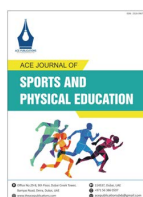




Research Article



## Causes of Sports Injuries Among Bodybuilders During the Preparation Stages for the Tournament

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### KEY WORDS:

Rehabilitating injured people  
Rehabilitative exercises  
Athlete's body

**Abstract:** Rehabilitation exercises in general and in the sports field in particular, are one of the most effective means of rehabilitating injured people, as there are indications that these rehabilitative exercises lead to many effects in the athlete's body, including speeding up the drainage of blood collections and preventing internal bleeding in the joint, in addition to. Accelerating the recovery of muscles and joints to their functional potential and returning them to working well.

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### INTRODUCTION

The sport of bodybuilding is one of the beloved sports, especially in recent years and for various groups, adults, youth and young people, (10:9) and therefore it attracts many buds to practice at an advanced age in the hope of achieving an advanced level in the future<sup>[1]</sup>.

Herata believes that avoiding sports injuries should be one of the main goals of workers in the field of sports, in addition to maintaining the physical and psychological condition of the individual athlete at the highest levels<sup>[2]</sup>.

And that sports injuries represent the main obstacle to sports development, as they confuse the process of progressive development of sports training and therefore impossible to achieve the sports goals targeted to be achieved, which requires care to study them, especially because of the link to our career and sports life<sup>[3]</sup>.

When studying sports injuries in the sports field, it is necessary to practice activities, whether (players, coaches, administrators or workers in the field of rehabilitation) to know all that is new in the sports field and to identify the nature of these sports injuries and their link to various sports activities and how to rescue them after studying the mechanism of their occurrence and then dealing with these injuries in the field of completing therapeutic procedures and comprehensive rehabilitation, especially physical rehabilitation of movement and sports, cooperating with specialists from doctors.

Therefore, the sports educator is familiar with all the aspects surrounding the injury, whether in terms of the causes of its occurrence or the most periods in which the players are exposed to injury, as well as the most

exposed places to injury and finally how to prevent it has a great impact in working to reduce the occurrence and recurrence of these injuries and thus ensure the safety of the player and the continuation of the training process in achieving its goals to reach the player to the highest possible sports level.

From this point of view and as a result of the increase in bodybuilding practitioners and training without well-studied scientific foundations about injuries resulting from increased loads and increasing training doses and various educational requirements that take place during the stages of numbers extended throughout the year and through the observation of the researcher frequent injuries to bodybuilders and for different ages saw the need to do this study to find out the main causes that lead to the occurrence of these injuries as well as know more Training periods, which the players are exposed to injury in order to give the full picture in front of those in charge of the training process in order to lead all of this in the end to reduce and prevent these injuries to ensure the continuation of the training process throughout the training year without prejudice to training duties.

### Research Objectives

#### This Research Aims to Limit and Identify Injuries:

- The most affected areas.
- The most frequent types of injuries.
- The reasons that lead to injuries.

#### Research Questions:

- What are the most affected areas?
- What are the most common types of injuries?
- What are the reasons that lead to the occurrence of these injuries?

### Search Procedures

**First: The Approach Used:** To achieve the objectives of the research and verify its questions, the researcher used the descriptive approach (survey studies) and the researcher used it in two ways

**Theoretical Reference Survey:** Which the researcher surveyed references and studies on sports injuries to determine the questionnaire forms for the study and its axes and questions for each axis.

**Field Survey:** Which the researcher did in collecting data for the study by special forms (player - coach).

### Second: Research Sample

**First: Players:** The research sample included injured bodybuilding players who were exposed to previous injuries and from various categories in Babil province.

**Second: Trainers:** The research sample included bodybuilding coaches in Babylon province.

### Third: Data Collection Tools:

- Scientific references, studies and research previously conducted in the field of injuries in order to develop the main and sub-axes of the questionnaire forms.
- The researcher designed questionnaire forms for each of (players-coaches) and the following table shows the number of axes of the forms.
- Personal interviews carried out by the researcher to obtain data on injuries and these interviews were conducted in the following manner:
- With coaches from different clubs, whether inside or outside the club.

### Fourth: Calculating the Scientific Coefficients of Data Collection Tools in the Following Method

**Honesty:** The researcher used the sincerity of the arbitrators, where nine experts in the field of injuries and the field of bodybuilding game were used from the coaches, so that the number of years of any of them is not less than twenty years in the field of study.

The researcher presented the questionnaires in their initial form to the experts and in the light of their observations some adjustments were made to the axes of the questionnaires as well as the questions for each axis and then the questionnaires were presented in their final form again to the experts to calculate the coefficient of honesty and the results indicated that the axes of the questionnaires have achieved credibility coefficients of more than 75%.

**Constancy:** The researcher used the re-test method to extract the stability coefficients of the three forms and a random sample was drawn from the research population and the researcher

- On the same sample and under the same conditions, all three axes of the questionnaires obtained stability coefficients exceeding 80%.

### Sixth: Statistical Treatment Plan

#### The Researcher Used the Following Statistical Treatments:

- Duplicates.
- Percentages.
- Arithmetic average.
- Standard deviation.
- Katest 2.
- Test the difference between two ratios.
- Pearson's correlation coefficient.

### Presentation and Discussion of Results

**First: Presentation of Results:** It is clear from (Table 3) that the most exposed areas to injuries from the players' point of view were the shoulder area by 68.5%, followed by the wrist area by 44%, followed by the neck area by 39.5% and the least areas were the upper back, abdomen and pelvic area by 0.00%.

It is clear from (Table 4) that the most types of injuries from the point of view of the players were the most for the muscles represented in the injury of muscle tension by 72.00%, followed by contraction by 62.50%, followed by joint injuries represented in inflammation of the ligaments of the joints by 17.00%, then bruises by 6.50% and the least injuries in the bones represented in the great bruise by 10.50%, while for other injuries, the most in ear infection by 83.00% and the least rhinitis by 68.50%.

It is clear from (Table 5) that the most exposed areas to injuries from the point of view of the trainers were the shoulder area by 95.0%, followed by the upper arm area by 47.5%, then the upper back area by 40.0%, followed by the lower back area by 37.0%, then the neck area by 35.0% and the least areas were the elbow area by 0.00%.

It is clear from (Table 6) that the most types of injuries from the point of view of the trainers were the most for the muscles represented in the injury of tension and muscle contraction by 100.0%, followed by tendonitis by 92.50%, followed by muscle bruises by 82.5%, then joint injuries represented in inflammation of the ligaments of the joints by 20.00%, as for other injuries, the trainers saw that all infections of the ear, nose, eye and skin occur by 100.0%.

It is clear from (Table 7) that the most types of injuries from the point of view of the players were the most for the muscles represented in the injury of muscle tension by 72.00%, followed by contraction by 62.50%, followed by joint injuries represented in inflammation of the ligaments of the joints by 17.00%, then bruises by

6.50% and the least injuries in the bones represented in the great bruise by 10.50%, as for other injuries, the most in ear infection by 83.00% and the least nasal infections by 68.50%. This is in line with the opinion of the trainers that the most types of injuries were in the muscles represented in the injury of tension and muscle contraction by 100.0%, followed by tendonitis by 92.50%, followed by muscle bruises by 82.5%, then joint injuries represented in inflammation of the ligaments of the joints by 20.00%, as for other injuries, the trainers saw that all infections of the ear, nose, eye and skin occur by 100.0%.

It is clear from (Table 8) that the most causes of injuries related to training from the point of view of the players (skill reasons by (35.5) followed by physical reasons by (28.5) while the reasons related to the competition came physical reasons by (22.5) and skill reasons by (19.5).

It is clear from (Table 9) that the most causes of injuries related to training from the point of view of trainers (psychological reasons by (37.5) followed by devices and tools by (25.0) while the reasons related to competition came psychological reasons by (32.5) and skill reasons by (17.5).

### RESULTS AND DISCUSSIONS

#### To Answer the First Question About the Most Vulnerable Areas of the Body:

- It is clear from Table (4), (8), (12), (14) that both the player and the coach agree that the shoulder area is one of the most exposed areas of the body and also agreed that the hand area is one of the least vulnerable areas of the body.
- The researcher believes that bodybuilding depends on the movements of the arms significantly and the method of performance, which depends on mastering the methods well and because of the desire of coaches to achieve an advanced level in the following stages shorten this stage and enter the stage of preparation for the tournament and processing for tests by increasing loads and exercises thus increases the burden on this area exposed players to shoulder injury<sup>[4]</sup>.
- In this regard, both the American Federation of Bodybuilding praises that the shoulder area is one of the most exposed areas for players and this injury is often caused by the burden on this area during performance<sup>[5]</sup>.
- As for the rest of the regions, they varied in order

between (players, coach), but they agreed that the upper limb is exposed to injury more than the lower limb and that injuries to the upper limb were limited to injuries to the upper and lower back, chest, upper arm and forearm, while the lower limb was limited to injuries in the thigh and knee<sup>[6]</sup>.

- Werney stresses that sports injuries vary in type and location in the human body depending on the educational and training tasks and in accordance with the requirements of the activity that the player performs<sup>[7]</sup>.

**Answer to the Second Question:** And for the most types of injuries that occur to the buds.

It is clear from Table (5), (9), (13), (15) that most of the injuries that occur to the buds were in the muscular system represented in tension, contraction, then inflammation of the tendons of the muscles, followed by injuries to the articular system represented in inflammation of the articular ligaments and finally and by a very small percentage of injuries to the bone system represented in bone bruises.

The researcher attributed the increase in injuries to the muscular system because bodybuilding of mathematics in which there is no friction between the players and therefore the injuries result because of training methods and increased training loads in non-scientific ways.

Wilk point out that shoulder joint injury is one of the most prominent injuries suffered by players, as it varies from muscle injuries and tendons, as well as injuries to joint ligaments, as well as joint instability, as the shoulder joint is responsible for all movements made by the upper ways, especially the movements of the arms<sup>[8]</sup>.

Cash confirms that bodybuilding relies heavily on the method of performance and its repetition in a wrong way leads to the player's exposure to injury due to inconsistency in the parts of the movement, which results in stress and muscle tension<sup>[9]</sup>.

**To Answer the Results of the Fourth Question, Which States:** "What are the reasons that lead to the occurrence of these injuries?"

**Table 1: Research sample numbers**

Classification	Number
Players	200
Trainers	40

**Table 2: Number of axes of the three forms**

Classification	Number of axes
Players	3
Trainers	3

It is clear from Table (19) and (20) and Figure (12) and (13) for the answers of the research sample on the fourth axis (causes of injury) as follows:

The researcher believes that bodybuilding is one of the sports that require accuracy in performance, especially in technique and that any defect in performance causes many injuries, especially upper limb injuries<sup>[10]</sup>.

This result was similar to the results of a study (Jyde and Nielsen 2005) that was conducted on the causes of injuries in football, handball and basketball, whose results indicated that the most common causes of injuries are a defect in the technique or a defect in the implementation of exercise<sup>[11]</sup>. Therefore, (Chris and Andrew 2010) mentions the need to spread the fair play policy and the rules of play and to give training courses to players, coaches and referees in the rules that reduce many injuries, especially acute injuries<sup>[10]</sup>.

The physical reasons also came in second place for a sample of players (83.20%) and these reasons (lack of warm-up period, lack of attention to rest periods). The physical reasons also came in second place for a sample of players (83.20%) and these reasons (lack of warm-up period, lack of attention to rest periods).

The researcher believes that bodybuilding is one of the sports that require slow and strong performance and movements that change direction and other difficult movements, so a good warm-up is an important factor in the performance of these movements and in the prevention of injuries and neglect may lead to many injuries.

(ASKA) mentions ( that "warm-up is the main gate of the training unit, which is a visa to absorb its objectives and focuses mainly on the level of achievement, because it is the first step in the training unit<sup>[12]</sup>.

The researcher also believes that the positive rest period is the main period for recreation of the player and moving him from the stage of boredom and constant pressure in the performance of exercises to another stage that feels fun and comfort and enjoy the performance more freely and reduce the restrictions surrounding him during training and matches and thus reduce sports injuries.

Ryan states that the rest period cannot be neglected in the ability to recover and continue performance and stay away from sports injuries<sup>[13]</sup>.

**Table 3: Percentages and Ka2 test for differences between the responses of the sample of players in (the place of injury) n = 200**

Axis	Content	Yes	No	% Yes	Ka2
Place of injury	What are the most affected areas of the body for you?				
	Neck area	79	121	39.50	8.82
	Upper back area		200	0.00	200
	Lumbar region	64	136	32.00	25.92
	Chest area	15	185	7.50	144.5
	Abdominal area		200	0.00	200
	Shoulder area	137	63	68.50	27.38
	Hucchial area	18	182	9.00	134.48
	Elbow area	4	196	2.00	184.32
	Crank area	26	174	13.00	109.52
	Wrist area	88	112	44.00	2.88
	Hand area	7	193	3.50	172.98
	Pelvic area		200	0.00	200
	Thigh area	45	155	22.50	60.5
	Knee area	47	153	23.50	56.18
	Leg area	18	182	9.00	134.48
	Carpal area	17	183	8.50	137.78
Foot area	7	193	3.50	172.98	

Tabular value <sup>of Ka2</sup> at a significant level of 0.05 = 3.84

**Table 4: Percentages and Ka2 test for differences between the responses of the sample of players in (type of injury) n = 200**

Axis	Content	Yes	No	% Yes	Ka2
Type of injury	Q: What are the most common bone injuries for you?				
	Fraction	0	200	0.00	200
	The crack	0	200	0.00	200
	Bruises	21	179	10.50	124.82
	Q: What are the most common joint injuries for you?				
	Dislocation	0	200	0.00	200
	Stiffness	0	200	0.00	200
	Convolution	0	200	0.00	200
	Rupture of ligaments	6	194	3.00	176.72
	Ligamentitis	34	166	17.00	87.12
	Bruises	13	187	6.50	151.38
	Q: What are the most common muscle injuries for you?				
	Kidney rupture	7	193	3.50	172.98
	Partial rupture	38	162	19.00	76.88
	Screwing	144	156	72.00	0.48
	To shrink	125	175	62.50	8.34
	Bruises	51	149	25.50	48.02
	Tendinitis	130	170	65.00	5.34
	Q: What are the other most common injuries for you?				
	Ear infections	166	34	83.00	87.12
	Rhinitis	137	63	68.50	27.38
	Eye infections	145	55	72.50	40.5
	Skin infections	141	159	70.50	1.08

Tabular value of <sup>Ka2</sup> at a significant level of 0.05 = 3.84

**Table 5: Percentages and Ka2 test for differences between the responses of the trainers sample in (the place of injury) n = 40**

Axis	Content	Yes	No	%	Ka2
Place of injury	What are the most affected areas of the body?				
	Neck area	14	26	35.00	3.6
	Upper back area	16	24	40.00	1.6
	Lumbar region	15	25	37.50	2.5
	Chest area	3	37	7.50	28.9
	Abdominal area	2	38	5.00	32.4
	Shoulder area	38	2	95.00	32.4
	Hucchial area	19	21	47.50	0.1
	Elbow area	0	40	0.00	40
	Crank area	5	35	12.50	22.5
	Wrist area	2	18	5.00	12.8
	Hand area	2	18	5.00	12.8
	Pelvic area	1	19	2.50	16.2
	Thigh area	7	33	17.50	16.9
	Knee area	11	29	27.50	8.1
	Leg area	6	34	15.00	19.6
	Carpal area	6	34	15.00	19.6
Foot area	6	34	15.00	19.6	

Tabular value <sup>of Ka2</sup> at a significant level of 0.05 = 3.84

**Table 6: Percentages and Ka2 test for differences between the responses of the trainers' sample in (type of injury) n= 40**

Axis	Content	Yes	No	%	Ka2
Type of injury	Q: What are the most common bone injuries?				
	Fraction	0	40	0.00	40
	The crack	0	40	0.00	40
	Bruises	0	40	0.00	40
	Q: What are the most common joint injuries?				
	Dislocation	0	40	0.00	40
	Stiffness	0	40	0.00	40
	Convolution	0	40	0.00	40
	Rupture of ligaments	0	40	0.00	40
	Ligamentitis	8	32	20.00	14.4
	Bruises	0	40	0.00	40
	Q: What are the most common muscle injuries?				
	Kidney rupture	0	40	0.00	40
	Partial rupture	0	40	0.00	40
	Screwing	40	--	100.00	#####
	To shrink	40	--	100.00	#####
	Bruises	33	7	82.50	16.9
	Tendinitis	37	3	92.50	28.9
	Q: What are the most common other injuries?				
	Ear infections	40	--	100.00	#####
	Rhinitis	40	--	100.00	#####
	Eye infections	40	--	100.00	#####
	Skin infections	40	--	100.00	#####

Tabular value<sup>of Ka2</sup> at a significant level of 0.05 = 3.84

**Table 7: The significance of the differences between two ratios in the second axis (type of injury) between players, coaches and doctors**

Axis	Content	Player (n = 200)		Coach (n = 40)		Between the player and the coach
		Yes	%	Yes	%	
Type of injury	Q: What are the most common bone injuries?					
	Fraction	0	0.00	0	0.00	0.00
	The crack	0	0.00	0	0.00	0.00
	Bruises	21	10.50	0	0.00	2.15*
	Q: What are the most common joint injuries?					
	Dislocation	0	0.00	0	0.00	0.00
	Stiffness	0	0.00	0	0.00	0.00
	Convolution	0	0.00	0	0.00	0.00
	Rupture of ligaments	6	3.00	0	0.00	1.11
	Ligamentitis	34	17.00	8	20.00	-0.46
	Bruises	13	6.50	0	0.00	1.66
	Q: What are the most common muscle injuries?					
	Kidney rupture	7	3.50	0	0.00	1.20
	Partial rupture	38	19.00	0	0.00	*3.00
	Screwing	144	72.00	40	100.00	*-3.82
	Shrinking	125	62.50	40	100.00	*-4.67
	Bruises	51	25.50	33	82.50	*-6.90
	Tendinitis	130	65.00	37	92.50	*-3.45
	Q: What are the other most common injuries?					
	Ear infections	166	83.00	40	100.00	*-2.81
	Rhinitis	137	68.50	40	100.00	*-4.13
	Eye infections	145	72.50	40	100.00	*-3.78
	Skin infections	141	70.50	40	100.00	*-3.96

The value of the difference between two ratios at a significant level of 0.05 = 1.96

**Table 8: Percentages andKa-2 test for differences between the responses of the sample of players in (Timing and causes) of the injury n = 200**

Axles	Content	Yes	No	% For yes	Ka2
What are the causes of training-related injuries?	Skill reasons	71	128	35.5	16.33
	Physical reasons	57	143	28.5	36.98
	Devices and tools	44	156	22.0	62.72
	Psychological reasons	28	172	14.0	103.68
What causes competition-related injuries?	Physical reasons	45	155	22.5	60.5
	Skill reasons	38	162	19.0	76.88
	Psychological reasons	14	186	7.0	147.92
	Frequent participation in competitions	21	179	10.5	124.82
	The intensity of competition with the violence of performance	25	175	12.5	112.5

**Table 9: Percentages andKa2 test for differences between the responses of the trainers sample in(and causes) of injury n = 40**

Axles	Content	Yes	No	% For yes	Ka2
What are the causes of training-related injuries?	Skill reasons	7	33	17.5	16.9
	Physical reasons	5	35	12.5	22.5
	Devices and tools	10	30	25.0	10
	Psychological reasons	15	25	37.5	2.5
What causes competition-related injuries?	Physical reasons	5	35	12.5	22.5
	Skill reasons	7	33	17.5	16.9
	Psychological reasons	13	27	32.5	4.9
	Frequent participation in competitions	5	35	12.5	22.5
	The intensity of competition with the violence of performance	1	39	2.5	36.1

## CONCLUSIONS

In the light of the results of the research and within the limits of the research sample and the method used and based on the results extracted from the statistical analysis and presentation of data, the researcher concluded the following:

- The most injuries to the players were in the shoulder area and the least in the hand and pelvis area.
- that muscle injuries are one of the most injuries exposed to the buds, especially tension and muscle contraction and then inflammation of the tendons of the muscles and that inflammation of the tendons of the muscles and that infections of the ear, nose, eye and skin frequent occurrence.
- The absence of medical follow-up forms in the club and the gym halls of the medical record.

## Recommendations:

- The need to educate trainers with information on injuries and security and safety factors, as well as training education to deal with this stage.
- Not to speed up the giving of high training doses and interest in teaching performance methods because of the great impact on avoiding injuries in the future.
- Not to increase the doses of training exaggerated during the summer season than the winter season.
- The need to follow up the coach after the injury and be follow-up on an ongoing basis until he returns to training.
- The need for security and safety factors during training to reduce the occurrence of injuries.
- The need to conduct a rehabilitation program after the injury and not to involve him directly in training.
- The need to make a medical follow-up form in which the player's medical history is recorded.

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