

Comparison of Behavioral Activation-Inhibition Systems and Sense of Coherence in Bodybuilders with and Without Use of Anabolic-Androgenic Steroids

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Abstract

Introduction: Anabolic-androgenic steroids are one of the powerful drugs that cause long-term hormonal and psychological changes that can have a wide range of side effects for the athletes.

Objective: The purpose of this study was to compare the Behavioral Activation-Inhibition Systems and Sense of Coherence in Bodybuilders with and without Use Anabolic-Androgenic Steroids.

Materials and Methods: The method of this research is descriptive - comparative. The statistical population consisted of all bodybuilders with and without taking anabolic-androgenic steroids in Rasht in 2019, of which 140 individuals (70 natural bodybuilders and 70 steroids bodybuilders) were selected purposefully and included questionnaires of Carver & White (1994) behavioral activation-inhibition systems and sense of coherence Antonovsky (1993) responded by the participants. Data were analyzed using multivariate analysis of variance by SPSS 24.

Results: The findings of the present study showed that there was a significant difference between the two groups in the activation/inhibition system and the sense of coherence ($P < 0.01$). Compared with natural bodybuilders, steroid bodybuilders had less behavioral inhibition (15.95) and sense of coherence (18.87) and more behavioral activation systems (37.77).

Conclusion: According to the results, we suggest that bodybuilders who have used steroids derivatives have many irreversible problems in their cognitive and physical functions. Therefore, coaches need to pay more attention to the psychological problems of the athletes and examine them before competitions.

Conflict of interest: non declared

Key words: Anabolic Steroids \ Anabolic Steroids- Adverse Effective \ Attitude \ knowledge \ Sports

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Extended Abstract

Introduction: Bodybuilding is a sport where individuals compete with others by increasing and strengthening their muscle mass (1). Over the past decade, the use of various supplements for bodybuilding, particularly among professional athletes, has increased the prevalence of steroids among athletes by 12 to 77 percent, these statistics are increasing day by day (2). Few studies have examined the structural changes in the brains of steroid athletes, but are of great importance because of the effects of steroidal substances on the central nervous system. The main activity of testosterone in the brain occurs through binding to androgen receptors (3). On the other hand, a sense of coherence protects one from stressful situations and also increases one's ability to cope with stressful situations. The main task of the organism is to deal with stresses caused by environmental conditions (4).

Objective: Considering the limited studies and the lack of investigation of behavioral activation / inhibition systems and the sense of coherence in steroid bodybuilders and the psychological effects that these drugs have on individuals, this study is of great importance. The purpose of this study was to compare behavioral activation / inhibition systems and the sense of coherence in bodybuilders with and without use of steroids.

Materials and Methods: The present study is a descriptive-comparative study.

The statistical population of this study was all male athletes referred to gym clubs in Rasht in 2019. G*Power version 3,1,9,2 software was used to calculate the sample size (5). The sample size was 60 persons in each group, with a decrease of 10% in each group to 70 persons. Personal satisfaction, being male, age range 18 to 35 years, and having used steroid derivatives for at least the past 2 years, were considered as inclusion criteria. Exclusion criteria included lack of 5 years of experience in bodybuilding, observable physical and mental disorders, half-functioning of questionnaires. Also, the ethical considerations

(IR.GUMS.REC.1398.121) of this study were fully respected, so that participants were assured of confidentiality and purely research use of information, and they were fully satisfied with the Questionnaires completed in a quiet environment without stress. The following tools were used to collect the data:

The Carver & White (1994) Scale for Behavioral Activation / Inhibition Systems is a self-report scale (6). The BIS subscale in this questionnaire includes

seven items that measure the sensitivity of the behavioral inhibition system in response to threat symptoms. On the other hand, the BAS subscale also contains four items that assess the sensitivity of the behavioral activation system. In the present study, Cronbach's alpha coefficient was obtained for the whole scale (0.89) and BIS (0.82) and BAS subscales (0.79).

Sense of coherence scale:

The scale has 16 items that measure the components of meaningfulness, comprehensibility, and controllability. Each subject responds to this scale infrequently, sometimes and often. The minimum and maximum scores of this scale are 16 and 40, respectively. In the present study, Cronbach's alpha coefficient of questionnaire ($\alpha=0.86$) was obtained.

Results: Multivariate analysis of variance was used to compare the behavioral activation / inhibition system and the sense of coherence in bodybuilders with and without the use of anabolic-androgenic steroids. Before presenting the results of this test, its assumptions were tested. The results showed that the assumptions of homogeneity of variance ($P<0.05$), covariance homogeneity ($P>0.05$), covariance homogeneity ($F=1.34$, $P>0.235$) and comfortable correlation ($\chi^2=29.54$, $P<0.01$) are established. According to the results, the statistics of variance analysis of multivariate variance analysis in the behavioral activation/ inhibition system and the sense of coherence in bodybuilders with and without the use of anabolic-androgenic steroids were meaningful at the 0.01 level (Wilks Lambda=.63, $F=25.25$, $P<0.001$). One-way analysis of variance was used to determine which groups were different from each other. The results showed that there was a significant difference between behavioral inhibition system (61.85), behavioral activation system (7.15) and sense of coherence (18.82) ($P<0.01$). In other words, the bodybuilder group had a less behavioral activation system as well as a greater inhibition and sense of cohesion than the steroid group. In sum, the findings of the study indicate the difference between steroidal and natural bodybuilders in the behavioral activation / inhibition system and sensitivity. Based on these findings, it can be concluded that the use of steroid drugs has irreparable psychological and physical consequences for athletes. To this end, it is necessary to provide the necessary arrangements to manage the use of these drugs and reduce their potential harm to bodybuilders.

Table 1: Descriptive statistics of demographic variables of steroid and natural bodybuilders

	Steroid Bodybuilders		Natural Bodybuilders	
	Frequency	Percentage	Frequency	Percentage
Sleep quality				
Excellent	7	10.0	21	30.0
Good	15	21.4	34	48.6
Medium	29	41.4	13	18.6
Poor	19	27.1	2	2.9
Marital status				
Single	47	67.1	44	62.8
Married	23	32.9	26	37.2
Age (year)				
18-23	20	28.5	23	37.1
24-29	34	48.6	32	42.9
30-35	16	22.9	15	20.0
Education				
Diploma	12	17.1	14	20.1
Associate Degree	16	22.8	15	21.4
Bachelor	28	40.0	29	41.4
Master Degree	14	20.1	12	17.1

Conclusion: The findings showed that steroid bodybuilders had less behavioral inhibition system, implying that athletes who take steroid medications show less inhibition in their behaviors and often go on to risky and harmful behaviors. Also, there was a significant difference in behavioral activation system between the two groups. Steroid bodybuilders had a more active behavioral activation system than normal athletes. In fact, it can be said that bodybuilders who use steroids are more likely to seek reinforcement and

rewards, which are somehow satisfied by the volume of their muscular appearance. Also, regarding the sense of coherence, the results of the present study showed that steroid bodybuilders had significantly less sense of coherence, compared to normal bodybuilders. As the use of anabolic-androgenic steroids causes many emotional changes in athletes, it is also expected to significantly affect one's sense of coherence.

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