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ORIGINAL ARTICLE

The use of anabolic hormones by Kuwaiti males

L'utilisation d'hormones anabolisantes par des sportifs Koweïtiens

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KEYWORDS

Anabolic;
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Summary

Objective. – The objective of this study is to estimate the prevalence of anabolic hormones (AH) usage in Kuwaiti males, to examine characteristics of AH users, and to explore the association between AH use and the self-reported side effects.

Material and methods. – A cross-sectional survey was conducted among 150 Kuwaiti males visiting gyms in Kuwait city, Kuwait. Information on demographics and use of anabolic hormone was included in a self-administered questionnaire.

Results. – A response rate of 94% was achieved. The prevalence of anabolic hormones in Kuwait was 22.7% (95% CI, 20.4–36.3), and it was higher among those in the 30–39 years 35.1%. Its prevalence was also significantly higher among males who received basic education 28.6% ($P=0.003$). The most common types of anabolic hormones used among Kuwaiti males are growth hormone (79.4%), testosterone (52.9%) and Deca-Durabolin (47.1%). Around 14.7% of the participants who used anabolic hormones reported depression, 35.3% reported aggressive behavior and 41.2% reported sexual problems.

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MOTS CLÉS

Anabolisants ;
Hormones ;
Koweït

Résumé

Objectif. – L'objectif de cette étude est d'estimer la prévalence de l'utilisation d'hormones anabolisantes (AH) chez des hommes koweïtiens fréquentant des salles de sport, d'examiner les caractéristiques des utilisateurs de AH, et d'explorer l'association entre l'utilisation d'AH et les effets secondaires auto déclarés.

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Matériel et méthodes. – Une enquête transversale a été menée auprès de 150 hommes koweïtiens visitant des salles de remise en forme de Koweït-City, au Koweït. L'enquête a été réalisée au moyen d'un questionnaire auto-administré, afin d'évaluer la prévalence d'usage, ainsi que les caractéristiques de la population utilisant une/des hormone anabolisante.

Résultats. – Un taux de réponse de 94 % a été atteint. La prédominance d'usage d'hormones anabolisantes était de 22,7 % (95 % CI, 20,4–36,3). Les sujets les plus âgés (de 30–39 ans) présentant une prévalence d'usage plus importante, en moyenne de 35,1 %. La prévalence a aussi été beaucoup plus élevée parmi les hommes qui avaient bénéficié d'un enseignement de base 28,6 %, par rapport aux sujets les plus instruits ($p = 0,003$). Les hormones anabolisantes les plus couramment utilisées sont l'hormone de croissance (79,4 %), la testostérone (52,9 %), le Deca-Durabolin (47,1 %). Environ 14,7 % des participants qui ont utilisé des hormones anabolisantes se sont plaints de signes de dépression, 35,3 % ont rapporté un comportement agressif et 41,2 % ont rapporté des troubles sexuels.

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1. Introduction

Drugs are used, in sports, in order to enhance performance, increase workloads during training, and improve muscle growth. Drug taking has been responsible for the death of some recreational users [1]. Side effects and real concerns about long-term health consequences exist because of the nature, dosage and the method of administration of the products used by some users [1]. Concerns are raised by sports authorities and the public about the effect of such practices on the well-being of sports. Concerns are also raised about the increasing rate of the anabolic hormones usage among teenage boys primarily, and, to a lesser extent, teenage girls aiming a certain body image [2].

Serious side effects including the increase of aggressiveness, euphoria, diminished fatigue, increased libido, and mood swings have been noted among of anabolic hormones users [3]. Side effects also include high blood pressure, liver tumors and cancers, fluid retention, and jaundice [1]. Severe acne, kidney tumors and tremors are can also be side effects [4]. For men, the use of anabolic hormones can also result in testicles shrinking, breasts development and prostate cancers, baldness, reduced sperm count, and infertility [1–4].

Hall and Hall (2005), in their review, claimed that, with over one million individuals abusing such drugs, anabolic hormones abuse has become a major problem in the United States [5]. A study conducted in the South Wales area came to the conclusion that (70%) of gym users use of anabolic hormones [6]. Studies concerning the commonness of anabolic hormones usage among adolescents reported lifetime prevalence ranging from 1% to 5%.

The use of anabolic hormones among gym users in the Middle East is consistently increasing. In Jordan, recent studies revealed that around 26% of bodybuilders used anabolic hormones [7], wherein the United Arab Emirates, users were estimated by 22% [8], and in Iran, the users among bodybuilding youth trainees were about 13% [9].

The lack of information about nature and the extent to which the anabolic hormones and other banned substances

have limited any attempt to deal with problems related to drug use in sports. The existing data has been usually drawn from the United States when in Kuwait, very little reliable information regarding the use of drugs for the purpose of developing a certain body shape or enhance athletic performance.

Literature review resulted in some information regarding the use of drugs in sports in Kuwait, yet the estimation of the commonness of the use of anabolic hormones among Kuwaiti youth was not reliable. Obtaining reliable information is essential in order to be able to develop appropriate encounters to the problem whether educational or other initiatives. The survey aimed to estimate the prevalence of anabolic hormones (AH) usage in Kuwaiti males, to examine characteristics of AH users, and to explore the association between AH use and the self-reported side effects.

2. Methods

2.1. Study design

An observational cross-sectional survey was conducted in Kuwait city, Kuwait. Kuwait is sub-divided into 6 governorates. Using the statistical formula for cross-sectional study design, the sample size was estimated to be 150 participants. The calculation was based on 95% confidence interval (CI), error below 5%, and a non-response rate of 50%. From previous studies [12,13], an estimated standard deviation of the prevalence of anabolic hormones use was 25%. The research team randomly selected one gym from each governorate. In each selected gym, the study participants were identified using systematic random sampling.

2.2. Data collection

Data was collected by using a self-administered questionnaire (Appendix 1). The questionnaire was designed after consulting previous studies conducted in the same field [2,12]. The final version of the questionnaire involved

Table 1 Background characteristics of the participants ($n = 150$).

Characteristics	<i>n</i>	%
<i>Level of education</i>		
Basic education	42	28.0
Higher education	108	72.0
<i>Age group (years)</i>		
18–29	121	80.7
30–39	20	13.3
40>	9	6.0
<i>Monthly income (KD)</i>		
1000<	45	30.0
1000–2000	81	54.0
2000>	24	16.0
<i>Geographic</i>		
Urban area	85	56.7
Rural area	65	43.3

approximately 10 multiple-choice questions. The questions were subcategorized to some sections concerning with background characteristics of participants, types of anabolic hormones used, noted side effects, and questions concerning knowledge and attitude in relation to anabolic hormones usage.

To minimize unreported use, participants were guaranteed full confidentiality when completing the questionnaire.

A total of 150 questionnaires were included in the final analysis with a response rate of 94%.

2.3. Statistical analysis

The statistical analysis was performed using SPSS ver. 24.0 (SPSS Inc. Chicago, IL, USA) software. The prevalence of anabolic hormones use among participants was calculated using 95% confidence intervals (CI). The Chi-square test was used to evaluate the prevalence of use among the different subgroups. Statistical significance was indicated *P*-value less than 0.05.

3. Results

A total of 160 questionnaires were distributed among male athletes visiting gyms. A total of 150 questionnaires were included in the final analysis with a response rate of 94%, and the rest of the questionnaires (10%) were excluded from the study as a result of non-response. **Table 1** shows the demographic characteristics of the study population. According to the table, more than 70% of the study participants received higher education. The majority of the participants were between 18–29 years, which represented approximately 80% of the total. Fifty four percent of the participants have a monthly income between 1000 and 2000 Kuwaiti Dinar (KD), and 30% drew income less than 1000 KD. Fifty seven percent of the participants live in urban areas and the rest live in rural areas.

Table 2 shows that there is a significant difference ($P = 0.003$) between the two level of education in terms of anabolic hormones use. There are also significant

Table 2 Prevalence of anabolic hormone use according to selected characteristic ($n = 150$).

Characteristics	Users/total	Prevalence	<i>P</i> -value
<i>Level of education</i>			
Basic education	12/42	28.6	0.003
Higher education	25/108	23.1	
<i>Age group (years)</i>			
18–29	34/121	28.1	0.01
30–39	7/20	35.1	
40>	2/9	22.2	
<i>Monthly income (KD)</i>			
1000<	15/45	33.3	0.001
1000–2000	17/81	20.1	
2000>	2/24	8.3	
<i>Geographic</i>			
Urban area	28/85	32.9	0.001
Rural area	8/65	12.3	

Table 3 Pattern of AH use among male athletes visiting gyms and reported side effects.

Characteristics	<i>n</i>	% ^a
<i>Type</i>		
Testosterone	18	52.9
Winstrol	6	17.6
Deca-Durabolin	16	47.1
Primobolan	7	20.6
Growth hormone	27	79.4
<i>Cost (KD)</i>		
100<	12	35.3
100–300	14	41.2
300>	8	23.5
<i>Route of administration</i>		
Injections	20	58.8
Oral	7	20.6
Both	7	36.8
<i>Source</i>		
Internet	9	26.5
Pharmacy	22	64.7
Trainers	19	55.9
<i>Side effects</i>		
Depression	5	14.7
Aggression	12	35.3
Sexual problems	14	41.2
Others	9	26.5

^a Percentage totals more than 100% due to use of multiple anabolic hormones by gym-athletes.

differences among age, monthly income and geographic subgroups in terms of anabolic hormones use.

Table 3 shows that the most common types of anabolic hormones used among Kuwaiti males are growth hormone (79.4%), testosterone (52.9%) and Deca-Durabolin (47.1%). Most participants (41.2%) spend between 100 to 300 KD on anabolic hormones monthly. The same table illustrates the route of administration of anabolic hormones. Approximately, 59% of the users use needle or injections, 20.6% use oral hormones while 37% use both needles and oral

hormones. The most two sources used by participants to obtain anabolic hormones are pharmacy and trainers with percentages of 64.7% and 55.9%, respectively. Around 14.7% of the participants who used of anabolic hormones reported depression, 35.3% reported aggressive behavior and 41.2% reported sexual problems.

4. Discussion

This study shows the prevalence of anabolic hormones use among males visiting gyms in Kuwait city, Kuwait. The prevalence of AH users in Kuwait was as high as 22.7%. While the athletes were instructed to complete the survey anonymously, it is likely that a significant underreporting of the use of AH and other substances took place. This is due to the social and legal constraints related to anabolic hormones and other performance enhancing. The self-reported questionnaire to measure AH use has been validated in previous studies [6,9,10]. Furthermore, the tendency for underreporting has also been noticed [6,9,10], Al-Falasi et al. [8] survey on knowledge, attitude and practice of anabolic-steroids use among gym users in Al-Ain district, United Arab Emirates showed the same prevalence rate (22%) as observed in the present study. In spite of the probable underreporting of use, some disturbing insights emerge from the results of our survey. The abuse of AH in Kuwait was almost double the prevalence of AH use among Iranian athletes (13%) [9]. A possible explanation of the fact that around 22.7% of Kuwaiti males have used anabolic hormones is the high competition among gym users to build muscles faster and to develop a certain body shape. Also, the lack of awareness could be another reason.

The results of the present study in Table 2 indicate that the majority of AH users have basic education (28.6%). This result is different from what was reported in Jazan, Saudi Arabia study [11]. The highest prevalence (35.1%) of AH usage was among the 30–39 age who earns less than 1000 KD per month. This tendency was similar to findings of Bahri et al. study [11]. The prevalence of anabolic hormones use in urban area is 32.9% compared to 12.3% on rural area. This was possibly due to availability of various anabolic hormones in urban areas compared to rural areas.

The most common types of AH used among Kuwaiti male athletes are growth hormone (79.4%), testosterone (52.9%) and Deca-Durabolin (47.1%). Both oral and injectable anabolic hormones are used. Most participants admitted that they used more than one type of anabolic hormones. Several studies reported multiple AH usage by recreational sportsmen specially bodybuilders [5].

Where AH are purchased discloses a very dangerous situation. Drugstores, while known to be healthy stores, frequently sell drugs without prescription to people, as mentioned by 64.7% of study participants. This indicates how some drugstore care for profit more than public health. Furthermore, 55.9% of the participants purchased AH from fitness center instructors. Only 26.5% of the AH was

purchased through the Internet. This is probably because imported drugs are very challenging to purchase in Kuwait. Whitehead and Chillag (1992) have found similar results with the purchase of AH [12].

Several studies reinforced the sexual effects of AH usage [1–4]. Around 41.2% of AH users reported impotence and a loss of sexual interest. Other studies report that AH are associated with deleterious physical and psychological outcomes [13,14].

While designing any interventions that aim to reduce the use of AH, it should be put in mind that taking such drugs achieves the exact results the participant intends such as weight gain and the alteration in body dimensions. Also, performance enhancement will happen if an appropriate training program was combined with AH. Because the desired results from these drugs are evident to the user, it is difficult to modify such behavior. Also, programs that dramatically describe the health consequences of AH use are usually ignored by youth just like and other scare tactics.

Educational programs with the purpose of reducing the use of AH must use different approaches while addressing potential health consequences. Many AH users believed that using drugs in an attempt to improve sports performance is not cheating, so it is important to address the proper sports values from an early age. It will be more effective to use a comprehensive approach instead of just describing the health consequences of such behavior.

4.1. Limitations of the study

The study had a couple of limitations. First, the research questionnaire did not ask about the content and dose of AH among the participants. Second, the study used a self-administered questionnaire with no other method to confirm and document data on AH and their side effects.

5. Conclusions

The prevalence of anabolic hormones use is high among males in Kuwait. The most common types of AH used are growth hormone, testosterone and Deca-Durabolin. It is highly recommended that Kuwait ministry of Health uses appropriate educational initiatives to address AH use among youths.

Disclosure of interest

The authors declare that they have no competing interest.

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Appendix 1. The self-administered questionnaire

1. What is your level of education?

- Basic education
- Higher education

2. How old are you?

- 18–29
- 30–39
- 40>

3. How much is your monthly income in Kuwaiti Dinar?

- Less than 1000
- 1000–2000
- More than 2000

4. Where do you live?

- Kuwait city
- Outside Kuwait city

5. Have you ever heard the term Anabolic Steroid before?

- Yes
- No

6. If yes, what type of Anabolic Steroids have you used before?

7. How much do you spend monthly on steroids (KD)?

- Less than 100 KD
- 100–300 KD
- More than 300 KD

8. How do you take the steroids?

- Injections
- Oral
- Both injections and oral

9. What is your source to buy steroids?

- Internet
- Pharmacy
- Trainers
- Others

10. Have you experienced any of the following side effects during or after taking the steroids?

- Depression
- Aggression
- Sexual problems
- Others

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