



# Motivation for Brazilian Older Adult Women to Join a Community Physical Activity Program Before COVID-19 Pandemic

Rizia R. Silva<sup>1</sup>, Crisziellem R. Rufino<sup>2</sup>, Lucas L. Galvão<sup>2</sup>, Rodrigo L. Vancini<sup>3,\*</sup>, Douglas A. T. Santos<sup>2</sup>, Claudio A. B. de Lira<sup>1</sup>, Marília S. Andrade<sup>4</sup>, Beat Knechtle<sup>5</sup>, Pantelis T. Nikolaidis<sup>6</sup>, Meiry F. P. Okuno<sup>7</sup> and Rafaela G. dos Santos<sup>2</sup>

<sup>1</sup>Faculdade de Educação Física e Dança, Universidade Federal de Goiás (UFG), Laboratório da Avaliação do Movimento Humano, Setor de Fisiologia Humana e do Exercício, Goiânia GO, Brasil

<sup>2</sup>Colegiado de Educação Física, Universidade do Estado da Bahia (UNEB), Teixeira de Freitas BA, Brasil

<sup>3</sup>Centro de Educação Física e Desportos, Universidade Federal do Espírito Santo (UFES), Laboratório de Força e Condicionamento, Vitória, ES, Brasil

<sup>4</sup>Departamento de Fisiologia, Universidade Federal de São Paulo, São Paulo, Brasil

<sup>5</sup>Medbase St. Gallen Am Vadianplatz, St. Gallen, Switzerland

<sup>6</sup>School of Health and Caring Sciences, University of West Attica, Greece

<sup>7</sup>Escola Paulista de Enfermagem, Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brasil

\*Corresponding author: Centro de Educação Física e Desportos, Universidade Federal do Espírito Santo (UFES), Laboratório de Força e Condicionamento, Vitória, ES, Brasil. Email: rodrigo Luizvancini@gmail.com

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## Abstract

**Background:** Intrinsic and extrinsic motivational factors can affect the levels of adherence of physical activity (PA) during the aging process.

**Objectives:** Investigate the intrinsic and extrinsic aspects and motivation that led older women to enroll in and adhere to a community PA program before the COVID-19 pandemic.

**Methods:** Data were collected via transversal survey before the COVID-19 pandemic. The sample consisted of 21 women, participants of a PA workshop, aged between 60 to 86 years [ $< 1$ -year ( $n=8$ ) and  $\geq 1$ -year ( $n=13$ ) groups]. Motivation was assessed by the Motivation Inventory for Regular Physical Activity Practice (IMPRAF-54), using the 60th percentile to categorize high and low motivation, and two open questions. For qualitative assessment, content analysis was used and the answers were framed into subcategories regarding the motivation factors for adherence and permanence.

**Results:** That adherence to the program was motivated by sociability purposes [total score: 36.0 (6.0), median (interquartile range)] and pleasure [34.0; (6.0)], while the main motivation for permanence was health [40.0 (11.0)]. Differences were noticed between the groups for sociability [38.0 (3.0)  $P=0.030$ ] and competitiveness [9.50 (12.0);  $P=0.037$ ] highest medians for the  $< 1$  year group. Furthermore, the factors that least motivated older women were competitiveness and aesthetics.

**Conclusions:** Health and sociability were the main motivators for the practice of physical activity among older adult women. Motivation played a fundamental role in the permanence of older adult women in the physical activity program.

**Keywords:** Motivation, Older Adults, Aging, Physical Activity, Women

## 1. Background

Physical activity (PA) has a fundamental role in active and healthy aging (1). It contributes to the maintenance and improvement of functional capacity, mental health, well-being, cognitive function (2). overall improvement in quality of life (QoL), consequently, autonomy and independence as people age (3). Despite all these benefits, PA levels significantly decrease with aging. Older people have difficulty achieving or do not achieve the 150 minutes of PA per week recommended activity level to maintain or improve health-related levels of physical fitness (4).

The consequences of low levels of PA are well-established and manifest as physical and mental morbidities and diseases. However, identifying the barriers and factors that encourage and/or inhibit regular PA practice among older people is essential to understand how behavioral changes due to aging affect levels of and adherence to PA programs (5).

The participation of older adults in regular PA practice could be influenced by various factors and barriers, such as psychological, physical, environmental, socioeconomic, educational, and health-related (6). From

a behavioral viewpoint, barriers related to adherence and/or persistence in performing physical activities may exist (7). Among these factors, motivation stands out as an active, intentional, and goal-directed psychological process. It is interconnected and dependent on the interaction of intrinsic elements, such as autonomy, competence, and personal relationships, and extrinsic ones, such as material and social rewards, recognition, and evidence of values and competences, based on relative states of internalization and self-regulation, closely linked with autonomy (8, 9). However, limited studies have examined the role of intrinsic (emotional and personality-related) and extrinsic (environmental, such as transport and distance from the place of practice) motivational factors in the adherence and permanence of older people in community programs for PA and with a focus on public health (3, 10, 11).

With aging, significant changes in mood, reflected in the levels of enthusiasm, vigor, inertia, and motivation, which tends to decrease, are observed. These may be associated with psychological disorders that reflect in an individual's choices, actions, and behaviors and can be decisive for the adoption of and adherence to a healthy lifestyle and habits, such as a constant search for opportunities to practice PA in a systematic manner (12, 13).

It has been observed that older people seek opportunities to practice PA for fun, socializing with others, either from the same age group or family members, leaving home for contact with the environment as a form of leisure, or the maintenance of health status and disease prevalence when indicated by a physician (11). In addition, some may seek socialization to combat social isolation and the loss of their spouses. Furthermore, older people who practiced PA had higher levels of satisfaction with old age and lower levels of stress regarding losses and the negative mentality associated with aging (14, 15).

Thus, it is important to understand how intrinsic and extrinsic motivational factors affected the levels of adherence, motivation, persistence, and introjection of PA behavior for physical, mental, and social health benefits during the aging process (16).

## 2. Objectives

This study aimed to investigate the intrinsic and extrinsic aspects that led older adult women to enroll in a community PA program aimed at public health, and the possible interactions with motivational factors for adherence and permanence.

## 3. Methods

### 3.1. Study Design and Sample

This cross-sectional study was characterized as research with a quantitative, qualitative, and descriptive approach. The participants were people linked to the Open University for the Third Age - UATI program at the State University of Bahia (UNEB), in the municipality of Teixeira de Freitas, Brazil. The convenience sample consisted of 21 women aged between 60 and 86 years, who participated in a guided PA workshop (structured and consolidated nationally in Brazil). The program, held in 2018, consisted the application of exercises that contemplated strength, flexibility and aerobic, with 60 min sessions held twice/week.

### 3.2. Inclusion and Exclusion Criteria

The inclusion criteria were: (1) individuals enrolled in the PA program with regular participation (less than three absences per month); and (2) were 60 years or older. Participants who missed the collection period and did not respond to the interview were excluded.

### 3.3. Ethical Procedures

All procedures were approved (protocol number 2.948.498) by the Research Ethics Committee of the State University of Bahia (UNEB) and followed the ethical principles of Resolution No. 466/12 of the National Health Council of Brazil.

### 3.4. Data Collection Procedures

Older adults were invited to participate through dissemination in the University environment and during the routine activities of the UATI program in a regular week, which consisted of a program that encouraged the participation of the local community in the university environment and promoted the conscious exercise of citizenship, social relations, leisure, art, culture and socio-community reintegration, and PA practice. Thus, it contributed to the improvement of the quality of lives of older residents in the region (17).

After the objectives of the study were explained, the consent forms were delivered for signature. Interviews were scheduled with participants who completed the questionnaire after permission was obtained.

The interviews, scheduled according to the volunteers' availability, were conducted in a private room by two trained researchers, before the PA workshop classes were held. The script consisted of questions regarding personal and sociodemographic data. Next, the main questionnaire assessed the motivation for adherence and permanence in the program (closed questions, quantitative). The interview was completed when answers to the open questions were obtained (qualitative).

### 3.5. Quantitative Assessment of Motivation

To assess the motivational factors for adherence and permanence in the PA program, the Motivation Inventory for Regular Physical Activity Practice (IMPRAF-54) was used, validated by Barbosa and Balbinotti applied to different age groups in Brazil. This questionnaire was based on the psychological theory of self-determination (TAD), constructed from a continuum of the intrinsic and extrinsic factors associated with motivation. It consisted of 54 items, grouped into nine blocks that were individually assessed using a 5-point Likert scale, which ranged from “this motivates me very little” to “this motivates me very much.” In addition, six factors associated with motivation for the regular practice of PA were measured: (1) stress control, (2) health, (3) sociability, (4) competitiveness, (5) aesthetics, and (6) pleasure (18).

To interpret the results, normative tables provided in the instrument application manual were used, and the raw scores were transformed into percentiles. Based on the percentiles, two categories were created, “high” and “low motivation.” Percentile values above 60 were classified as “high motivation.” From the volunteer’s identification form, the duration of their participation in the PA workshop was determined and two categories were created ( $\geq 1$  year and  $< 1$  year), as literature showed that psychological changes and changes in mood were associated with the practice of PA (19).

### 3.6. Qualitative Assessment of Motivation

Associated with the quantitative questionnaire, two open questions enquired regarding participants’ reasons for joining and staying in the PA workshop: “What was the reason you joined the oriented PA workshop?” and “For what reasons did you stay in the PA workshop of the UATI program?”

Based on the content analysis technique by Minayo (20), keywords were selected that referred to the aspects mentioned in the IMPRAF-54, which related to the answers from the interviews with the six dimensions addressed in the quantitative questionnaire. Through manual transcription by two researchers, the answers were grouped into categories according to the questions and subcategories, which considered the intrinsic and extrinsic motivations (20).

From the first category - “motivation to join,” five subcategories emerged: “health,” “pleasure,” “stress/anxiety,” “self-esteem,” and “incentive.” Similarly, from the second category - “reasons for permanence,” five subcategories emerged: “pleasure,” “sociability,” “entertainment,” “health,” and “economic.”

### 3.7. Sociodemographic Profile

The sociodemographic variables consisted of the age group (60 - 69, 70 - 79 and  $> 80$  years), marital status (single, married, widowed and divorced), education (incomplete primary, complete primary/incomplete secondary school, complete secondary school/incomplete secondary school, complete secondary school/incomplete superior), occupation (retired, housewife, and retired), family income (retirement, no income, pension, and self-employed), and family arrangement (alone, spouse, children, grandchildren, nephews, and daughter-in-law and/or son-in-law).

### 3.8. Quantitative Data Analysis

Statistical analysis was performed using IBM SPSS (version 23.0). The Shapiro-Wilk was used to verify data normality. Frequency, median, and interquartile range [IQR] were used to describe the sample. Fisher’s exact and U Mann-Whitney test were used to compare the distribution between length of stay in the PA program in relation to motivation and sociodemographic variables. Significance level was set at 5%.

## 4. Results

Of the 21 volunteers, 38.1% ( $n = 8$ ) had participated in the workshop for  $< 1$  year, and 61.9% ( $n = 13$ ) for  $\geq 1$  year or more. The general median age was 68.0 [IQR 12.0] years. Based on sociodemographic data, most were married (38.1%), with incomplete elementary school (33.3%), retired (61.9%), with family income from retirement (66.7%), and lived alone (23.8%) or with their sons (33.3%) (Table 1).

The highest scores of motivation factors were “health” [median 40.0; (IQR 11.0)], “sociability” [median 36.0; (IQR 6.0)], and “pleasure” [median 34.0 (IQR 6.0)]. For the length of stay in the PA program, differences were noticed between the groups for sociability [median 38.0; (IQR 3.0);  $P = 0.030$ ] and competitiveness [median 9.50; (IQR 12.0);  $P = 0.037$ ], with the highest medians for the group  $< 1$  year. For the frequencies, “health (100%) and (92.3%)” and “sociability (87.5%) and (53.8%)” had higher relative values and frequencies for high motivation for the  $< 1$  and  $\geq 1$  year groups, respectively. However, “competitiveness” and “aesthetics” presented as low motivation in both groups (Table 2).

Table 3 presents the subcategories that constituted the category of “motivation to join” from a qualitative viewpoint. “Health” was listed as a strong motivator for the participation in the PA program by the volunteers, who showed high intrinsic (personal desire and desire to improve health) and extrinsic (medical guidance) motivation.

**Table 1.** Sociodemographic Profile of Older Women in the Community Physical Activity Program <sup>a</sup>

Variables	Total Sample (n = 21)	Length of Stay in the Program (y)		p <sup>b</sup>
		< 1 (n = 8)	≥ 1 (n = 13)	
<b>Age (y)</b>				
60 - 69	13 (61.9)	7 (87.5)	6 (46.2)	0.231
70 - 79	5 (23.8)	1 (12.5)	4 (30.8)	
≥ 80	3 (14.3)	0 (0.0)	3 (23.1)	
<b>Marital status</b>				
Single	4 (19.0)	2 (25.0)	2 (15.4)	
Married/living with a partner	8 (38.1)	4 (50.0)	4 (30.8)	0.699
Widower	6 (28.6)	1 (12.5)	5 (38.5)	
Divorced/separated	3 (14.3)	1 (12.5)	2 (15.4)	
<b>Education</b>				
Incomplete elementary school	7 (33.3)	3 (37.5)	4 (30.8)	
Complete elementary school	7 (33.3)	2 (25.0)	5 (38.5)	0.928
Complete high school	4 (19.0)	2 (25.0)	2 (15.4)	
Incomplete university education	3 (14.3)	1 (12.5)	2 (15.4)	
<b>Occupation</b>				
Retired	13 (61.9)	7 (87.5)	6 (46.2)	
Housewife	6 (28.6)	1 (12.5)	5 (38.5)	0.210
Pensioner	2 (9.5)	0 (0.0)	2 (15.4)	
<b>Family income source</b>				
Pension/retirement	14 (66.7)	7 (87.5)	7 (53.8)	
No income	3 (14.3)	1 (12.5)	2 (15.4)	0.224
Others (pension and self-employed)	4 (19.0)	0 (0.0)	4 (30.8)	
<b>Family arrangement</b>				
Single	5 (23.8)	1 (12.5)	4 (30.8)	
With spouse	4 (19.0)	2 (25.0)	2 (15.4)	
With sons	7 (33.3)	3 (37.5)	4 (30.8)	0.922
With grandchildren	3 (14.3)	1 (12.5)	2 (15.4)	
Others (nephews, daughter-in-law, and/or son-in-law)	2 (9.5)	1 (12.5)	1 (7.7)	

<sup>a</sup> Values are expressed as No. (%).

<sup>b</sup> Fisher's exact test.

“Stress and Anxiety” were reported by three participants as a factor that triggered their motivation to join the PA program. This drew attention as they attributed benefits to PA that went beyond the biological, physical, disease prevention, and mobility aspects. “Self-esteem” (feeling, appreciation, and consideration that a person feels for themselves) was listed by two participants as a mental trigger for motivation (Table 3).

In the fifth subcategory “socialization,” it was observed that motivation linked to encouragement by friends was

related to extrinsic factors. It should be noted that the integration and participation of older adult women during the PA program also aroused the desire of other people in their social circle (friends and family members) to join.

The results regarding “reasons for permanence” in the program are presented in Table 4. The main triggers for motivation for permanence were health, sociability, and pleasure. Sociability had intrinsic relationships with pleasure, feelings of fun, and perception of autonomy

**Table 2.** Motivation Classification Scores by Length of Stay in the Program for Older Women <sup>a</sup>

Factors	Motivation						p <sup>b</sup>
	< 1y			≥ 1y			
	Median (IQR)	High	Low	Median (IQR)	High	Low	
Stress/anxiety	33.5 (10)	6 (75.0)	2 (25.0)	28.0 (13)	5 (38.5)	8 (61.5)	0.121
Health	40.0 (1)	8 (100.0)	0 (0.0)	40.0 (0)	12 (92.3)	1 (7.7)	0.595
Sociability	38.0 (3)	7 (87.5)	1 (12.5)	34.0 (7)	7 (53.8)	6 (46.2)	0.030
Competitiveness	9.50 (12)	3 (37.5)	5 (62.5)	8.0 (0)	1 (7.7)	12 (92.3)	0.037
Aesthetics	27.50 (10)	1 (12.5)	7 (87.5)	24.0 (20)	3 (23.1)	10 (76.9)	0.697
Pleasure	35.50 (3)	2 (25.0)	6 (75.0)	33.0 (7)	2 (15.4)	11 (84.6)	0.161

Abbreviations: y, years; IQR, interquartile range.

<sup>a</sup> Values are expressed as No. (%) unless otherwise indicated.

<sup>b</sup> Test U Mann-Whitney.

**Table 3.** Motivation and Reason for Joining and Adherence in the PA Program: Qualitative Aspects

Category	n	Volunteer's Speech
Health	10	"I wanted to improve my health" (M.M 1). "Exercise and avoid illnesses and stay healthy" (D.M 8). "I did water aerobics. However, I developed an allergy. I had medical advice to look for another activity to maintain health. So, I signed up for the gymnastics workshop" (LS 9).
Pleasure	4	"The reason was because I like to be active and do some physical exercise" (M.L 10). "I like to do gymnastics and activities and stay active" (G.A 19).
Stress/anxiety	3	"Because I was very anxious and stressed, I decided to do an activity and consequently lose weight and socialize with other people" (E.L 18). "I need to live better. I'm very stressed and anxious" (IM 6).
Self-esteem	2	"I was very sedentary, inert, and isolated at home. I signed up for the program to improve self-esteem" (C.P 13). "My self-esteem was terrible. I wanted to feel full and for my health it was very bad" (M.G 17).
Incentive	2	"A friend said it was very good and encouraged me to join a group" (J.S 14). "It was at the instigation of a friend. I needed to live with other people and get out of the isolation at home" (C.A 20).

and independence. Extrinsic motivations were linked to socioeconomic factors, since participation in the PA program was free. Another motivation was health issues, which appeared as a mental trigger for self-care, as concern regarding the presence of diseases and diet quality appeared among the intrinsic motivations presented by older adult women.

## 5. Discussion

The present study aimed to investigate the intrinsic and extrinsic and quantitative and qualitative aspects of the motivation that led older adult women to join and remain in a community PA program. Our findings showed that length of stay interferes mainly in sociability and competitiveness relationships, and that older women listed health, socialization, pleasure, and the influence of other people as the most important motivating factors in both groups.

Recently, studies investigated the implementation of PA programs that offered safety, efficacy, and inclusion for the older adult population, and thus provided community options that met their individual needs and preferences

and favored adherence and permanence (7, 21, 22). Hence, intrinsic and extrinsic motivation contributed importantly to the adherence and permanence of older people in PA programs. A comparative study on older people of both sexes, which aimed to identify their motivation to participate in PA programs, showed that the main mental triggers of motivation to join and stay in PA programs were concern for health, encouragement of friends and family, and referral by a medical professional, even in different cultural contexts (23).

Among the mental triggers associated with the motivation to join and remain in PA programs, the improvement and maintenance of health status was presented as a central topic for a better QoL among older people, as well as achieving relative autonomy and physical independence from family members and caregivers (24). In the present study, the health factor was present in older adult women's admission and permanence in the PA program. This was also observed in previous studies (25, 26).

Harrison et al. (26) evaluated the perceptions, opinions, and attitudes of older adults who resided in an urban US community to determine the understanding,

**Table 4.** Motivation to Remain in the PA Program: Qualitative Aspects

Category	n	Volunteer's Speech
<b>Pleasure</b>	7	"I like to exercise. I have fun, I feel good, I leave the house to talk to people and I get out of isolation. I made many friendships" (A.M 2). "I like gymnastics. I met different people, I talk, and I like being on the program" (J.S 14). "Because I find inner peace, freedom, I see people, I talk, I laugh" (E.A 15).
<b>Sociability</b>	5	"I stay on the program because of my interactions with friends. Otherwise, I wouldn't be. I have a friend who gives me a ride in her car to all classes" (AR 3). "I like the teachers and being with friends and people" (M.M 4).
<b>Entertainment</b>	5	"I stay on the program for friendships and fun" (I.M 6).
<b>Health</b>	3	"For health. It lowers my blood pressure and cholesterol" (M.M 1). "It's very good for my health. It helps my sleep and makes me sleep better. My diet has also changed for the better" (MG 17).
<b>Economic</b>	1	"Firstly, because it is free and because it is a public access program" (E.L 18).

barriers, and motivators associated with PA practice. They found the main mental triggers mentioned were increased life expectancy and longevity, more vigor and energy, and a stronger body. Physical exercise for older adults promotes improvement in declining physical and mental capacities and benefits general health maintenance, an important factor for motivation (2).

Another factor mentioned by most participants was socialization and breaking social isolation. This was mainly reported by older women with less than one year of adherence and permanence in the PA program. This reinforced social interaction as something important and a mental trigger for the motivation to practice PA in a systematic manner. This finding highlighted the importance given by people who saw PA as an opportunity to be with and meet friends (27).

Socialization was often mentioned as a mental trigger that motivated older people to join and remain in PA programs. For example, the COVID-19 pandemic increased the number of older people who were isolated, caused enormous damage to the functional and mental capacity of older people, and increased social isolation, especially for those who used free and community programs for socialization (28). Programs, such as the one described in this study, were conducted before the pandemic reinforced the importance of socialization, especially through long-term impacts period of isolation and social distancing in the health and well-being of older people globally, not only in Brazil (29).

It is important to highlight how essential it is to value aging from the perspective of "active aging," a broad conception of the World Health Organization (WHO). Thus, old age should be encouraged as a stage of life with more independence, autonomy, wisdom, maturity and time to enjoy social and leisure activities. Furthermore, progressive entry into public spaces through active sociability strategies that allow them to weave new relationships and escape social isolation already imposed and aggravated by the coronavirus pandemic should be developed (30). This undoubtedly includes community PA

programs linked to Open Universities and associated with the public health system, both in Brazil and worldwide (31, 32).

Extrinsic and intrinsic motivations, self-determination and persistence, and opportunities are constantly associated with involvement with PA practice in a systematic way. The issue of "pleasure" for PA practice is associated with an intrinsic mental trigger, individual commitment to the task to be performed, and the relationship of pleasure with rewards, engagement and results. The pleasure for an activity to keep physically and mentally active was mentioned as a mental trigger for motivation, adherence, and permanence in the PA program by the older women in the present study (27, 28).

According to a meta-analysis conducted by Morgan et al. (25) for many active older people, PA was associated with better mood, feelings of joy and fun, and perceived improvements in mental and physical health. In addition, when the practice of PA was pleasurable, there was a positive occupation of free time and reduction of periods of loneliness and social isolation. Hence, these activities are a positive strategy to minimize the effects of the aging process (22).

Based on extrinsic motivations, support from family members and encouragement from others play an empowering role in the life of older adults. It increasing their sense of commitment and responsibility and motivation to change negative habits, while expanding on their participation and adherence to PA programs (29, 30).

Another extrinsic motivator was economic gratuity, a facilitator for continuing the PA program. Although only one volunteer mentioned this, in Brazil, the vast majority of older people have few financial resources. Although they have more free time, retirees in Brazil have fewer and scarce financial resources, a real difficulty for them to become physically active. Many even continue to work and help with the costs of the home and family. In Brazil, access to gyms by older adults is low due to high costs (33, 34). Intrinsic and extrinsic motivations exert significant power over adherence and permanence in a community

PA program by older adult women. Research on this topic is important for the construction of parameters and monitoring older adults' access to activities that help them maintain an active and healthy profile.

Our study had some limitations. First, the small sample size. This reduced the possible plurality of opinions and perceptions regarding the motivations for the practice of PA and provided less statistical power. Second, we were unable to compare our sample of older women with those who attended non-community programs, such as older women regularly enrolled in gyms. However, this was not a fatal limitation since it was known that older people were less active and had evident difficulties in joining and remaining in PA programs. Our study fill this gap and opens new research perspectives and questions. Third, this study used a questionnaire, which was a subjective and perhaps less assertive method. However, how can researchers understand people's mood state without talking and asking questions?

Among the strengths, we highlight the presentation of quantitative and qualitative data regarding the motivation for adherence and permanence in PA programs in the same study. Understanding what motivates older adult women to practice PA could help in health promotion and education campaigns.

### 5.1. Conclusions

Motivation plays a fundamental role in the adherence and permanence of older adult women in a PA program. "Health" and "sociability" appeared as the main mental triggers for increased engagement, and that the length of stay interferes in the motivations for sociability and competitiveness. However, social, environmental, economic, and emotional aspects, such as mental triggers with negative and positive impact, for the practice of PA in older people should be investigated in greater depth by future studies. Furthermore, their interaction with motivational factors related to adherence and permanence should also be examined.

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### Footnotes

**Authors' Contribution:** Silva RR, investigation, methodology, data curation, writing-original draft and

writing-review and editing; Rufino CR and Galvão LL, writing-original draft and writing-review and editing; Lira CAB and Vancini RL, conceptualization, funding acquisition, investigation, project administration and writing-review and editing; Andrade MS, Knechtle B, Nikolaidis PT and Okuno MFP, writing-review and editing; Santos RG, conceptualization, investigation, methodology, project administration, resources, supervision, writing-original draft and writing-review and editing. All authors critically revised the intellectual content of the manuscript and approved the final version as submitted.

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