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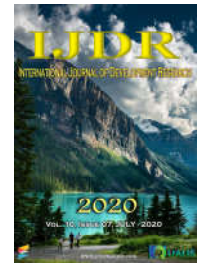
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RESEARCH ARTICLE

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USE OF ANDROGENIC ANABOLIC STEROIDS IN RESISTANCE EXERCISE PRACTITIONERS IN THE GYMS OF THE CITY OF PALOTINA-PR, BRAZIL

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ABSTRACT

Introduction: In Brazil the number of outlets for physical exercise grows every year, among them the gyms have a prominent place because of resistance training is one of the most sought-after sports. **Objectives:** can be aesthetic, weight loss, health or sports performance to end up motivating, practitioners, to use other strategies, in addition to resistance exercise, the Anabolic Androgens Steroids(AAS's). **Objective:** In this sense, the objective of this study was to characterize the practitioners of resistance exercises that make use of AAS's. **Methods:** This is a descriptive and quantitative study conducted in resistance exercise practitioners of the city of Palotina-PR, Brazil. The sample consisted of 37 subjects, aged between 18 and 41 years, all resistance exercise practitioners. The study was conducted in two academies of the city, were the ones who agreed to participate in the investigation. All subjects who agreed to participate signed the consent form and then answered the questionnaire proposed by Frizon (2005). Data were organized and presented in absolute and percentage frequency. **Results:** Most of the subjects that make or made use of AAS's are men. The reasons given for the practice are aesthetics and hypertrophy and the vast majority do not use the AAS's medically indicated. **Conclusion:** Our data confirm that there are resisted exercising in Palotina-Pr, Brazil, that make use of AAS's mostly non-prescription and aesthetic goals.

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INTRODUCTION

In recent years in Brazil there was a large-scale growth in the number of fitness centers (PRESTES et al., 2016). World ranking academies, Brazil is the second country with the highest number, with approximately 33,000 academies, welcoming about 8 million Brazilians in the practices of various physical exercises (OLIVEIRA et al., 2018). Within the possibilities of practicing in gyms, resistance training stands out as the most popular (BOMPA et al., 2004; ARAUJO, 2019), practiced by a heterogeneous audience, with different purposes, ranging from aesthetic aspects, weight loss, health improvement, and the search for sports performance (FLECK and KRAEMER, 2017). It has been noted recently a growing increase in the aesthetic perspective of practitioners of

resistance exercises a practice focused more to the body cult proper health or welfare (LIZ and ANDRADE, 2016; Weber et al, 2018). When combined with the immediacy of results, the so desired "body image", is the main motivator that leads the practitioner to the use of other techniques associated with resistance training, and in this case the use of anabolic steroids is the tool "efficient" (IRIART et al., 2009). Anabolic or anabolic-androgenic steroids (AAS's) are exogenous molecules synthesized from derivatives of testosterone, which is a steroid hormone synthesized from cholesterol in acinar cells of Leydig, localized in the testes and human ovaries (STOTZER, 2009). Initially developed in order to promote maximum protein synthesis (anabolic effects) capable of conducting cell and tissue growth, minimizing as much as possible, the appearance of androgenic or masculinizing effects (SILVA and MOREAU, 2003; STOTZER, 2009). Much due to the

characteristic of sports practice associated with body worship and quick results, resistance exercise practitioners and bodybuilding athletes are the main consumers, that is, they are the group of practitioners who use AAS's (SANTOS, 2017). Data presented in the last decade indicate that the consumption of AAS's has reached great proportions, especially among gym-goers (MINEIRO et al., 2016), as a mechanism or technique to accelerate the achievement of results and reduce the need for long periods of training. training (IRIART et al., 2009). They are still incipient information on the consumption of AAS's in resistance exercise practitioners in western Paraná. In this sense our study aims to make a characterization of resistance training practitioners who use AAS's, especially in relation to what the motivation for the use of AAS's? Which objectives? What are the most common types used? and finally, who was responsible for the indication of this drug?

METHODS

The sample consisted of 37 subjects, 25 males and 12 females, aged 18 to 41 years, resistance training practitioners, more than three months, enrolled in academies of the city of Palotina-PR, Brazil. The inclusion and exclusion criteria were the minimum age, 18, be resistance exercise practitioner and take the quiz. The exclusion criterion was the incorrect filling of the online tool. The study was conducted in two gyms located in the center of Palotina- PR, Brazil, with the permission of the owner, these were the only owners who permit this study in your company/gym. The academy gave a space reserved for us to perform the initial contact with students. In the case of accepted participate in the study, we began with the signing of the consent form and Clear, guaranteeing the confidentiality of the data and would be respected all ethical standards in research with human beings. To better adherence of participants, we adopt an instrument that could be completed online form. It adopted the instrument produced by Frizon et al. (2005), adapted to the research, specifically with objective questions regarding the most used anabolic steroids, one multiple-choice question, which allowed the assessed choose more than one option to the same question, if necessary. Participants filled out a form with basic data, informing the e-mail, to be able to send the link to access the complete form of the questionnaire. The questionnaire was completed online form with complete confidentiality and in accordance with the participant's availability. Data were organized and presented in absolute frequency and the graphics were drawn from the GraphPad Prism System software (San Diego, CA, U.S.A.).

RESULTS

The study results indicate that of the total sample participants, 38% (n = 14) make or have made use of AAS's (3 women and 11 men) in order to yield the practice of resistance exercises (Figure 1A) 13% (5) making use of anabolic were at the time of study (Figure 1B). The AAS's are used in cycles (duration of use) and our sample had varying cycles, 60% of which make use embraced cycle 3 months, 20% within one month of use to 20% were doing a 12-month cycle (figure 2A). Regarding the type of anabolic used (Figure 2B) during the cycles, we noticed that 35% (n = 9) Sample preferred to use the same anabolic the Durateston®, while 19% (n = 5) and used Winstrol® Deca-Durabolin®, other anabolic were also cited.

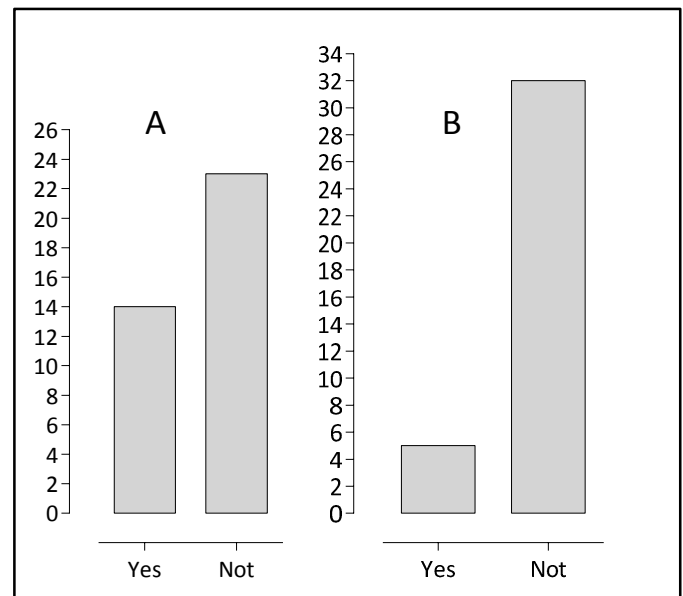


Figure 1. Distribution of participants according to the use or not of anabolic. Figure A - number of returning participants who have already made use of anabolic steroids at some point in life; Figure B - number of participants who are, at the time of the survey, the use of anabolic steroids. Source: the authors.

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DISCUSSION

The objective of this study was to characterize the practitioners of resistance exercises that make or made use of AAS's, especially in relation to the reasons for use, goals using, what the most common types and ultimately who was responsible for the indication. Our data indicate that the number of resistance training practitioners who make or made use of anabolic steroids is small relative to the sample investigated, but the worrying fact is that even with all the information about the side effects of such practices, the main source knowledge and indication for use is not a medical professional. The characterization of the sample, the gender perspective, indicates that most of the participants who are or have been using AAS's are men, which is very similar to other investigations of other authors. Research conducted in order to identify the level of knowledge of the practitioners of

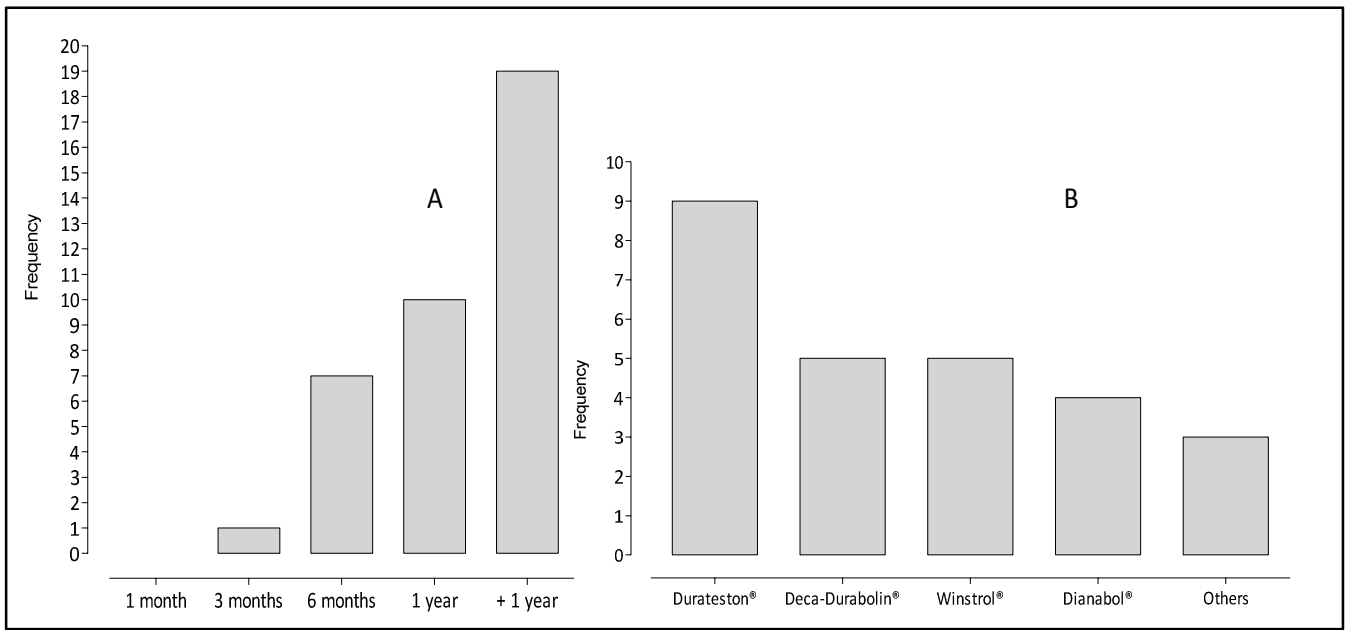


Figure 2. Figure A - Distribution of participants in relation to cycle time. Figure B - type of anabolic steroid using. Source: the authors

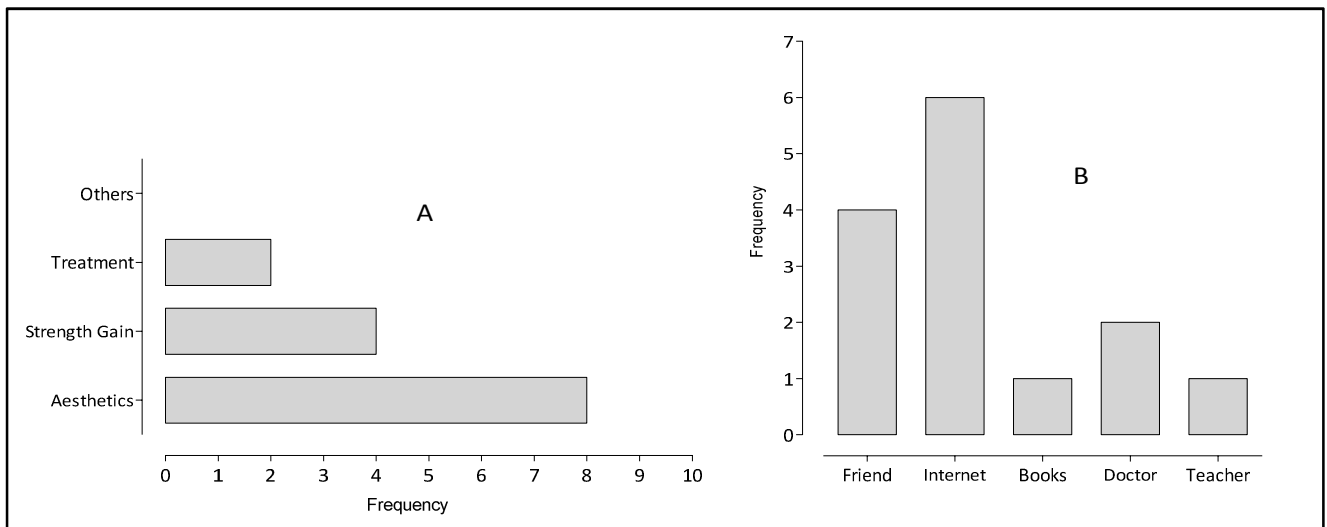


Figure 3. Indicative data of the objectives for the use of AAS's (Figure A); Figure B - source of consultation or suggestion for the use and choice of AAS's to be used. Source: the authors

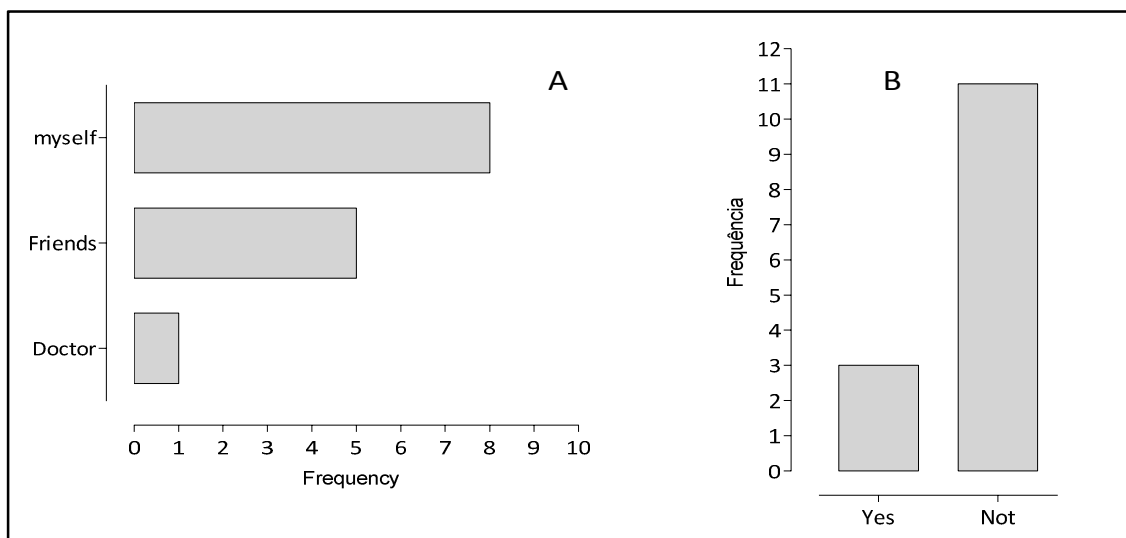


Figure 4. Data indicating the person or business responsible for making the indication for use; and B - is for the use of anabolic steroids, regardless of who indicated was made medical care. Source: the authors

resistance exercises and user AAS's also presented a sample predominantly male (63%) (SOUZA, 2018). When the investigation focused only on the use of these drugs also bodybuilders (resistance exercise) or results in relation to gender were the same, 75% of the sample consisted of male subjects (REIS et al., 2017). In a study conducted in the state of Paraná, with 233 subjects, which aimed to determine the use of steroids, 75% (n=170) of the sample was male (MATTANO and COMARELLA, 2013). In 2005, the American Academy of Pediatrics, defined the term PES (performance enhancing substance) for any substance that would be able to improve performance, ingested in pharmacological doses or not, but that should be associated with sports. Such substances should promote effective and substantial improvement in performance and benefit the sports practice, whatever it may be included in this roll find the AAS's (TAVARES et al., 2019). From 2005 to the present day the use of AAS's, especially left competitive sports environment, athletic performance, reaching groups of exercise practitioners, especially practitioners of resistance exercises (BRENNAN et al., 2017; TAVARES et al., 2019). The association between resistance training and AAS's is associated with the goals of practitioners, and in this sense two seem to be common, the reduction in fat mass and increase fast and efficient muscle mass (MONTANHER et al., 2018). The morphological changes in response to hypertrophy, promoted by resistance exercise and enhanced by the use of AAS's generate body design desired by practitioners, which ends up fleeing the only biological questions and directing more towards aspects of self-esteem, physical appearance and body worship (SWAMI et al., 2010; MAIOR et al., 2011; FAVERO e SIMÕES, 2017; OLIVEIRA et al., 2018).

The use of AAS's, especially for Americans, begins before age 30, driven in particular by a negative body image, which leads to the use of this drug in an attempt to achieve a certain look beyond the traditional goals, such as obtaining muscle strength and sports performance, even as secondary endpoints (SAGOE et al, 2014; TAVARES et al, 2019.). The participants in our sample that are or have been using AAS's also done before 30 years of age (85.7%; n = 12), and similarly to the data presented by the sample of Americans, also with the main objective to aesthetics and strength gains as a secondary objective. The use of AAS's seems to have a close relationship with the desire to achieve the much desired "perfect body" in a much more personal perspective and aesthetics, and more distant from the health perspective (SWAMI et al., 2010). As we have seen, the classic purpose / common for the use of these drugs is the reduction of body mass and especially the increase in muscle mass from its anabolic effects (MONTANHER et al., 2018), always associated the practice of physical exercises, but that transcends the practice itself and seems to be motivated more by appearance or body image (IRIART et al., 2009). The benefits with the use of AAS's are clear, they increase the mass and strength of skeletal muscle, much faster when compared to the speed of adjustments without the use of this drug. As enhances hypertrophic responses ultimately increases the basal metabolic rate and promotes the reduction of body fat, and of course a substantial increase in sports performance generally (GOLDMAN e BASARIA, 2018). However, the abuse of AAS's especially when there is no follow-up of a medical professional can lead to irreversible damage to the health of individuals in terms liver, kidney and especially heart. Prolonged and widespread use promotes cell pathological changes in the heart that are like heart and cardiomyopathy failure (SULLIVAN et al.,

1998; AMSTERDAM et al, 2010; MONTISCI et al, 2012; ARAZI et al, 2017; SEARA et al., 2017). Data presented in recent years indicate, in a timely manner, that the abuse of AAS's without proper prescription and medical monitoring leads to testicular atrophy, erectile dysfunction and gynecomastia (SØNDERGAARD et al., 2014), as well as changes that can lead mortality states such as liver tumors and prostate and electrolyte disturbances (OLIVARES et al., 2014). Failure medical indications and especially the need for the use of AAS's can be set and monitored by a medical professional is more common in young people, as shown by our results. The worrying factor is that in addition to the indiscriminate use, the association of inadequate doses to physical training, including resistance exercises can enhance some determinants side effects in irreversible pathological degenerative process in many organs associated and may lead to death (FRATI et al., 2015). Most of the subjects in our sample made or makes use of AAS's had no indication of a medical professional about which dose or type of steroid could be used, the choice was based on contact with friends who are or have been using in internet or yourself. This behavior seems to be a rule among the AAS's users, the same responses were found in other studies, indicating that the use is made for the same reasons presented in our sample (SIQUEIRA NOGUEIRA et al, 2015; TORRES and CAMPOS, 2017).

Conclusion

Our data confirm that there are resistance exercise practitioners from a city in western Paraná that make use of AAS's mostly without prescription/medical care and aesthetic purposes. Our study has a limited sample number and location, also did not evaluate the anthropometric profile of these subjects to identify possible factors that intensify the risks of using AAS's non-prescription/medical monitoring is important new research to address the issue in order to characterize the consumption is extrapolated to other cities in the region and / or state in an attempt to determine whether such use is not a public health issue and affects only specific groups of the population.

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