



Effect of exercises accompanying with Alascemia and Alhieberemia to treat ankle sprain injury in the hormone GH and CPK enzyme and the degree of pain for athletes

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Abstract:

Present study aims to know the effect of exercises accompanying with Alascemia and Alhieberemia to treat ankle sprain injury in the hormone GH and CPK enzyme and the degree of pain for athletes. Researcher selecting a subject of study which consists of injured athletes detailed sprained ankle for elite men of the sports season 2014-2015, numbered (10) patients (soccer players, three volleyball players, one basketball player, and two handball players). The subject selection is based on the basis of the unification of the injury in terms of type, severity, and age. Sample of study is formed from the patients with limited of joint mobility after injury directly (sprains tipping for inside) with a medium intensity after contact and follow-up injuries in specialized clinics, doctors and even sports clubs, centers of phesiotherapy, and Diwaniyah hospital. However, we chosed (8 patients) who represent the research sample which formed 80% of the research community, our patients have been diagnosed by a specialist doctor. In conclusion, we found that the exercises associated with Askemia and Alhieberama a positive effect in the treatment of injury sprained ankle joint and decline in CPK enzyme in the pre-test due to the damage of the surrounding tissue in the ankle joint, but after repair and return tissues to normal the enzyme begins to increase. Moreover, GH hormone increase through ankle joint injury is very important to repult of tissues and ankle muscles to be normal, so the increase will be at the beganing of injury but this increasing starts decline after return the ankle to the normal. As well as the degree of pain index is improving rapidly and clear after starting the rehabilitative program by using exercises associated with Askemia and Alhieberemia. Finally, Aloskemia and Alhieberemia case associated with therapeutic exercises which prepared have a positive impact to shorten the duration of rehabilitation.

Keywords: Accompanying exercises, Alascemia and Alhieberemia, sprain ankle injury, hormone GH and CPK enzyme, degree of pain, athletes.

1. Introduction:

Many of countries around the world are interesting in physical exercises in particular and sports in general as educational and health values. Modern life requirements are man's dependence on mechanization, so sports practicing are a necessity and can't leave it or thinking to get away from it, and then the individual has to take into account the performance during exercise to stay away from health injuries as he can (Fouad & Hashim, 1988).

The sports injuries, as is known, are one of the top three obstacles which prevent the dynamic development of sports training process and the three obstacles are (fatigue, physical loads rationing, and sports injuries). Study the injuries in the sports field requires to practitioners of sports activities, whether players or coaches or administrators or employees in the rehabilitation field to become familiar with new fields to identify the nature of these injuries and they relate to the different nature of sports activities and how aids after we study the mechanical occurrence and then to deal with this injuries in the completion of remedial actions and physical and kinetic comprehensive rehabilitation specifically for athletes collaborators with the specialists of specialized medical staff, ongoing effort and friction at some times with friend or competitor, when performing any skill in any game of different sports may lead to a sudden movement could cause injury including detailed ankle injured, a common injury in athletes and to treat athletes need to treatment program who helps us to speed up the return to normal state prior to the occurrence of the injury and his return to stadiums appropriately. One of new methods which used to treat injuries is using exercises accompanying with Alascemia and Alhieberemia according to the most importance and prominent of chemical indicators and the degree of pain for injured athletes, and this is a new scientific approach in the treatment of infection has not been used before in Iraq, where it is used after the injury immediately in different way of previous treatment and rehabilitation which depends on the pressure and Sheetrock-Plastering and so on, this style depends on anaerobic products in which muscles of low torso (thigh muscles) place deliberately under anaerobic conditions by using Askemia (preventing arterial blood supply to the member) through the use of a stressful on muscles for the occurrence of the askemia state for arterial blood going to low limb through the ankle joint which is aimed of this task, then player who is injured began to do exercises for ankle injury through different times of not more than 5 m with low effort during that the player depends on existing energy sources in lower limb, after that remove of compression to turn to ischemic phase (Alhieberemia) and therefore the arrival of a large quantity of blood laden with oxygen, nutrients, and energy to the infected tissues and this in turn leads to the removal of all waste generated due to injury, which accelerates the disposal and prevent clumping around the affected joint and this is accelerate player's recovery process (during injury, the following compositions are destroyed (muscle fibers, connective tissue, nerves and blood vessels, etc.) and therefore poses cellular waste products as a result of the demolition and to define the body occurrence of injury for the purpose of starting the process of raising these residues and disposal put them out (Sameea Khaleel, 2008), This total training period lasts for (6) weeks after that the player gets ready to return to practice his sport after healing of the injury, this style is a new approach leads to increase susceptibility tissue healing and infected muscles.

The exercises accompanying Alascemia and Alhieberemia to treat ankle sprain injury should be strictly linked with chemical variables related and associated with them among the most important of these variables is an enzyme (cpk) and hormone (GH), which are the most important variables associated tissue muscle infected, which through the study can stand on how quickly heal and return to its natural state and reflected the importance of the research as new scientific attempt by researcher for the first time in Iraq, in conclusion, using the exercises associated with Alascemia and Alhieberemia to treat ankle sprain injury Unlike traditional methods used in treatment so as to speed up the return of the player to exercise his

activity after his injury heal fully, and also saves the player of collateral damage as well as costs of material that can sometimes result from the wrong use of the method of treatment.

2. Methodology:

Researcher selecting a subject of study which consists of injured athletes detailed sprained ankle for elite men of the sports season 2014-2015, numbered (10) patients (soccer players, three volleyball players, one basketball player, and two handball players). The subject selection is based on the basis of the unification of the injury in terms of type, severity, and age. Sample of study is formed from the patients with limited of joint mobility after injury directly (sprains tipping for inside) with a medium intensity after contact and follow-up injuries in specialized clinics, doctors and even sports clubs, centers of phesiotherapy, and Diwaniyah hospital. However, we chosed (8 patients) who represent the research sample which formed 80% of the research community, our patients have been diagnosed by a specialist doctor. Table (1) shows the homogeneity of the subject.

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N	Parameters	Mean	SD	Median	Skewness Coefficient
1	Height \ C	171.750	4.590	170.500	0.592
2	Weight \ Kg	71.625	2.973	71	0.703
3	Age \ Year	23.250	1.669	23	0.461
4	Degree of Pain\ D	4.375	0.517	4	0.644

The subject of the study is homogenous because skewness coefficient is palced between (+1 to -1).

2.1 Tests:

2.1.1 Measurement of pain degree for ankle joint:

Researchers made a spiecal questionnaire to measure pain degree and using junomitr to measure the angles to know pain degree for each angle as following.

1. Pain during rest time (1 - degrees).
2. Pain when pressure on the injury area (1 - degrees).
3. Pain when you move your foot forward at an angle (15 degrees - 3 degrees).
4. Pain when you move your foot forward at an angle (25 degrees - 2 degrees).
5. Pain when you move your foot forward at an angle (45 degrees - one degree).

Pain degree is in totally (8 degrees).

Questionnaire consists of five fields includes all the points field listed above and through pain in every stage record the degree and this is the highest degree of pain is 8 degrees and less degree is (zero).

2.1.2 Pre, mediam, and post-tests:

Due to the fact that the subject is not ready and is not available, but is obtained by situations that are given to the hospital or through specialized clinics, sports clubs and this periodically been testing continuously and over a period of testing and by injuries and that the application of the curriculum have continued is the other during a different period the convergent and disproportionately on the research sample and under the direct supervision of a researcher.

The first pre-test was conducted on tusday 4th of August 2015 and the first medal test was on 26th of August 2015 and the first post-test was conducted on 18th of Sebtemper 2015.

2.1.3 Pre-tests:

Pre-tests conducted on subject of the study as following:

To withdraw a blood sample from the players infected by (2.5cc) at rest, in the laboratory of the country for sick analysis in Diwaniya as samples taken from the forearm of

venous blood area and the injured in the sitting position, with blood samples in a special save the blood unusual to extract values tubes placed (the concentration enzyme CPK, and hormone GH) numbered according to the sequence of the injured so that the figure expresses the patient's name, with the help of a chemical specialist in this area that are all temporal and spatial conditions installed for the purpose of standardization in tests of moderation and a posteriori and avoiding any mistake and then take a test to determine the degree of pain in Diwaniyah Teaching Hospital.

2.1.4 Rehabilitation program of physical exercises accompanying Alascemia and Alhieberemia:

Rehabilitation program involved physical exercises accompanying Alascemia and Alhieberemia to rehabilitate the ankle joint injuries which are an exercises without weight and exercises with body weight and medical balls, ropes, and exercises using the iron bar.

The purpose of these exercises is to strengthen the muscles of the ankle joint and strength endurance as well as increased range of motion and try to return the extent of his movement to the normal range of movement in all directions.

All subject of the study (8) injured athletes underwent to the rehabilitation program and by three therapeutic training modules weekly and the program lasts for six weeks using exercise associated with Askemia and Alhieberemia using pressing methods which lasts from 3 to 5 minutes during a period of 6 weeks and are used only during the main section.

2.1.5 Medal Tests:

Medal tests conducted on subject of the study after a period of 3 weeks from started rehabilitation program accompanying Alascemia and Alhieberemia under the same procedures of pre-tests.

2.1.6 Post-tests:

Post-tests conducted on subject of the study after a period of 3 weeks from started rehabilitation program accompanying Alascemia and Alhieberemia under the same procedures of pre-tests.

2.2 Statistical Analysis:

We used SPSS to analys our data.

3. Results and discussion:

Table (2) shows means and SD of study parameters in three tests (pre, medal, and post)

N	Parameters		Pre-test		Medal Test		Post-test	
			Mean	SD	Mean	SD	Mean	SD
1	Chemical Indicators	CPK U\L	59.500	6.568	101.875	5.383	144.125	3.943
2		GH ng\ml	4.475	0.345	2.462	0.292	1.200	0.200
3	Pain Degree\ Degree		4.375	0.517	2.125	0.353	0.875	0.353

Table (2) showed that mean of CPK in pre-test was (59.500) with SD (6.568) whereas in medal test, the mean of CPK was (101.875) with SD (5.383). In post test, CPK showed to be (144.125) with SD (3.943).

The arithmetic mean of the hormone GH was in the pre-test is (4.475) and SD (0.345), in the medal test of the variable itself was the arithmetic mean is (2.462) and SD (0.292) while the arithmetic mean value of the post-test in the variable itself is (1.200) and SD (0.200).

The mean of degree of pain in the pre-test was (4.375) and SD (0.517), in the medal test was the arithmetic mean (2.125) and SD (0.353) while the arithmetic mean value of the post-test was (0.875) and SD (0.353).

Table (3) shows variance analysis between three tests in study parameters

Parameters	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
CPK	Between Groups	28645.583	2	14322.792	490.067	*0.000
	Within Groups	613.750	21	29.226		
GH	Between Groups	43.653	2	21.826	267.455	*0.000
	Within Groups	1.714	21	0.082		
Pain Degree	Between Groups	50.333	2	25.167	145.793	*0.000
	Within Groups	3.625	21	0.173		

* Significant

Table (3) showed that (F) of CPK, GH and pain degree between three tests was (490.067), (267.455), and (145.793) under sig. (0.000) which means they are significant values at the freedom degree (21.2).

To know the truth of these differences between the three tests in preference to any of them CPK enzyme, GH hormone, and pain degree, the researcher using the law (L.S.D) less significant difference, as show in the table (4).

Table (4) shows differences in means of CPK and GH

Parameters	Groups	Mean differences	Sig.	In favor of
CPK	Pre-Medal	42.375	*0.000	Medal
	Pre-Post	84.625	*0.000	Post
	Medal-Post	42.250	*0.000	Post
GH	Pre-Medal	2.012	*0.000	Medal
	Pre-Post	3.275	*0.000	Post
	Medal-Post	1.262	*0.000	Post
Pain degree	Pre-Medal	2.250	*0.000	Medal
	Pre-Post	3.500	*0.000	Post
	Medal-Post	1.250	*0.000	Post

* Significant

From table (4) showed that difference values between means of CPK were (42.375), (84.625), and (42.250) which means that post-test was the best between three tests and this was the same with other parameters where difference values of GH hormone were (2.012), (3.275), and (1.262), and difference values of pain degree were (2.250), (3.500), and (1.250).

Rehabilitation program which included exercises accompanying Alascemia and Alhieberemia have an positive effect to increase blood flow to muscles especially ankle joint and then increase blood feeding and the development of sliding property (actin and myosin) that are linked closely associated enzyme CPK because this property is dependent on the presence of energy and thus improve the muscle endurance and resistance of fatigue, which are important qualities needing to development them to resistance of injury as well as injury in

the first stage lead to muscle cramps and rubber ligaments and thus its impact on the detailed flexible ankle, it is well known that a lot of the body's joints give an individual afew of flexibility, commensurate with the anatomical structure by the ligaments that connect the joints (Qassim & Abd Ali, 1980).

Alascemia and Alhieberemia accompanying rehabilitation exercises result in increasing of permeability minute of materials in the muscle tissue structure, where CPK is found in a large ratio in these muscles, which leading to liberation to the blood and rises its accounted, because there are a large proportion of up to 85% of symmetrical (CPK) enzyme in skeletal muscles, called the muscle enzyme and is symbolized by the (CPK - MM) (Melin, 2001). Moreover, Alascemia and Alhieberemia are doing to increase active of CPK in blood because of the high permeability of the cells, allowing the passage of miny substances in the muscle, which allows blood to leak CPK as a result of physical work (Brent, 2003). Figure (1) shows the different between means of three tests in CPK test.

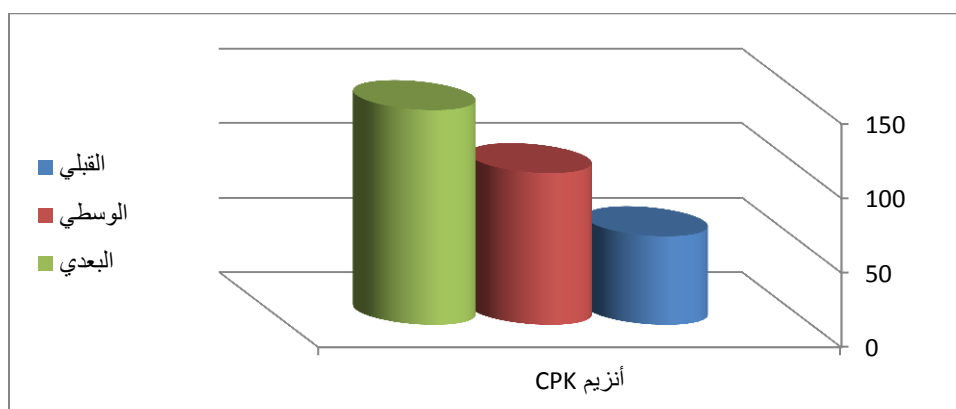


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Previous tables showed that GH hormone was increased in pre test as a result of ankle joint injury but this increasing is back to the normal after the ankle being healthy, it means that GH helps to increase the growth of body tissues especially one damaged (Bahaa, 2000), in our study there has been a decrease in GH hormone after training due to the rehabilitation program which help a lot to extension of the blood vessels which increases the preparation affected area in the ankle joint, especially oxygen- laden food that increase the effectiveness and the face of the damage happening as a result of that injury, and also that the use of exercises lead to get nervous adapt in the rotation of the work of muscle fibers, which are reflected on the development of ankle joint strength and that are related to the role of the main GH hormone which works to build protein tissue (Abul-Ela, 2003).

Ayesh, (2002) found that Alascemia and Alhieberemia are very important to muscle growth and then increase strength of tendons, ligaments, and muscles because the growth hormone GH is a protein hormone works to make the muscles, tissues, and bones in active, so it is called stimulating hormone, which is also associated with general metabolic and thus activate the cell division and growth of the body. However, decrease of GH need to longer time at lest (6 weeks) to get good results and effect on the injury, our study results showed that increase of strength of the ankle accompanied by an increase in the degree of healing injury as these that these exercises have led to stimulate blood circulation, leading to increased blood flow to the area and thus increase muscle growth and nutrition in addition to increased feed strings ligaments and bones, as well as the fact that exercise increases muscle nervous compatibility and the continued development and growth of strength versus low pain scores mean that the vocabulary of the curriculum was in harmony with each other from the

use of rest and physical exercise and the use of static exercises and exercises animation and mixed exercises had an impact obviously in the development of the force as the force increases with use of physical exercise and less in the case of non- moving part and this is in line with the development of moral strength are choosing stable and moving exercises performed during the training program to reach the best outcome for the development of prescription strength (Jeffry, 1986). Figure (2) shows the different between means of three tests in GH test.

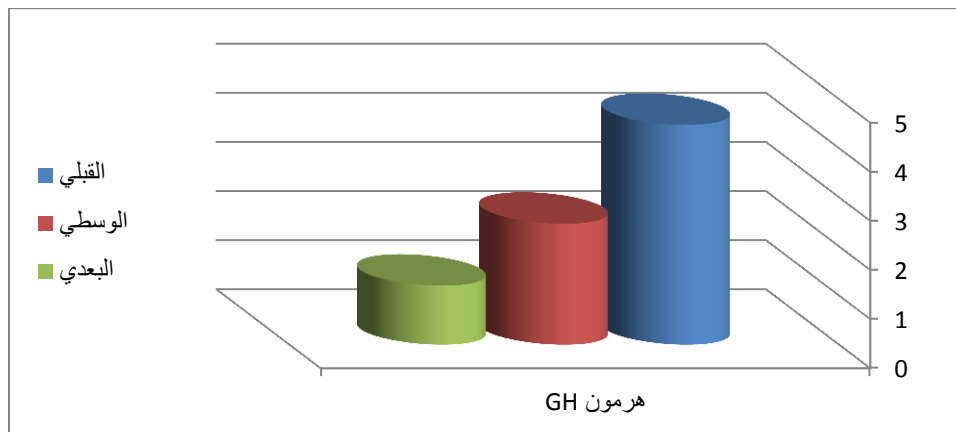


Figure (2) shows the different between means of three tests in GH test.

Decrease of pain degree in post-test due to rehabilitation program and using set of exercises which accompanied with natural of the ankle injury where these exercises led to increase resistance of target part generally and in particular the ankle joint through the use of ischemia, which is working to put effort during the performance of those exercises and make the patient and infected tissue through advanced periods depends on inside store of the tissue with ischemia to target the tissues to a larger rates in normal training during the period of 3-5 minutes used with such exercises to increase resistance of injury part and after the end of the exercises we take off the pressing and thus an ischemia case is occurred (perfusion) pay doubling of blood amounts carry large amounts of food aimed the injured part, which helps to speed up the treatment of the injury and infected tissue, the muscle needs to a rest time and this natural and physiologic reaction due to muscle needing is to feed after the effort (Thamer, 1978).

Decrease the pain results in increasing of joint tissue strength and endurance, Ahmad (1984) found that increase of muscle strength leads to increase muscle endurance and muscle endurance depends a lot on muscle strength. As well as, the development of post-test was a result of rehabilitation exercises which was benefit effectivelly in pain relief as increased muscle strength has led to pull strings and thus the ligaments, which led to the lifting of the pressure that causes the pain. However, due to we used gradient training base in training laoding had a clear impact in the non- recurrence of injuries or increasing pain as "the gradient base is protection against internal unrest in the joints and tendons in other words, the dimensions of the case of rupture of muscle cramping" (Qasim & Mahmoud, 1987).

In summery using rehabilitation exercises correctly lead to increase strength and endurance of muscle tissue then decrease the pain. Figure (3) shows the different between means of three tests in pain degree test.

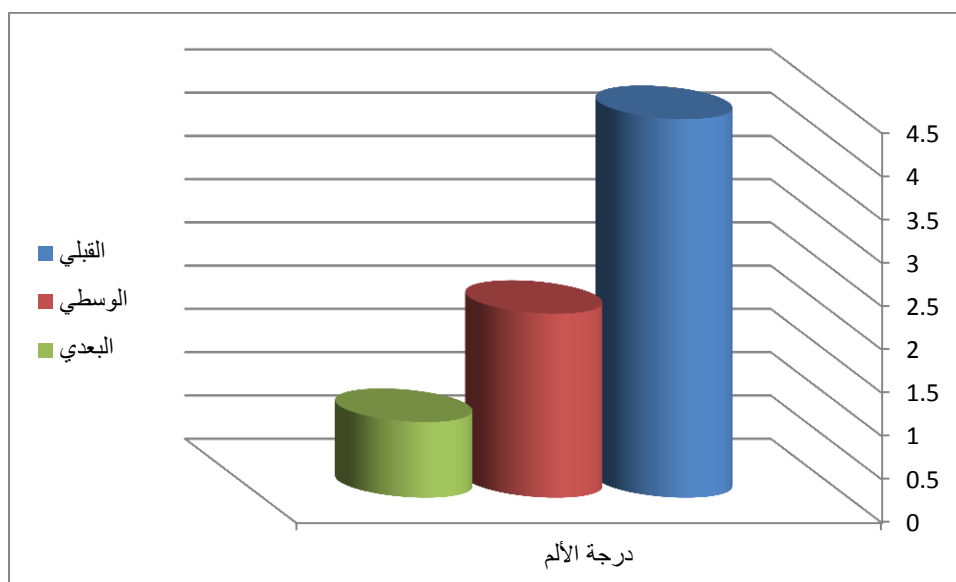


Figure (3) shows the different between means of three tests in pain degree test.

4. Conclusion:

In conclusion, we found that the exercises associated with Askemia and Alhieberama a positive effect in the treatment of injury sprained ankle joint and decline in CPK enzyme in the pre-test due to the damage of the surrounding tissue in the ankle joint, but after repair and return tissues to normal the enzyme begins to increase. Moreover, GH hormone increase through ankle joint injury is very important to repult of tissues and ankle muscles to be normal, so the increase will be at the beganing of injury but this increasing starts decline after return the ankle to the normal. As well as the degree of pain index is improving rapidly and clear after starting the rehabilitative program by using exercises associated with Askemia and Alhieberemia. Finally, Aloskemia and Alhieberemia case associated with therapeutic exercises which prepared have a positive impact to shorten the duration of rehabilitation.

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