

78 - ANALYSIS ON SCIENTIFIC STUDIES OF THE USE OF ANABOLIC STEROIDS IN BRAZIL: A STUDY OF REVIEW.

ODILON SALIM COSTA ABRAHIN
 JOSIANA KELY RODRIGUES MOREIRA
 VANDERSON CUNHA DO NASCIMENTO
 EVITOM CORRÊA DE SOUSA

Universidade do Estado do Pará, Belém, Pará, Brasil
 LERES – Laboratório de Exercício Resistido e Saúde
 GEERES – Grupo de Estudo de Exercício Resistido e Saúde
 odilonsalim@hotmail.com

INTRODUCTION

Anabolic androgenic steroids (AAS) are chemically similar to testosterone. As its name suggests, have both anabolic properties responsible for nitrogen retention, increased muscle growth and strength, as androgenic that are responsible for the development of male sexual characteristics (BASARIA, WAHLSTROM AND DOBS, 2001; SANTOS, 2007).

AAS are used therapeutically in the treatment of various diseases such as AIDS, certain types of anemia, liver cirrhosis, cancer, patients with hormone deficiencies, severe burns, among others (BASARIA, WAHLSTROM AND DOBS, 2001; SANTOS, 2007). Emmelot-Vonk et al. (2008) argue that the decline in testosterone levels is associated with decreased muscle strength, lean body mass and bone mineral density, decline in cognitive ability and increased fat mass (especially abdominal).

However, these drugs have been used in a non-therapeutic and indiscriminate, especially by young adults who desire an athletic body in a short time, without taking into consideration the health risks associated with this practice (NILSSON et al. 2001, ARAÚJO, ANDREOLI AND SILVA 2002; SILVA AND MOREAU, 2003; FRIZON, MACEDO AND YONAMINE, 2005, SILVA et al. 2007; MAIOR et al., 2009).

Several studies have been conducted to determine the patterns of AAS use worldwide. According to Yesalis and Bahrke (2004), it was found that the United States, 4-6% of male college students using AAS. Regarding age women, about 1 to 2% reported use, with a significant increase in the last decade.

In Sweden, the AAS use among adolescents 16 to 17 year old male was 2.9%. Regarding the young female population was not detected the use of such substances (NILSSON et al., 2001). Rachoni, Pokrywka and Suchecki-Rachoni (2006) when analyzing the use of such substances among adolescents and adults in Poland, observed a prevalence of 6.2% and 2.9% among men and women.

In Brazil, there is little data on the illicit use of AAS, despite the perception that the problem has been aggravating, becoming a growing public health problem (ARAÚJO, 2003; FILHO AND FILHO, 2005; SANTOS, 2007; IRIARTE, CHAVES AND ORLEANS, 2009; VENÂNCIO et al., 2010). Therefore, the purpose of this study was to quantitatively analyze the scientific studies regarding the use of anabolic steroids in Brazil, as well as identify the profile of users, their motivations and how they acquire the ASS.

METHODOLOGY

The research method used was a literature review using scientific articles and books from 1990 to 2010 that focused on scientific research regarding the use of anabolic steroids in Brazil.

The first consultation was held in the database SCIELO. After the results, the second query was made in scientific articles of Revista Brasileira de Ciências do Esporte (RBCE). However, due to the low number of studies found on the subject were also studied traditional electronic journals that focused on the topic: Revista Brasileira de Prescrição e Fisiologia do Exercício (RBPFE) and Fitness & Performance Journal.

The survey was conducted from June to September 2010, by the following terms: steroids, anabolic steroids, anabolic androgenic steroids and drugs. At the end of the study 12 (twelve) articles were critically reviewed and the criteria for exclusion and inclusion are described below.

CRITERIA FOR EXCLUSION OF STUDIES IN THE TWO DATABASES.

We excluded studies that sample had less than one hundred and fifty people, as well as research involving only athletes in their data collection.

CRITERIA FOR INCLUSION OF STUDIES IN THE TWO DATABASES.

Were only included electronic searches of indexed journals traditional analyzed data on the use of anabolic steroids in Brazil, studies with samples exceeding one hundred and fifty people and non-athlete individuals.

PREVALENCE OF AAS USE BY REGION.

Numerous studies have been conducted to determine the patterns of AAS use worldwide. However, in Brazil there are few data on the number of users of AAS. (ARAÚJO, 2003; FILHO AND FILHO, 2005; SANTOS, 2007; IRIARTE, CHAVES AND ORLEANS, 2009; VENÂNCIO et al., 2010).

In our research we found twelve studies that examined the use of AAS in the population. However, the prevalence of use of such substances varied by region (Table I).

In South and Southeast regions were found eight studies and the incidence of AAS use ranged from 2.39% to 25.57%. In the Central West and North were found four surveys and the use of AAS ranged from 2.1% to 9%. In the Northeast was not found any data concerning the use of AAS (ARAÚJO, ANDREOLI AND SILVA 2002; ARAÚJO, 2003; SILVA AND MOREAU, 2003; FILHO AND FILHO, 2005; FRIZON, MACEDO AND YONAMINE, 2005; PALMA AND ASSIS, 2005; LUCAS et al. 2006; CHIAPETTA AND SERBENA, 2007; PALMA, ABREU AND CUNHA, 2007; MAIOR et al. 2009; COSTA et al., 2010).

However, many users are inhibited to comment on the use of such drugs, so that a recent study examined the use of resources and ergogenic supplements by body builders in Belo Horizonte, and the resulting data showed that 85% of respondents have made or know someone who has used AAS (E DOMINGUES MARINS, 2007).

Thus, it is observed that there are few data on the indiscriminate use of AAS in Brazil, mainly in North, Northeast and

Midwest. Therefore there is need for more research to assess the indiscriminate use of AAS in our country.

TABLE 1 - Distribution of AAS use to confirm the region of Brazil.

Authors and Years	Results	Characteristics of the Region	shows
Araújo, Andreolo and Silva (2002)	9%	Men	Midwest
Araújo (2003)	5,46%	Teens	Midwest
Silva and Moreau, (2003)	19%	Men and women	Southeast
Filho and Filho (2005)	2,39%	Teens	Southeast
Frizon, Macedo and Yonamine (2005)	6,5% (Only men used ASS)	Men and women	South
Palma and Assis (2005)	25,57%	Teachers of Physical Ed	Southeast
Lucas et al., (2006)	2,1%	University health care	North
Chiapetti and Serbena (2007)	12,6% (Physical Ed academics) and 2,9% (academic Physiotherapy)	University health care	South
Palma, Abreu and Cunha (2007)	19,2%	Academic Physical Ed	Southeast
Silva et al., (2007)	11,1%	Men and women	South
Maior et al., (2009)	24,9	Men and women	South
Costa et al., (2010)	5,4%	Military Police	Midwest

PROFILE OF USERS.

According to data surveyed the profile of most users of AAS were young adults with age ranging from 18 to 29 years, bodybuilders male, however the use of such substances has been increasing among women and adolescents (ARAÚJO, ANDREOLI AND SILVA 2002; SILVA AND MOREAU, 2003; FILHO AND FILHO, 2005; FRIZON, MACEDO AND YONAMINE, 2005, SILVA et al. 2007; MAIOR et al., 2009).

Bahrke and Yesalis (2004) claim that the United States, 1-2% of female university using AAS. Elliot et al. (2007) when conducting his research involving the use of such substances only among female students, found that 5.3% reported having used any AAS in your life. However, there was found no scientific studies that would address specifically the use of AAS among women in Brazil.

With respect to adolescents, Araújo (2003) reported the prevalence of AAS use of 5.46% among high school students in the Federal District. However, these students began using the mean age of 15.5 years.

Filho and Filho (2005) to do research on the use of chemical substances among adolescents who had the purpose of body sculpting observed that AAS were used for 3.78% of adolescents.

Therefore, the profile of the EAA is not limited only to young adults with age ranging from 18 to 29 years, bodybuilders, male, since adolescents have also used the AAS indiscriminately. Just as there are few studies to examine specifically the use of AAS among females in our country.

MAIN MOTIVATIONS TO USE AAS.

The research data indicate that the main motivation for using AAS was Body (ARAÚJO, ANDREOLI AND SILVA 2002; SILVA AND MOREAU, 2003; FRIZON, MACEDO AND YONAMINE, 2005, SILVA et al. 2007; MAIOR et al., 2009).

However, Palma and Assisi (2005) while researching the use of AAS among physical education teachers who work in gyms found as the main reason "personal marketing". Since your body often serves as a kind of "curriculum" by which you can associate with good body shape to professional quality.

Another interesting motivation found among students and teachers of Physical Education was the physical stress at work (PALM AND ASSIS, 2005; PALMA, ABREU AND CUNHA, 2007).

Thus, it is observed that while the majority of AAS users indicate as the main motivation of using the Body; among physical education teachers were the predominant reasons that the "personal marketing" and physical stress at work.

ACQUISITION OF AAS.

Very few surveys that assess how the ex-users and users acquired the EAA. In our research we found only three studies that analyzed this data (ARAÚJO, 2003; SILVA AND MOREAU, 2003; MAIOR et al., 2009).

Silva and Moreau (2003) observed that currently, access is more frequent through the pharmacy. Since in their study 65% of users purchase the EAA EAA declare the pharmacy without a prescription.

In another study the acquisition of AAS was made in pharmacies in 46.8% of cases. However, it was not specified if there was access without a prescription (ARAÚJO, 2003). Abrill et al. (2005) reported that currently there is a huge facility in the acquisition of AAS, so that the authors cite a website where you can buy medical and AAS revenue on the Internet.

Therefore, it is clear that those responsible for the pharmacies in which they practice the sale of AAS without a prescription are acting illegally, because according to Law No. 9965 of April 27, 2000, "the dispensation or sale of medicinal products group therapy or anabolic peptides for human use are restricted to the presentation and retention, the pharmacy or drugstore, the carbon paper prescription issued by a physician or dentist duly registered in their respective professional boards".

CONCLUDING REMARKS.

According to the research data, note that there are few epidemiological studies regarding the use of AAS in Brazil, and not found any data in the Northeast. Where the incidence of AAS use ranged from 2.1% to 25.57% depending on the region analyzed.

The profile of most users of AAS were young adults with age ranging from 18 to 29 years, bodybuilders, male, however the use of such substances is increasing among adolescents, and found no data to analyze specifically the use of AAS among women in our country.

It is noteworthy that the main motivation for using AAS was esthetics, yet among physical education teachers, other reasons prevailed as the "personal marketing" and physical stress at work.

With respect to acquisition of AAS, it is noted that there are few studies that analyze how users acquire the AAS. However, the few findings show that most have access through pharmacy, and very often without prescription.

Thus, more research must be conducted on the prevalence of AAS use in males, teens, and especially among women in Brazil, identifying the profile, the motivation to use such substances and the form of access to AAS, for the misuse of AAS is becoming a public health problem.

REFERENCES

1. ABRIL, L.; BENLLOCH, F. R.; BALLESTER, F. S.; DOMÍNGUEZ, F. O.; ESCUDERO, J. U. J.; VERDEJO, P. N.; ALCINA, E. L.; CAMPOS, M. R.; ORTOS, J. Z. **Manejo de La esterilidad masculina en paciente consumidores de esteroides anabolizantes**. Archivos Españoles de Urología, v. 58, n. 3, p. 241-244, 2005.
2. ARAÚJO, J. P. **O uso de esteróides androgênicos anabolizantes entre estudantes do ensino médio no Distrito Federal**. Brasília, 2003. 83f. Dissertação (Mestrado em Educação Física) – Universidade Católica de Brasília, 2003.
3. ARAÚJO, L. R.; ANDREOLO, J.; SILVA, M. S. **Utilização de suplemento alimentar e anabolizante por praticantes de musculação nas academias de Goiânia – GO**. *Revista Brasileira de Ciência e Movimento*, v. 10, n. 3, p. 13-18, 2002.
4. BAHRKE, M. S.; YESALIS, C. E. **Abuse of anabolic steroids and related substances in sport and exercise**. Current Opinion in Pharmacology, v. 4, p. 614-620, 2004.
5. BASARIA, S.; WAHLSTROM, J. T.; DOBS, A. S. **Anabolic-androgenic steroid therapy in the treatment of chronic diseases**. The Journal of Clinical Endocrinology and Metabolism, v. 86, n. 11, p. 5108-5117, 2001.
6. CHIAPETTI, N.; SERBENA, C. A. **Uso de Álcool, Tabaco e Drogas por Estudantes da Área de Saúde de uma Universidade de Curitiba**. Psicologia: Reflexão e Crítica, v. 20, n. 2, p. 303-313, 2007.
7. COSTA, S. H. N.; CUNHA L. C.; YONAMINE, M.; PUCCI, L. L.; OLIVEIRA, F. G.; SOUZA, C. G.; MESQUITA, G. A.; VIERA, A. P.; VINHAL, L. B.; DALASTRA, J.; LELES, C. R. **Survey on the use of psychotropic drugs by twelve military police units in the municipalities of Goiânia and Aparecida de Goiânia, state of Goiás, Brazil**. Revista Brasileira de Psiquiatria, v. 32, 2010.
8. DOMINGUES, S. F.; MARINS, J. C. B. **Utilização de recursos ergogênicos e suplementos alimentares por praticantes de musculação em Belo Horizonte – MG**. Fitness & Performance Journal, v. 6, n. 4, p. 218-226, 2007.
9. ELLIOT, D. L.; CHEONG, J.; MOE, E. L.; GOLDBERG, L. **Cross-sectional study of female students reporting anabolic steroid use**. *Archives of Pediatrics Adolescent Medicine*, v. 161, p. 572-577, 2007.
10. EMMELOT-VONK, M. H.; VERHAAR, H. J. J.; POUR, H. R. N.; ALEMAN, A.; LOCK, T. M. T. W.; BOSCH, J. L. H.; GROBBEE, D. E.; SCHOUW, Y. T. **Effect of testosterone supplementation on functional mobility, cognition, and other parameters in older man**. Journal of the American Medical Association, v. 299, n. 1, p. 39-52, 2008.
11. FILHO, D. C.; FILHO, J. M. **Prevalência do uso de substâncias químicas entre adolescentes, com finalidade de modelagem corporal**. Revista Brasileira de Ciências do Esporte, v. 27, n. 1, p. 93-111, 2005.
12. FRIZON, F.; MACEDO, S. M. D.; YONAMINE, M. **Uso de esteróides andrógenos anabólicos por praticantes de atividade física das principais academias de Erechim e Passo Fundo/RS**. *Revista de Ciências Farmacêuticas Básica e Aplicada*, v. 26, n. 3, p. 227-232, 2005.
13. IRIART, J. A. B.; CHAVES, J. C.; ORLEANS, R. G. de. **Culto ao corpo e uso de anabolizantes entre praticantes de musculação**. Cadernos de Saúde Pública, v. 25, n. 4, p. 773-782, 2009.
14. LUCAS, A. C. dos S.; PARENTE, R. C. P.; PICANÇO, N. S.; CONCEIÇÃO, D. A.; COSTA, K. R. C. da; MAGALHÃES, I. R. dos S.; SIQUEIRA, J. C. A. **Uso de psicotrópicos universitários da área da saúde da Universidade Federal do Amazonas, Brasil**. Cadernos de Saúde Pública, v. 22, n. 3, p. 663-671, 2006.
15. MAIOR, A. S.; BERNASCONI, A.; SANCHES, J. F.; SIMÃO R.; MENEZES, P.; MIRANDA, H.; NASCIMENTO, J. H. M. **Uso de esteróides anabólicos em duas cidades do Rio Grande do Sul**. Revista Brasileira de Prescrição e Fisiologia do Exercício, v. 3, n. 18, p. 580-591, 2009.
16. NILSSON, S.; BAIGI, A.; MARKLUND, B.; FRIDLUND, B. **The prevalence of the use of the androgenic anabolic steroids by adolescents in a country of Sweden**. European of Public Health, v. 11, n. 2, p. 195-197, 2001.
17. PALMA, A.; ABREU, R. A.; CUNHA, C. de A. **Comportamento de risco e vulnerabilidade entre estudantes de Educação Física**. Revista Brasileira de Epidemiologia, v. 10, n. 1, p. 117-126, 2007.
18. PALMA, A.; ASSIS, M. **Uso de esteróides anabólico-androgênicos e aceleradores metabólicos entre professores de Educação Física que atuam em academias de ginástica**. Revista Brasileira de Ciências do Esporte, v. 27, n. 1, p. 75-92, 2005.
19. RACHON, D.; POKRYWKA, L.; SUCHECKA-RACHON, K. **Prevalence and risk factors of anabolic-androgenic steroids abuse among adolescents and young adults in Poland**. International Journal of Public Health, v. 51, p. 392-398,

- 2006.
20. SANTOS, A. M. **O mundo anabólico: análise do uso de esteróides anabólicos nos esportes**. 2 ed. rev. e ampl. Barueri, SP: Manole, 2007.
21. SILVA, P. R. P.; MACHADO JÚNIOR, L. C.; FIGUEIREDO, V. C.; CIOFFI, A. P.; PRESTES, M. C.; CZEPIELEWSKI, M. A. **Prevalência do uso de agentes anabólicos em praticantes de musculação de Porto Alegre**. Arquivos Brasileiros de Endocrinologia & Metabologia, v. 51, p. 104-110, 2007.
22. SILVA, L. S. M. F.; MOREAU, R. L. M. **Uso de esteróides anabólicos androgênicos por praticantes de musculação de grandes academias da cidade de São Paulo**. Revista Brasileira de Ciências Farmacêuticas, v. 39, n. 3, p. 327-333, 2003.
23. VENÂNCIO D. P.; FERREIRA, S. E.; MELLO, M. T.; VALSBERG, M. **Esteróides Anabolizantes**. In: VALSBERG, M.; MELLO, M. T. Exercícios na saúde e na doença. Barueri, SP: Manole, 2010. cap. 36, p. 417-426.

Passagem Isabel nº 390, Telégrafo,
CEP: 66113-240, Belém-Pará,
odilonsalim@hotmail.com

ANALYSIS ON SCIENTIFIC STUDIES OF THE USE OF ANABOLIC STEROIDS IN BRAZIL: A STUDY OF REVIEW.

ABSTRACT

This study aimed to analyze the scientific studies regarding the use of anabolic steroids in Brazil. The research design was a literature review using scientific articles and books, from January 1990 to September 2010 that focused on the use of anabolic androgenic steroids (AAS) in the country. The results show that there is little research on the EAA, mainly in the North and Midwest, and found no study in the Northeast. The profile of most users of AAS were young adults with age ranging from 18 to 29 years, bodybuilders, male, however the use of such substances is increasing among adolescents, and found no data to analyze specifically the use of AAS among women in our country. Since the main motivation for using AAS was to esthetics, however, among physical education teachers, other reasons prevailed as "personal marketing" and physical stress at work. With respect to the acquisition of AAS, the few findings show that most have access through pharmacy. It is concluded that more research is done on the prevalence of AAS use in males, teens, and especially among women in Brazil, identifying the profile, the motivation to use such substances and the form of access to AAS, as the misuse of AAS is becoming a public health problem.

KEYWORDS: anabolic steroids, adults, Brazil.

ANALYSE DES ÉTUDES SCIENTIFIQUES DE L'UTILISATION DE STÉROÏDES ANABOLISANTS AU BRÉSIL: UNE ÉTUDE DE L'EXAMEN RÉSUMÉ

Cette étude visait à analyser les études scientifiques concernant l'utilisation de stéroïdes anabolisants au Brésil. La conception de la recherche était une revue de la littérature au moyen d'articles et d'ouvrages scientifiques, à partir de Janvier 1990 to Septembre 2010, qui mettait l'accent sur l'utilisation des stéroïdes anabolisants androgènes (SAA) dans le pays. Les résultats montrent qu'il ya peu de recherche sur l'EAA, principalement dans le Nord et le Midwest, et n'a trouvé aucune étude dans le Nord-Est. Le profil de la plupart des utilisateurs d'AAS étaient de jeunes adultes avec l'âge allant de 18 à 29 ans, culturistes, hommes, toutefois, l'utilisation de ces substances est en augmentation chez les adolescents, et n'a trouvé aucune données à analyser spécifiquement l'utilisation de l'AAS chez les femmes dans notre pays. Depuis la principale motivation pour l'AAS a été l'aide à l'esthétique, cependant, parmi les professeurs d'éducation physique, d'autres raisons que prévalu "marketing personnel" et le stress physique au travail. En ce qui concerne l'acquisition d'AAS, le peu de résultats montrent que la plupart ont un accès par la pharmacie. Il est conclu que des recherches se fait sur la prévalence de l'usage AAS chez les hommes, les adolescents, et surtout chez les femmes au Brésil, d'identifier les profils, la motivation à utiliser ces substances et la forme de l'accès à l'AAS, comme l'utilisation abusive de l'AAS devient un problème de santé publique.

MOTS-CLÉS: les stéroïdes anabolisants, les adultes, le Brésil.

ANÁLISIS DE ESTUDIOS CIENTÍFICOS DE LA USO DE ESTEROIDES ANABÓLICOS EN BRASIL: UN ESTUDIO DE EXAMEN. RESUMEN

Este estudio tuvo como objetivo analizar los estudios científicos sobre el uso de esteroides anabólicos en el Brasil. El diseño de la investigación fue una revisión de la literatura con artículos científicos y libros, desde enero 1990 hasta septiembre de 2010, que se centró en el uso de esteroides anabólicos androgénicos (EAA) en el país. Los resultados muestran que existe poca investigación en el CEA, principalmente en el Norte y el Medio Oeste, y se encontró ningún estudio en el noreste. El perfil de la mayoría de los usuarios de AAS eran adultos jóvenes con edades comprendidas entre los 18 y 29 años, los culturistas, sexo masculino, sin embargo, el uso de dichas sustancias está aumentando entre los adolescentes, y no encontró datos para analizar específicamente el uso de AAS en las mujeres de nuestro país. Dado que la principal motivación para el uso de AAS ha sido el Consejo, sin embargo, entre los profesores de educación física, otras razones prevalecido como "marketing personal" y el estrés físico en el trabajo. Con respecto a la adquisición de AAS, los pocos hallazgos muestran que la mayoría tiene acceso a través de la farmacia. Se concluye que se realicen más investigaciones sobre la prevalencia del uso de AAS en los hombres, los adolescentes, y especialmente entre las mujeres en Brasil, identificar el perfil, la motivación para usar estas sustancias y la forma de acceso al sistema de autorización previa, como el mal uso de AAS se está convirtiendo en un problema de salud pública.

PALABRAS CLAVE: esteroides anabólicos, los adultos, Brasil.

ANÁLISE SOBRE OS ESTUDOS CIENTÍFICOS DO USO DE ESTERÓIDES ANABOLIZANTES NO BRASIL: UM ESTUDO DE REVISÃO. RESUMO

Este estudo teve como objetivo analisar os estudos científicos referentes ao uso de esteróides anabolizantes no Brasil. A pesquisa foi do tipo revisão bibliográfica, utilizando artigos científicos e livros, do período de janeiro de 1990 a setembro de 2010, que abordassem sobre o uso de esteróides anabólicos androgênicos (EAA) no país. Os resultados demonstram que existem poucas pesquisas sobre os EAA, principalmente nas Regiões Norte e Centro Oeste, sendo que não foi encontrado nenhum estudo na Região Nordeste. O perfil da maioria dos usuários de EAA foram adultos jovens com a idade variando de 18 a

29 anos, praticantes de musculação, do sexo masculino, entretanto o uso de tais substâncias tem aumentado entre os adolescentes, assim como não foi encontrado nenhum dado que analisasse o uso de EAA especificamente entre mulheres em nosso país. Já a principal motivação para o uso de EAA foi à estética corporal, contudo, entre os professores de Educação Física, outros motivos predominaram como “marketing pessoal” e desgaste físico no trabalho. Com relação à forma de aquisição dos EAA, os poucos dados encontrados demonstram que a maioria tem acesso por meio da farmácia. Conclui-se que mais pesquisas sejam realizadas sobre a prevalência do uso EAA em homens, adolescentes, e principalmente entre mulheres no Brasil, identificando o perfil, a motivação para uso de tais substâncias e a forma de acesso aos EAA, pois o uso indevido dos EAA está se tornando um problema de saúde pública.

PALAVRAS-CHAVES: esteróides anabolizantes, adultos, Brasil.