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PREVALENCE OF INJURIES AND MUSCULOSKELETAL SYMPTOMS IN AMATEURS ATHLETES OF BODYBUILDING AFFILIATED TO IFFB/BA

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ABSTRACT

In the 20's and 30's, the weightlifters decided to migrate to bodybuilding aiming more recognition of the society through a body with developed and symmetric muscular mass. Even as others sports, bodybuilding is susceptible to injuries during the training process and this can cause financial prejudices, laborlicense and treatment costs impacting in the athlete health and quality of life. The aim of the present study was to identify the prevalence of injuries and musculoskeletal symptoms in amateurs athletes of bodybuilding. The data collect was realized with two questionnaires, one elaborate by the own authors and the second was the Corllet diagram. The sample was composed by 88 athletes with age range of 18 to 38 years. The data were tabbed and treated in Excel 2017. The results showed that 87,5% of the sample did not referred injuries and 26,14% accused pain or discomfort. The findings shows a low rate of injuries in this sports but due to the deleterious effect of them, preventive strategies should be adopted to avoid this event.

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INTRODUCTION

Through drawings in the caves, Greek statues, paintings and dumbbells descriptions in the ancient times, it was discovered that since 6th century, the external resistance had been used as a tool to strength increase and body improve (Neves, 2012). In the 20s and 30s, the bodybuilding appears as sport that aiming the improve of body composition being used by weightlifters to call attention of the population showing how beautiful the muscle body can be (Lavalle, 2011 Data of Health Ministry, between the years of 2012 and 2013, resistance training had an increase of 50% in the number of practitioners and was the second modality between the physical activities most practiced in all world (Ministério da Saúde, 2019; CoraucciNeto, 2018). According to the International Federation of Bodybuilding and Fitness, there are several categories and the Brazilian IFBB consider nine. In the male category, there is: senior and more eight divided by weight; master I, II, III (from men of 40 to over 60). In the classical bodybuilding, the variation is by height. Men's Physique is a category which is more import stage presence, good body posture and smile. This category varies from height and age. The Fitness Choreography, body fitness, bikini fitness, women physique and wellness physique are female categories and varies according to height.

The bodybuilding is becoming popular in world and the number of athletes is increasing in Brazil. This sport require that the athlete adopted intense training strategies in the championship phase and if it is done without supervision of a Physical Education, physiotherapist, nutritionist or doctor, can lead the body to overtraining occurring the musculoskeletal injuries and, consequently, the abandonment of the train, competition and sport. (Santonja, 2017). To become professional or even amateur, it is needed aextremelycareful and intense preparation, the athletes are submitted to very restrictive alimentation besides training strategies with high levels of stress to the body (Santonja, 2017). This can lead to injuries or musculoskeletal symptoms, mainly if the athlete does not have the attendance of professionals during the preparation for the competitions (Amadio; Serrão, 2011; CoraucciNeto, 2018). Injuries are defined as any complaint of pain during a determined situation that can lead to the training removal of the athlete and, consequently from futures competitions. These injuries can be classified in light, moderate and severe depending from the time of training drift (Dos Santos *et al*, 2017). The elaboration of strategies that aim to prevent injuries during all process and preparation is important once when the injury occurs, it can cause financial prejudice from laboral activity license, train remoteness and

influence in the health and quality of life of the subject. So, once the most bodybuilders are amateur and not payed by the sports, it is necessary to prevent this occurrence and your repercussion in their lives (CorauciniNeto, 2018). Thus, the objective of this study is to identify the prevalence of injuries and musculoskeletal symptoms in amateur athletes of bodybuilding affiliated to International Federation of Bodybuilding and Fitness (IFFB) from Bahia, Brazil.

MATERIAL AND METHODS

Type and place of study: It is a quantitative transversal study that was realized in the Amateur Bodybuilding Championship in Salvador, Bahia, Brazil.

Subjects: The population was amateurs athletes of bodybuilding from both sex that was regularly registered in IFBB. It was requested the number of athletes to the federation and made an sample calculation resulting in 197 athletes. It was included athletes from both sex, with all age range, that was registered in the championship.

Materials: It was used two questionnaires. One elaborated by own authors including anthropometrics variables, train characteristics, presence of musculoskeletal disorders, existence of actual musculoskeletal injury or symptom. The second was Corlett and Manecia (1980) that identify through a 0-10 scale symptoms as pain and discomfort.

Statistical analysis: The data was tabulated and processed in Excel 2017 to obtaining the frequencies, means and standard deviation. All the participants signed the informed consent form authorizing the data use.

RESULTS

From the 197 selected, 109 (55,4%) refused to answer the questionnaire. They referred no have conditions to talk due to the stress or food restriction or the irritability. Some said yes but went home without answering. Only 88 (44,6%) answered. From these, 67 (76,14%) were male and 21 (23,86%) female, the age range vary from 18 to 56 years with mean of 29,69 ($\pm 7,35$). The mean weight was 74,49kg ($\pm 11,87$) and mean height of 1,71m ($\pm 0,07$), the mean body mass index (BMI) was 25,31 ($\pm 2,49$).

Table 1. Categories

Musculoskeletal disorder	N	%
Discal herniation	2	18,18%
Arthrosis	1	9,09%
Femur pain	1	9,09%
Chondrophaty patellar	1	9,09%
Ligament strain	1	9,09%
Tendonitis	1	9,09%
Fracture	1	9,09%
bursitis	1	9,09%
Arthritis	1	9,09%

The athletes trained a mean of 1 hour and 50 minutes of resistance and aerobic exercise and 25% referred to practice another sports in different schedules of the specific train. About professional supervision, 85,23% answered yes, from these, 84% was advised by a physical education professional, 65,33% by a nutritionist, 26,67% by physiotherapist and 9,33% by others.

When asked if they had trainers, it was observed that the majority trained accompanied by a formed physical education professional (71,43%), 6,49% by coaches, 5,19% by people without formation and 2,60% by others athletes. About steroids use, 62,50% answered yes and 37,50% referred never used drugs. With regard to injuries, 12,50% affirmed had been affected.

Table 2. Musculoskeletal disorders

Categories	Gender	N
Bikini fitness	Female	2
Body shape	Female	3
Wellness	Female	17
Classic Bodybuilding	Male	17
Bodybuilding	Male	20
Men's physique	Male	27

About presence of pain or discomfort in resistance training practice, 26,14% answered yes, from these, 18,18% accused the symptom during strength training. With regard the injury moment, 10,23% was during the training and 17% said not be completely rehabilitated from the injury. Because of injury, 3,41% was removed from training and 77,7% referred persistence of pain.

Table 3. Anatomic areas of injuries

Body Area	N	%
Cervical	1	0,88%
Shoulder	8	7,04%
Wrist	1	0,88%
Low back	5	4,4%
Hip	2	1,76%
Knee	8	7,04%

About the presence of pain or discomfort without injury, 20,73% answered yes. The anatomic area of pain without association with injury can better seen in the table 4. From these, 3,41% accused numbness in the area and 9,09% said that feel pain when realize others activities of daily living.

Table 4. Anatomic area with pain and no association with injury

Anatomic area	%
Cervical	5%
Shoulder	35%
Wrist	5%
Low back	35%
Dorsal	10%
Hip	5%
Knee	20%
Ankle	5%

Only 20,45% searched by professional assistance, the most wanted professional was physiotherapist (61,11%), followed by doctor (11,11%) and physical education professional (5,56%). About injury prevention, 70,45% adopted strategy during the train and preparation.

Table 5. Anatomic area with pain according to Corlett diagram

Anatomic Area	N	%
Knees	8	3,76%
Low back	7	3,29%
Shoulders	18	8,46%
Leg	10	4,07%
Wrist	3	1,41%
Dorsal	7	3,29%

DISCUSSION

The bodybuilding involves train strategies with high intensity and volume for long time periods and this causes a excessive stress in the body. What makes necessary the respect of body limits, as well the work load, volume and exercise realization during the train associated to a correct technique (Fleck; Kraemer, 2017). Not considered this summed with a wrong movement and exercise execution are the most causes of sports injuries (Amadio; Serrão, 2011). In a study of Siewe et al (2014) that aimed to investigate the injuries rate, pain and overuse syndrome in 71 bodybuilders. This study presented a higher injury rate (45,1%) compared to this one, with a index of 0,12 injury for bodybuilder for year with 0,24 for 1000 hours of resistance training, a value inferior to found in others sports as weightlift (1,2 injury/year and 1-5,5/1.000 hours) and contact sports as handball and soccer (13,5-83/1.000 hours). One factor associated with injury in bodybuilding is the excessive androgenic steroids use (Kenner; Sethi, 2015; Gentil, 2017). Coraucci Neto (2018) in a study with 510 subjects found that 27,06% referring already used 2 or more types of pharmacological substance. Value inferior to the observed in this study (62,5%). Compared to observed in other sports and literature, this study found a low rate of injuries what can be explained by the adoption of prevent strategies associated by the presence of professional supervision. The anatomic area most affected are shoulders, knee and low back corroborating with the found by Keogh (2017) that observed athletes of weightlifting, powerlifting, bodybuilding, strongman, Highland Games, e CrossFit and discovered the shoulder, low back, knee and elbow as the anatomic region more injured by the practitioners. The study presented limitations. One is the auto-referred questionnaire that permit information vies. Second, the low sample subjects due the high number of refuses by the athletes. Even so, studies in the amateur sports should be encouraged because of the repercussion of this injury in the individual life as financial prejudice and commitment in health and quality of life.

Final Considerations

This study showed a low rate of injuries in bodybuilding what can be justified for the adoption of prevent strategy and professional supervision. Although, it is important the realization of more studies about amateur sports injuries once the deleterious repercussion of this commitment in the individual health and quality of life.

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