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INSULIN HORMONE EFFECTS ON FT&ST MUSCLES OF BODY BULDING ATHLETS AND DIABETIC PEOPLE TYPE

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Abstract

Insulin is a Hormone that is secreted from pancreas and has an undeniable role in regulating blood-suger. In medicine, the injection samples of this Hormone are used for controlling diabetes disease. But recently, it has been used by athletes for driving Glucose and Amino Acids in to muscle- cells in industrial and injection forms for fast development of muscle volume and power among potency athletes specially body- builders. The present study, is reviewing consumption consequences of this drug by athletes and it's important and of course hidden hazards.

In this study, the Hormone's impression and it's high secretion and mechanism imbalance in body- builders bodies are analyzed by following Dosage and period of Insulin consumption among athletes and body- builders and studying different forms and injection amounts of Insulin, and comparing them with diabetes disease.

Results show that Insulin is a Hormone with high Anabolic effect and it is responsible for nutrient materials transmission into blood stream and muscle- cells. The blood- suger is saved as glycogen in muscles on this hormone effect and Amino acid transmission is developed in body's muscle system. This features by muscle manufacturing apparent of athletes and muscle exhausting delay in fast contracting muscle fibers and enthusiasm of practicing for hours, dosen't cause to ignore the dangerous disadvantageous of this hormone including: imbalance of metabolism such as extra lipid burning and glycogen saving in body. Because of Insulin long consumption body produces little amount of glycogen and adrenaline hormones to re increase the amount of blood- suger, therefore increasing blood- suger isn't declared with warning signals such as: trembling and nervousness, and athletes encounter with the shock of decreasing blood- suger (Hyper- glysemia) and die.

This study shows that in correct consumption of diabetes drugs are hazardous in body. Builders in different forms and it's side effects has been investigated, which shouldn't be ignored by authorities and should be followed much seriously, in order to prevent more problems among athletes in future.

Keya Word : Athletes, Insulin, Diabetic, Anabolic, Body builders

1. Introduction

The body cells for acquiring energy need glucose. Glucose co not penetrate into fat cells or muscular cells by itself and it is here that insulin acts as a key and by opening the way, makes the glucose enter the cells in order to lead the process of metabolism naturally. Most of the patients who suffer from the lack of insulin spray or the paucity of its spray are cured by insulin injection and make out their normal life. While body building athletes are in an off - match period, they use insulin in an injection form in order to accelerate the growth of their muscles. Usually insulin is immediately used after the exercise or before eating a massive meal after the exercise. Insulin transmits carbohydrates in to the emptied muscles in order for replacing and refilling them and by the way it plays an important role in making a muscular body steel. But this may be dangerous for body builders, for it results in weight gaining and fat synthesis and during that short period if an athlete does not use enough amount of carbohydrates after insulin injection, he may strike diabetic shock or diabetic coma. That is because of anabolic and potential characteristics of insulin that body builders unconsciously endanger their health for the faster achievement of big body mass. Pancreas is one of the digestive glands which is in the twelfth flexion. It is 22 centimeters long and it has about 1 to 2 million Islets of Langerhans. In addition to digestive affairs, pancreas sprays two kinds of hormones which are insulin and glucagon that these two hormones are necessary for natural adjustment of blood sugar, fat metabolism and protein. Islets of langerhans are composed of some different cells in which beta cells have occupied 60 percents of these islets that these cells are the chief factor of insulin spray in the body.

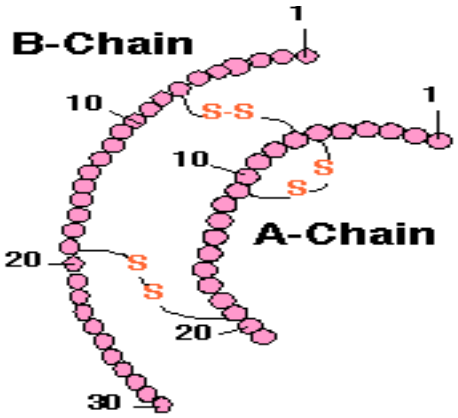
The history of insulin discovery

In **1889** Oscar Mintkofsky, a young assistant in the medical college of Strasbourg, in company with Josef fonmering analyzed involvement of dog's pancreas in the fat digestion. Before initiating the experiment related to the fat digestion, **Mintkofsky** observed that the amount of dog's urine has considerably increased. Nowadays, by the advance of science it has become clearer that protein nature of insulin from one side and the product of protein in the pancreas with the insulin decomposition by this enzyme from the other side was the reason of this break. Until the summer of **1921** many a fruitless trials have been made that they carried no result. In this year Fredrick Bating, a young scientist, in company with Charles Best, an assistant student, analyzed this issue in the lab of Mac Load in the Toronto University of Canada. A year after Leonard Tampson, a **14** years old boy, who was suffering from diabetes was cured by injection the products of insulin. In **1923**, the Nobel Prize was given to Balting and Mac Load. For many repetitive years pig's pancreas was used to produce insulin but in **1980** with the advance of genetic engineering, human genes in micro- organism was used to produce insulin. Insulin is a peptide hormone with the molecular weight of **58.8** which is joined together with two disulfide links.

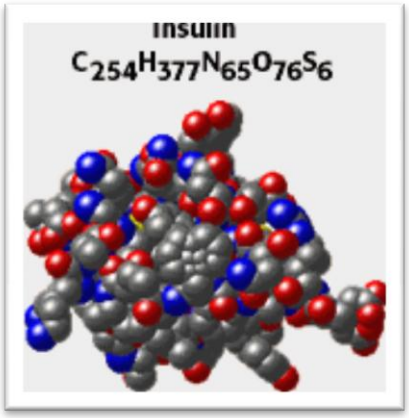
Physiological and chemical structure of Insulin

Insulin is a peptide hormone with the molecular weight of **58.8** which has the chemical structure of **C254H377N65O76S6** and is composed of two chains of A and B in which there are **21** amino acids in chain A and **30** amino acids in chain B. the chains are linked together with disulfide bridges one between amino acid number **7** from both chains and the other between amino acid number **20** from chain A and number **19** from chain B. in addition, amino

acid thread of row number **6** and **11** in the chain A are joined together by disulfide links. But there are slight differences between human and animal insulin type and number of several amino acids in the chain. If two threads of amino acid of insulin would be separated, the practical activity of insulin molecules will be stopped.



Two chains of A and B



Special s figure of insulin

Insulin is hormone related with energy profusion

From long times ago insulin is known to be related with blood sugar and those deep effects which are considered to be influence on the metabolism of carbohydrate are completely correct. Insulin is in company with energy profusion. In another words, when there is a good deal of vigorous food in a meal, lots of insulin is produced that this event will mostly occur about extra carbohydrates. Insulin causes extra carbohydrates to be stored a glycogen in the livers and muscles. Most of the extra carbohydrates that cannot be stored as a glycogen, under the influence of insulin, they change into fat and are stored in the fat tissues. Insulin also has a direct effect on progression of taking amino acids by cells and changing them to protein; moreover, insulin prevents the decomposition of proteins which were already present in the cells.

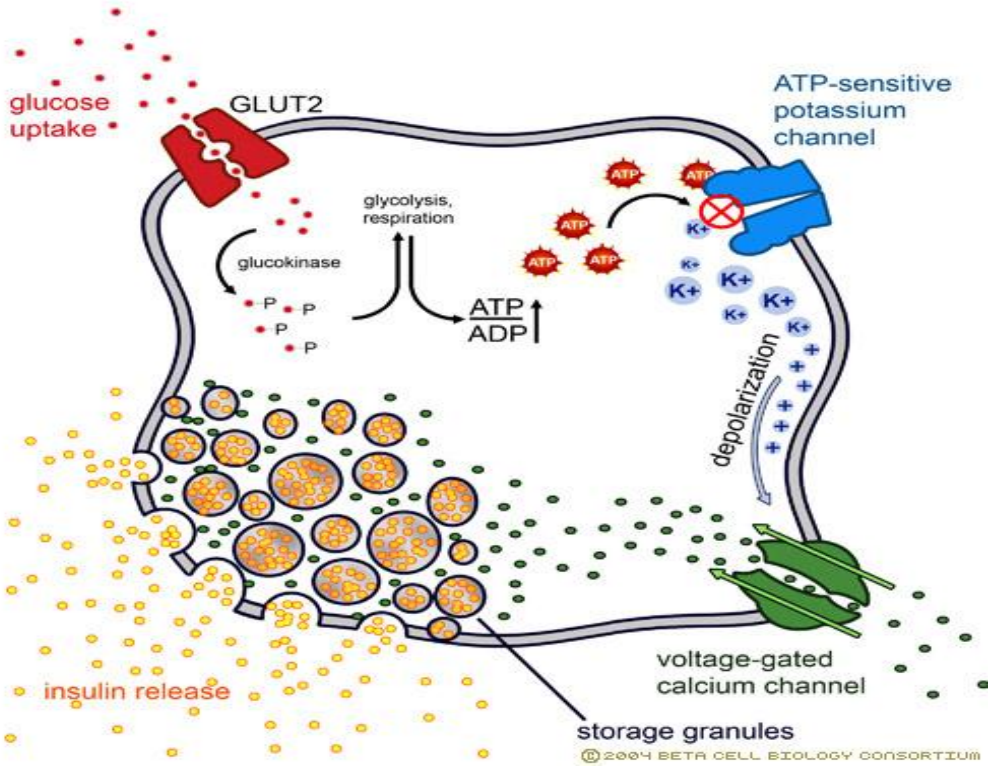
The way insulin acts in the body

Insulin may enter the current of blood in the from the beta cells of pancreas by the effect of stimulus such as sugar, amino acid and nerve stimulants with low basic pace and from very small capillaries around the Langerhans. By entering insulin to the blood circulating system, it is absorbed by special receptors which are on the membrane of most of the tissues. These hormones are linked by goal cells and facilitate the sugar and amino acids into the molecules. Insulin subside the blood sugar by storing it in the body in the form of fat or glycogen that keeps the body safe from the effects of sugar.

Why do body builders use insulin?

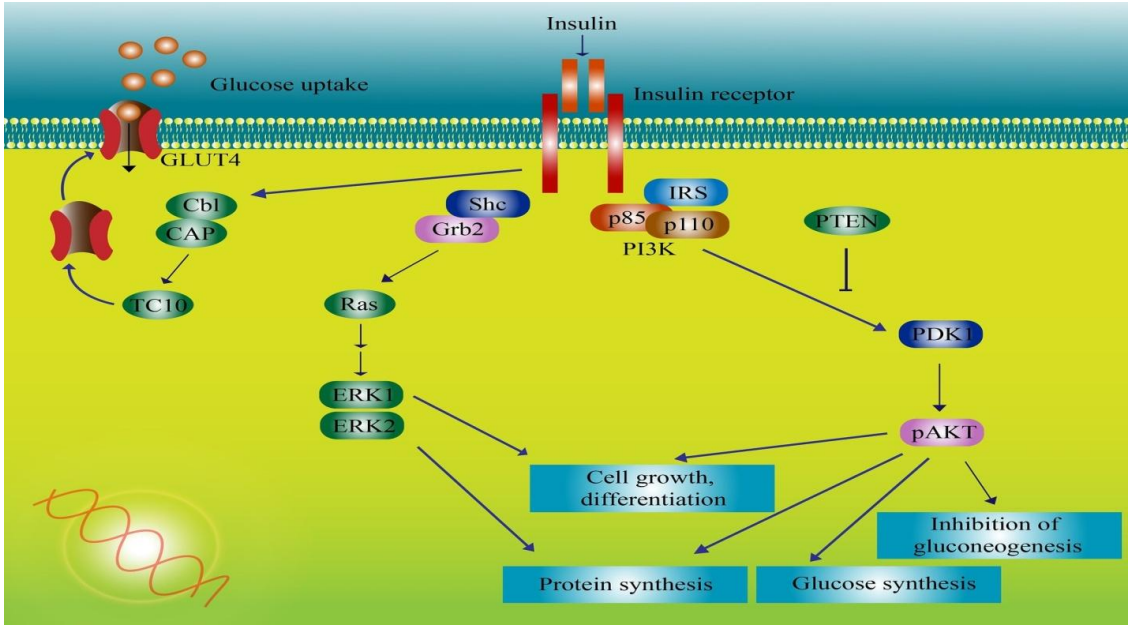
Studies show that the lacks of insulin hormones cause sweet diabetes. In this state the patients suffer from an increase in blood sugar and urine that this malfunctioning can be cured by

injecting insulin. In diabetic patients insulin is used to the regular exchange of materials, carbohydrates and simple sugars. In the recent years by injecting insulin body builders make the carbohydrates to transfer nutrition and fill the muscles and by generating glycogen make their muscles artificially massive. In these athletes insulin injection makes amino acids present in protein to be easily available for absorption and muscular cell's osmosis to sugar and amino acids have been increased and materials entry into cell are intensified .these prompt and superficially fascinating changes result in athletes to extravagantly use this drug.



The effect of insulin on fast twitch and slow twitch muscles

Skeletal muscles are composed of two types of muscular fibers: fast twitch and slow twitch muscles that there is wide range difference in between. Slow twitch fibers have low twitching speed and generates low power but they have good stability strength, but slow twitch fibers are appropriate for strength development. For body building athletes the aim is to make all muscular fibers become powerful but there is a lot of attention and focus on the slow twitch musicales, for they make the body builders less tired and exhausted. Scientific and biochemical importance of fast twitch and slow twitch muscles during exercise states that fast twitch muscles are basically equipped to handle short term and highly intensive activities and glycogen content at fast twitch muscles subside during fast resistance exercises; therefore, muscular development which is the result of an increase in the diagonal of fibers that have a close relation with an increase in the number of capillaries in a muscles. This fast muscular growth cannot be rejected by the body builders, so they act upon continual injection of these types anabolic drugs and by time passing they become addicted to this hormone that later on for some physical problems they cannot stop using it these drugs.



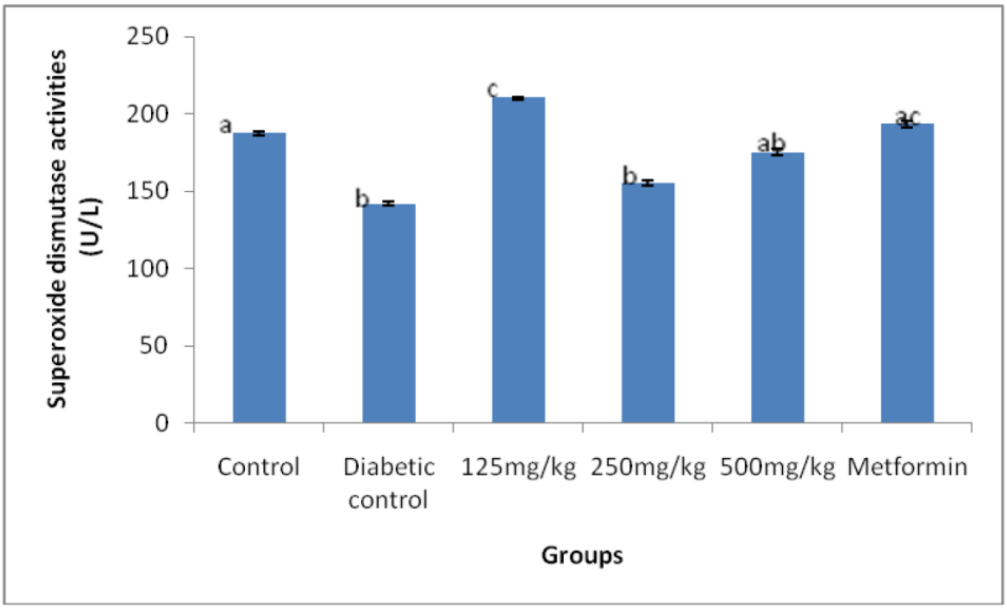
2. Materials and Procedures

An increase in insulin spray or its mass in blood influences body cells and abates their life time and finally results death. In this analysis some of the researchers studied on some of the lab mice. By analyzing two groups under research it was found out that if they abate the rate of protein in the whole body which is the agent of insulin spray and in the other group abate the protein in the cells only present at the end of the gut, they will acquire remarkable results. After this experiment it became apparent that the second group lived **6** months more than the first group even in circumstances that the mice had extra weight. So it can be stated the mal adjustment of the rate of insulin producing proteins not only results irregularity in insulin spray but lack of enough insulin or overdose of insulin use will generate illness specially diabetes. This study is conducted to show the effect of insulin on body building athletes. Analysis of the rate of the use of this drug on IRAN athletes show that in contrast to high limitations set on the unprescribed provision this drug, the athletes of this city use higher doses of insulin for making big muscles, growth in … and their muscles strength.Studies have shown that the different approaches of insulin uses common among the group of athletes. For instance, every athlete uses two units of insulin for the first time and adds two more units than the use of the previous day. The majority of body building athletes use insulin immediately after the end of an exercise session, but they are unaware that they will face with so many dangerous problems such as: renal problems, vascular and cardiac problems and this approach will not be lack of any danger till the access to the final dose. This is another approach that is common between the athletes of this city in which simultaneous use of the synthesis of several types of insulin by hypodermic injection on an open parts.

3. Findings

When the body builders use insulin superficially, adjusting the blood density, the mind sends a negative feedback to the pancreas especially when the body strikes a balanced

hyperglycemia and then no insulin is sprayed in the body, because another insulin with different dose has entered the body. In such a state, the pancreas gradually gets weak and produces no insulin at all. That's why athletes suffer from diabetes. Unconscious and willful use of insulin causes severe damages on the beta cells of islets of langerhans and since the dose is not prescribed by the doctor and usually is higher than the normal dose, the receptors of body cells gradually lose their sensitivity to the insulin and finally make no response. Extreme hyperglycemia causes the body builders an insulin shock and the sugar subsides suddenly and the decrease in the blood pressure causes apoplexy. Malfunctioning of pancreas cells may cause diabetes which has been very widespread and needs medical treatment for a longer period of time.



Problems due to insulin injection in athletes:

1. Extreme hyperglycemia and increase in body weight

2. Having eyes dimmed and an increase in heart beats

3. Malfunctioning of beta cells of islets of langerhans

4. Boredom and abnormal behaviors

5. Low fat metabolism and no amino acid absorption.

Insulin injections and the emergence of diabetes in athletes

An insulin resistance trigger the appearance of diabetes is the most athletic people (athletes who have developed insulin resistance) due to store more often - high fat (triglyceride) and are prone to this disease. Amount sufficient insulin to regulate blood sugar and thus affects the increase in blood sugar and diabetes can develop.

Types of Diabetes

Diabetes is divided into two main types.

Type **1** diabetes is known as insulin-dependent diabetes is an autoimmune disease in which the body's immune cells against the manufacturer's own cells in the pancreas reacts to insulin. Diabetes is a non -dependent type **2** diabetes, the body for various reasons, is not unable to manufacture sufficient amounts of insulin Or insulin secreted by the pancreas is unable to perform its functions in the body as well . One of the symptoms of diabetes Hypoglasymy witnesses' bodybuilders are infected. Hypoglasymy scientific equivalent reduction in blood sugar When blood sugar is Hypoglasymy athletes have declined , Because the main cause of low blood sugar and insulin, and taking copious amounts withheld from food and above all the carbohydrates needed sleep after the injection is causing this phenomenon .

Diabetes complications

Acute complications include: Hyper Glaysymy, ketoacidosis, type **1** diabetes and hyper syndrome Asmolar non - Ktomy in type **2** diabetes. Chronic complications include macro vascularcomplications and Mykrvasmvlar .Macro vascular complications: neuropathy,nephropathy, Vrtynvpaty

Macrovascular complications: myocardial infarction and stroke

Neuropathy: nocturnal diarrhea, impaired pain sensation .nearly **35-30** % of diabetic neuropathy in less than **10** years suffered from kidney failure and should be requiring dialysis or transplantation.

Nephropathy: pathologic changes increased permeability and decreased GFR, mainly as heavy proteinuria, hypoproteinemia and hyperlipemia show.

Retinopathy: visual loss and blindness

Hypoglycemia to lower plasma levels of **50-45** mg per deciliter is defined .Symptoms include irritability system:

Sympathetic: palpitations and anxiety - Parasympathetic: sweating and hunger

Neurological symptoms: behavioral changes, confusion, fatigue, fainting, loss of consciousness and death, increased BP, pallor and Dyaforz physical examination there.

Hypoglasymy symptoms: Nervousness, tremor, drowsiness, pallor, sweating, headache, palpitations, tingling or burning sensation in the hands and feet , stuttering and gait imbalance.

In case any of these symptoms should immediately increase the intake of sugar and sugary drinks, especially to relieve moderate and severe Hypoglasymy action to prevent it.

4. Discussion

Studies in consumer research indicate uncontrolled diabetes medications, including insulin hormone injection among bodybuilders and strength athletes are growing. Along with the growth hormone insulin bodybuilders today are used to improve the effectiveness of growth hormone. In this case that is made by the liver and is influenced by Somatropyn longer stays Resulting in premature deactivation of these materials will be delayed an thus anabolic properties of growth hormone and insulin may extend The athletes are taking considerable risks with the insulin itself. When you have such a large amount of blood sugar has dropped and is likely to have an athlete in serious cases unconsciousness and lose his life, for a long time and is caused by raising blood sugar, another warning signs emerged in the body and the athlete's suffered a concussion and death. So, in this article, we all with less serious risks of the drug explicitly expressed and athletes and officials of the technical community to this issue and to educate the small, though many of these hormones and we talked about a lot of health problems including diabetes, rupture drams skin and many kidney disease cardiovascular, that the use of hormones pointed out that we hope is that the authorities sporting community is respected by creating a bed, with the perceptions and clarify the minds of young athletes Bodybuilding can prevent serious problems in the future of the youth and sports with fieldwork brought by the healthy and strong and exercises, masculinity character and humanity in sport.

Excerpts from article

(Insulin and glucose)

When you hear the word insulin may remember the drug that diabetics use this thinking is correct, but you might not know that insulin is a hormone made by the body. Insulin is an important hormone because it causes glucose to enter cells to using produce energy. When you eat food carbohydrates inyour body with food in the small intestine breaks into smaller molecules called glucose. Glucose is the main source of energy for vital processes such as thinking, working out, exercise and therapy. Glucose travels through the bloodstream throughout the body to find the cells that need energy, Glucose for enter to the cells, requirements insulin. Insulin is the key that opens unlocked cell for enter glucose and energy production.

(Insulin deficiency)

Insulin is produced naturally in the pancreas. When glucose enters the blood stream Pancreas in response to increased blood glucose to the right amount of insulin to be secreted into the blood, Glucose molecules are able to enter cells In people with type 2 diabetes the pancreas cannot make enough insulin to do its job properly . When insulin blood is low the cell lock cannot be opened for glucose entry into the cell and produce energy, resulting increase blood glucose levels.

(Insulin resistance)

In some patients with type 2 diabetes, cells become resistant to insulin, resulting in spite of insulin in the blood the cell lock could not be opened again to enter glucose, So in response to this resistance More insulin is secreted to unlock cell and thus it is difficult for the cells to produce energy.

(The effects of diabetes)

When glucose due to insulin deficiency or insulin resistance, cannot enter in to cells, glucose start to accumulate blood. As a result, all energy in cells that should produce by glucose is wasted. Cells in the absence of glucose are lacking the energy to carry out their activities.

Appreciation

I thank all teacher and family members who had always been my helper.

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