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RESEARCH ARTICLE

Adherence and retention of elderly people in physical exercise

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Abstract:

Background: The combination of aerobic exercise and transcutaneous microcurrent electrical stimulation (MES) application was shown to have a positive effect on localized abdominal adiposity (LAA) reduction. However, the effect of the combination of MES and high-intensity interval training (HIIT) is still unknown. **Objective:** This study aimed to evaluate the effect of combination of MES and HIIT on LAA reduction. **Methods**: 39 sedentary women with LAA, distributed in a control group (CG), an exercise group (EG), and a MES plus exercise group (MEG) participated in this randomized clinical trial. The CG was not submitted to intervention. The EG was submitted to a HIIT protocol (80% of heart rate max in a functional circuit) and MEG was submitted to abdominal transcutaneous application of MES prior to HIIT, 2x/week, during 5 weeks. The outcomes were collected by a blind evaluator and measured in three moments (before the 1st intervention, and after the 5th and 10th intervention), based on body composition parameters, anthropometric data, physical activity level (PAL), body satisfaction, quality of life (QOL), and lumbar functionality. **Results:** After 10 interventions, MEG showed significant improvement in skinfolds, QOL, and body satisfaction, but no significant difference compared to EG or CG. Regarding PAL, MEG differed significantly in relation to CG, but not in relation to EG. **Conclusion:** The combination of MES and HIIT in 10 interventions did not show satisfactory results for LAA reduction compared to HIIT, but the increase in PAL and the improvement in lumbar functionality may provide positive effects in the medium-term, although further studies are required.

Keywords: Microcurrent electrical stimulation; physical exercise; adherence; elderly.

BACKGROUND

According to the Brazilian Institute of Geography and Statistics (IBGE, 2023), in Brazil, the number of elderly people aged 60 or over is 33 million. In recent years, intense demographic, socioeconomic, and political transformations have occurred, which are linked to the increase in population and changes in age composition, a notable consequence of the decrease in birth rates and the increase in Brazilian life expectancy(1). Just getting older over the years is not enough, it is necessary during this process to achieve healthy, active, and successful aging(2). The increase in life expectancy in recent decades occurred primarily in developed countries, but currently, it is in developing countries that population aging has occurred in large numbers(2).

Due to the growth in life perspective, the elderly population's concern with health and well-being is well-known, so programs aimed at this audience are sought after more frequently(3). Furthermore, being aware of the benefits brought by active life makes these

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elderly people's stay within the programs longer[1]. There are countless reasons for elderly people to seek out physical exercise (PE), the most cited of which are to improve health, physical fitness, and to acquire new knowledge[4].

Adherence to PE provides elderly people with contact with the activity, adaptation to the environment, people, and if they become familiar with it, adherence may occur[5]. Motivation arises with carrying out activities, to continue and target your goals, such as improving physical and mental health[5]. The support of teachers and friends is extremely important for the elderly, as it motivates them to remain active, exercising, seeking to socialize and have fun without fear of criticism, which will soon help the individual to remain active in a given physical exercise[5].

The elderly can practice any sport, the most popular are weight training and water aerobics. Bodybuilding is a modality highly sought after by the elderly, which provides physiological, psychological, and social benefits. This PE offers an improvement in protein synthesis, which slows down the process of loss of bone mass, bone mineral density, balance, and joint lubrication[6]. Understanding why elderly people participate in PE programs, and analyzing their potential for self-esteem and self-image is fundamental. The physical education professional must strive to include the perspectives of the elderly, always trying to maintain motivational aspects in their planning, so that these students feel comfortable and understand that they will benefit from an improved quality of life[7].

According to the needs of the elderly population, to have healthy aging, priority must be given to maintaining the functional capacity of these individuals. PE is essential for the prevention of diseases such as depression and is indicated to stimulate the development of cognitive and aerobic capacity, flexibility, balance, endurance, and muscular strength, which contributes to your autonomy[8].

Practices such as water aerobics provide an improvement in physical fitness, coordination, cardiovascular capacity, and reduced joint overload, due to the physical properties of water. In addition to being an activity that demonstrates a great capacity to relax the practitioner, it presents a lower risk of injuries, comfort, and privacy for the patient[6].

The present study aimed to evaluate the reasons why elderly people adhere to and continue to practice water aerobics and weight training exercises. So, what are the reasons for joining and staying, would these be more focused on maintaining health?

METHODS

This is a descriptive cross-sectional study with a quantitative approach whith the aim of which was to analyze the reasons why elderly people adhere to and continue to practice PE in two different contexts, bodybuilding and water aerobics. The elderly participants in the research were convenient sample, of both sexes, aged between 60 and 85 years old, attending the Gym and Water Park of the Evangelical University of Goiás (UniEvangélica). As inclusion criteria, participants should have practiced one of the modalities for at least 4 months and exclusion criteria must be less than 3 times a week and have some cognitive disorder that interfered with understanding the questionnaire.

This study followed ethical principles, involving human beings, according to resolution 466/2012 and with approval from the Research Ethics Committee, the research was approved by CEP-UniEVANGÉLICA nº 3.612.850 before starting the Procedures experimental. Everyone signed the free and informed consent form (TCLE).

Initially, those responsible for the appropriate groups for each modality were asked for authorization to apply the questionnaires. After authorization, the elderly were invited to participate in the study, the material was made available for completion in a private room where only the participant and the researcher were present, lasting 20 minutes each.

After signing the TCLE, the Questionnaire on Adhesion and Permanence of Elderly People in Physical Exercise[7] can be answered, where the initial part consisted of questions related to personal data, followed by questions relating to the reasons for adhering to physical activity and reasons for staying. Only one alternative was accepted, the questions were answered on a scale of 4 items, of which 1 = unimportant; 2= not very important; 3= important, and 4= very important, where the items are constituted according to the degree of importance. Soon after, the researchers were available to answer any questions that arose.

The questions were related to categories such as exercise, well-being, health, environment, professionals at the practice location, and psychosocial and aesthetic values. Data were presented as frequency rates in absolute numbers and percentages. For comparison between groups, the chi-square test was used. The data were processed using the Statistical Package for the Social Science (SPSS) version 25.0, with a significance level of $p < 0.05$.

RESULTS

Table 1 presents the characterization of the sample. Elderly people who practice bodybuilding had significantly longer practice time when compared to those who practice water aerobics. For the variables, gender, age group, and marital status, there was no significant difference between elderly people who practice water aerobics and bodybuilding.

Table 2 presents the comparison between elderly people who practice water aerobics and bodybuilding about adherence to the practice of these modalities. There was a significant difference, only the influence of family/friends. Despite not showing a significant difference, water aerobics practitioners highlighted the following variables as being extremely important: adopting a healthy lifestyle (88%, p = 0.661), improving health (88%, p = 0.554), medical advice (84%, p = 0.450), trust in the professional (84%, p = 0.181), improve physical performance (72%, p = 0.559), improve self-esteem (68%, p = 0.462), company of colleagues (68%, p = 0.418), and improved self-image (60%, p = 0.974). Bodybuilders highlighted the following variables as being extremely important: adopting a healthy lifestyle (83.9%, p = 0.661), improving health (87.1%, p = 0.554), improving self-esteem (74.2 %, p = 0.462), improving physical performance (71%, p = 0.559), trust in professionals (71%, p = 0.181), improve self-image (61.3%, p = 0.974) and company of colleagues (61 .3%, p = 0.418).

Table 1. Sample characterization

	Hydrogymnastics (n = 25)	bodybuilding (n = 31)	P
Sex, n (%)			
Female	23 (92,0)	29 (93,5)	0,823
Male	2 (6,5)	2 (8,0)	
Age range (years), n (%)			
60 a 65	9 (36,0)	10 (32,3)	
66 a 70	6 (24,0)	13 (41,9)	0,276
71 a 80	8 (32,0)	7 (22,6)	
> 80	2 (8,0)	1 (3,2)	
Marital status, n (%)			
Single	3 (12,0)	3 (9,7)	
Married	8 (32,0)	10 (32,3)	0,994
Divorced	4 (16,0)	5 (16,1)	
Widower	10 (40,0)	13 (41,9)	
Practice time (months), n (%)			
4 a 6	11 (44,0)	2 (6,5)	
7 a 12	6 (24,0)	3 (9,7)	
13 a 18	0 (0,0)	3 (9,7)	0,000
19 a 24	3 (12,0)	1 (3,2)	
25 or more	5 (20,0)	22 (71,0)	

Note: Data expressed as absolute number (percentage values) and, compared using the Chi-square test.

Table 2. Reasons for adherence to physical exercise among water aerobics and bodybuilding practitioners

Influence of family/friends,n (%)	Hydrogymnastics	Bodybuilding	
Not important	2 (8,0)	11 (35,5)	
Little important	0 (0,0)	4 (12,9)	0,010
Important	6 (24,0)	3 (9,7)	
Very important	17 (68,0)	13 (41,9)	

Note: Data expressed as an absolute number (percentage values) and, compared using the Chi-square test.

Table 3 presents the reason for remaining to practice PE with significant differences, comparing water aerobics and bodybuilding practitioners. Despite not showing a significant difference, water aerobics practitioners highlighted the following variables as being extremely important: pleasure provided by the practice (88%, p = 0.492), feeling accomplished (84%, p = 0.894), encouragement from the teacher (80%, p= 0.634), friendship circles (80%, p = 0.563), increased bodily well-being (76%, p = 0.433), improved posture (72%, p = 0.396), and increased social contact (68 %, p = 0.925).

Bodybuilders highlighted the following variables as being extremely important: feeling accomplished (83.9%, p = 0.894), improving posture (80.6%, p = 0.396), becoming stronger (74.2%, p = 0.717), encouragement from the teacher (74.2%, p = 0.634), improvement in appearance (74.2%, p = 0.495), well-being provided by the practice (71%, p = 0.502), attention from the teacher (71%, p = 0.264), friendship circles (64.5%, p = 0.563), and increased social contact (61.3%, p = 0.925).

Table 3. Reason for staying to practice physical exercise between water aerobics and bodybuilding practitioners

Encouragement from family and friends, n (%)	**Hydrogymnastics (n = 25)**	**Bodybuilding (n = 31)**	
Not important	2 (8,0)	8 (25,8)	0,034
Little important	0 (0,0)	5 (16,1)	
Important	5 (20,0)	4 (12,9)	
Very important	18 (72,0)	14 (45,2)	

Note: Data expressed as an absolute number (percentage values) and, data compared using the Chi-square test.

DISCUSSION

The objective of the research was to evaluate the reasons why elderly people adhere to and continue to practice water aerobics and bodybuilding exercises. In the present study, the gender most adherent to the modalities was female, comprising 92.86% and only 7.14% of males. These data are similar to the studies by Harris et al (2020)[5], where 14.6% were female, and Dourado et al (2021)[9], which had the participation of 56.4% of women, thus proving that individuals from the Females adhered more to physical exercise when compared to men. Elderly people often experience feelings of worthlessness, anxiety, frustration, bad mood, loneliness, irritation, and even depression. However, regular physical activity can bring significant improvements to the physical and mental health of practitioners[10]. This fact is related to what Santos and Vilela (2020)[11] report, the practice of water aerobics has demonstrated effectiveness in the lives of these individuals, as it can contribute to a healthier aging process, providing a more serene and contented life for the elderly.

In the study by Schütz (2018)[12], to verify self-esteem and self-image in a water aerobics program, it was found that the majority of elderly people have high self-esteem (53.3%) as well as a high self-image (81.7%). %). Unlike our results, among the elderly surveyed, self-esteem of 68% to 74.2% was found in both modalities respectively. The elderly considered this item extremely important, however, for self-image they consider self-esteem to be more important than self-image. When comparing the two modalities, the water aerobics group showed a greater relationship with encouragement from family/friends to join the modality. This finding corroborates the study developed by Batista (2020)[13], which investigated the motivation of elderly people to adhere to and remain in a water aerobics program, when asked about it; highlighted that, through friends and family, they were encouraged to participate and continue in the program.

However, in our study, a greater proportion of bodybuilders declared the influence of television on their adherence to this modality, when compared to water aerobics practitioners. These results are similar to those of Almeida et al (2020)[14], who also observed the influence of social media as a reason for adhering to physical exercise, concluding that the media leads elderly people to become more active. However, when comparing the modalities of water aerobics and bodybuilding, a greater adherence of elderly people to the practice of bodybuilding was observed, which can mean that higher-intensity training was associated with a significant improvement, mainly in functional capacity. Mendonça et al (2018)[15], showed that practice of bodybuilding promotes greater gains in strength and resistance, strengthens the bone structure, increases balance, and also allows the elderly to have autonomy in their daily tasks, that is, functional independence.

Although adherence to water aerobics is lower than bodybuilding among practitioners of this modality, the pleasure provided by the practice is highlighted as an extremely important reason for continuing in the activity 88% and feeling accomplished 84%, which contributes to a better quality of life, bringing physical and psychological benefits. Water aerobics is also considered a safe option for the elderly due to the physical properties of water and the stability it provides[16].

In the study by Varela and Santos 2019[17], to highlight the main reasons that lead elderly people to join a bodybuilding program, it was found that the greatest influence on the practice is the maintenance/promotion of health and competitiveness. Similar results to the present study, adopting a healthy lifestyle and improving health were the reasons for elderly people to adhere to both modalities. The present study verified the level of trust that participants of both modalities have in their respective teachers, finding that the majority of elderly people determined that this item was extremely important, both for their adherence and for their retention in the programs. Corroborating this, with the study by Brito (2018)[18], which aimed to analyze the motivational factors for the adherence and continuation of the practice of physical exercise by elderly people, frequenters of the Social Assistance Reference Center (SARC), for the author, when it comes to teacher-student trust dimension, this is essential both for the adherence and for the elderly to continue practicing physical exercise.

According to the study by Ângelo et al. (2021)[19], which aimed to analyze the factors and motivational indices of elderly people participating in physical exercise programs and their relationship with the time of participation, they observed that health, pleasure in the practice, and socialization were the main factors motivating elderly people to remain within the physical exercise program. These results are partly equivalent to the present study, where the pleasure provided by the practice (88%) was one of the requirements most cited by the elderly as reasons for remaining in the modalities. Analyzing the reasons why elderly people stay, the importance of encouraging friends and family to practice water aerobics was highlighted, and considering both modalities, the reasons that stood out the most were: pleasure provided by the exercise, feeling accomplished, attention and encouragement from the teacher, and improved posture.

These results show that some causes that led them to adhere to exercise become more important for remaining in the activity, such as improving quality of life, since elderly

people who practice PE feel more motivated by observing the attenuation of their diseases[20].

CONCLUSION

There are several reasons for elderly people to adhere to and continue to practice PE, the main ones being related to adherence, improving health and adopting a healthy lifestyle and for remaining, feeling fulfilled, pleasure provided by exercise, encouragement of the teacher and improved posture. Therefore, it is important to note that improved health means that the elderly have more adherence to the practice of PE, that is, as the elderly have a feeling of well-being and the act of practicing exercise has a positive impact on their health, which is longer lasting. and their permanence within the program.

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