most effective methodology of intervention.

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