



Knowledge and Awareness about Diabetes of Recently Retired Athletes

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Authors' contributions

This work was carried out in collaboration among all authors. 'All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2021/v33i40B32275

Editor(s):

(1) Dr. Aurora Martínez Romero, Juarez University, Mexico.

Reviewers:

(1) Serdar Olt, Adiyaman University, Turkey.

(2) Razieh Parizad, Tabriz University of Medical Sciences, Iran.

Complete Peer review History: <https://www.sdiarticle4.com/review-history/72648>

Original Research Article

**Received 05 June 2021
Accepted 09 August 2021
Published 10 August 2021**

ABSTRACT

Objective: The present research aimed to provide knowledge and awareness to the retired athletes about their diabetes.

Methodology: The research has cross-sectional research design. The glucose level of 300 recently retired male athletes was observed through Glucometer before data collection. Total 163 out of 300 athletes were found diabetic. The data was collected from these 163 diabetic retired athletes through the questionnaire. The researchers took three months to complete the process of glucose

testing process retired athletes through Glucometer. Afterward, the collected data was edited into SPSS (v-26) for further analyses. The collected data were analyzed through descriptive statistics using frequencies and percentages on the written observations of retired athletes.

Results: The findings have shown that athletes were become diabetic due to give up their sports practices and exercises after their retirement. Before retirement, they were taken rich carbohydrates in their meals and utilized them in their routine sports practices and competitions. Afterward, the eating habits of athletes were still in progress but their sports habits were changed which cause their diabetes.

Conclusion: It was concluded that the retired athletes of Pakistan belonging to any sports should observe their blood glucose regularly. Furthermore, they should continue their exercises and sports involvements to maintain their fitness levels as well as to control the glucose levels in their blood. This enhances not only their healthy lifestyle but also they may spend their healthy lives.

Keywords: Knowledge and awareness; diabetes; retired athletes; Pakistan.

1. INTRODUCTION

Before going to discuss the knowledge and awareness about diabetes, it is essential to mention the role of pharmacists in the fabrication of diabetic treatments for type I & II patients. In the preview of sports or sportsmen, it is pertinent to describe that they can remain fit till the engagement in sports as they get to retire or away from sports or exercises, they fall in diverse diseases such as diabetes and they have not managed their glucose level well due to their habitual rich-carbohydrate intake in their routine lives.

Diabetes mellitus is a metabolic disorder of the human body characterized by abnormally high blood sugar levels that persist over time. Increased hunger, thirst, and frequent urination are all signs of elevated blood sugar. Untreated diabetes can cause several severe complications like renal failure, retinopathy, and digital/limb amputation as a result of arteriolosclerosis [1]. According to surveys conducted between 1995 and 2005, the numbers of diabetic patients are increasing internationally with a 35 percent increase in persons aged 20 and above. The World Health Organization (WHO) estimates that 300 million individuals are diabetic [2]. Most diabetic patients and those at risk for diabetes have been advised to exercise as a valuable treatment technique [3].

Diabetes is a self-managed condition. The overall treatment outcomes and consequences of the disease can be influenced by knowledge, practices, attitudes, and behaviors about the condition [4]. Identification of glycemic control knowledge, practices, and attitudes would provide more insights into the creation of prevention and therapeutic methods for patients

[5]. Athletes with diabetes can participate in any sporting event if their insulin and carbohydrate intake are closely monitored. Patients with diabetes should not participate in hard sports like mountain climbing and scuba diving such events are prohibited for them [6].

Type I and II are the two main kinds of diabetes that can affect sportsmen. Type I affects children and adolescents, whereas, type II affects adults in their forties and fifties [7]. In type I diabetes, the islets of Langerhans in the pancreas organ lose their insulin-producing beta cells. Insulin insufficiency arises as a result of this. The bulk of type I diabetes is caused by an immunological response. The autoimmune attack on beta cells by Lymphocytes results in the death of these cells and as a result insulin production [8]. Type II diabetes is the most common form of the disease. Insulin confrontation occurs in type II diabetes which can be accompanied by a decrease in insulin production. Insulin receptors in the body become faulty preventing body tissues from responding to insulin [9].

Many patients with type I or type II are advised to exercise regularly. In type I diabetes, people must be exceedingly cautious when planning for exercise because they lack insulin or their insulin is not capable of stimulating glucose absorption. In type II diabetes, a proper metabolic response to exertion requires normal insulin synthesis and action. On the other hand, people with diabetes can achieve incredible athletic feats and there are extraordinary examples of this in most professional and Olympic sports. Sir Steven Redgrave, a five-time Olympic rowing gold medalist for Great Britain from 1984 to 2000, is one of the most spectacular of these athletes and was diagnosed with diabetes two years before the Sydney 2000 Olympic Games [10].

Diabetes has spread over the world causing severe disability and premature death. To develop diabetes prevention and treatment, it is necessary to assess the general public's degree of diabetes awareness, practice, and attitude [11]. The athlete's goals issues connected to competitive sports that may affect glucose homeostasis, and techniques for ensuring safe and successful sports participation are all aspects that must be considered in an effective planning process for an athlete with type I diabetes [12]. Patients with diabetes who are knowledgeable about self-care had improved long-term glycemic control [13].

Healthy eating habits, active lives, and taking prescribed medication have all been demonstrated to help control or delay the problems of type II diabetes [14]. To ensure the long-term health and well-being of a diabetic athlete, it is vital to effectively manage blood glucose, cholesterol, and blood pressure levels [15]. Appropriate lifestyle adjustments can help with anthropometric measures including body mass index, body weight, waist circumference, and blood parameters like fat and glucose profiles [16].

Individuals with type I diabetes can improve their exercise and physical activity safety by better understanding and monitoring blood glucose changes during and after exercise as well as a higher knowledge about the importance of exercise and physical activity are also helpful in the prevention and controlling of diabetes complications [17]. The lack of understanding and awareness of diabetes symptoms can make it difficult to diagnose the condition early on [18]. Insufficient awareness of nutrition and exercise contribute to rising diabetes prevalence and poor diabetes control. The intervention of non-diabetic family members' inpatient treatment enhances their understanding, leads to lifestyle changes, and reduces the risk of getting diabetes even if they are at risk due to a family history of diabetes [19].

Regular exercise is vital for persons with type I diabetes' health, fitness, lifespan, and many people want to train and compete while they have the disease. Changes in diet and insulin dose can improve the performance of diabetic athletes who have good overall glucose control, liver, muscle, and glycogen consumptions [20]. Insulin levels rise after exercise to allow for the storage of the extra glucose released into the bloodstream as an outcome of the exercise stimulus. Non-insulin-dependent type II diabetics

rarely experience substantial hyperglycemia or hypoglycemia during or after exercise [21].

People with type I or type II diabetes can compete at a high level in sports. They have learned how to balance their insulin or carbohydrate regimens in order to compete without experiencing significant variations in blood glucose concentrations once they reach this level of achievement. Regular exercise provides equal benefits for people with diabetes as it does for people without the disease as long as the diabetic maintains adequate glucose control and has no significant problems. Those advantages outweigh the risks posed by exercise-induced metabolic stress, assuming that sufficient medical screening has taken place [10].

Medical specialists have been paying close attention to the prevalence of diabetes in various parts of the world. Diabetes is predicted to become more common in the future as common people or athletes. The general public in Pakistan has little understanding of diabetes risk issues, control, and treatment. Targeted public education campaigns should be conducted at a national level to promote understanding of diabetes prevention and treatment [22].

2. MATERIALS AND METHODS

The research has cross-sectional research design. The research design was based on a descriptive approach. All male athletes of Punjab province were considered as the population of the present research. The total sample size has consisted of 300 recently retired athletes between the age group of 36-45 years belonging to universities and sports departments.

Data was collected through a survey questionnaire as a tool of data collection. Prior to data collection, the Fasting Plasma Glucose Tests of all 300 samples were taken with Glucometer of those retired male athletes having age group between 35 to 45 years who had not known about their diabetes disease. Out of 300 samples, 163 athletes were found diabetics. Therefore, questionnaires were distributed to 163 retired athletes on the spot once found diabetics. The researchers took three months to complete the process of glucose testing process retired athletes through Glucometer.

Furthermore, the informed objective decisions are based on facts and numbers, real, realistic, and timely informed [23]. In addition, "descriptive statistics deals with describing a collection of

data by condensing the amounts of data into simple representative numerical quantities or plots that can provide a better understanding of the collected data” [24]. The collected data was thus edited in statistical Product and Service Solution SPSS version-26 at IBM product since 2009 [24] for statistical approaches to draw the findings and their interpretations. In this current analyses process, descriptive statistics were utilized using frequencies and percentages.

3. RESULTS AND DISCUSSION

The purpose of the current research was to provide knowledge and awareness to recently retired athletes about diabetes. The age range of the athletes was discovered between 35 to 45 years. The mean age was observed at 38.37 years, whereas, std. deviation was measured 1.078.

The findings revealed that 46% of athletes were felt numbness frequently in their body parts and 35% claimed loss of feelings sometimes whereas, 19% showed occasional numbness in their muscles. The reason behind this numbness in body parts of retired diabetic athletes was the excessive range of glucose in their muscles.

The results highlighted that about 77.3% of the athletes [frequently (47.9%) and sometimes (29.4%)] were found their hands, legs, arms, and feet burning. Therefore, 22.7% of athletes showed less paresthesia in their body parts. The reason for the hands, legs, arms and feet burning was that the paresthesia may be damaging their nerves and blood vessels by high glucose levels in the blood.

Table 1. Age-wise distribution with diabetic range of retired male athletes (N-163)

Age Range	Frequency	Diabetic Range (Fasting)
36-37	11	169-183
38-39	78	166-196
40-41	39	173-211
42-43	23	176-192
44-45	12	180-237

Table 2. Knowledge and awareness about diabetes (N-163)

Measuring Items	Category	Frequency	%
Numbness (loss of feeling in body parts)	Occasionally	31	19.0
	Sometimes	57	35.0
	Frequently	75	46.0
Paresthesia (burning sensation of hands, legs, arms and feet)	Occasionally	37	22.7
	Sometimes	48	29.4
	Frequently	78	47.9
Hyperesthesia (excessive physical sensitivity especially of the skin)	Occasionally	39	23.9
	Sometimes	53	32.5
	Frequently	71	43.6
Body Pain	Occasionally	35	21.5
	Sometimes	59	36.2
	Frequently	69	42.3
Muscles Cramps	Occasionally	36	22.1
	Sometimes	53	32.5
	Frequently	74	45.4
Access of Urine	Occasionally	28	17.2
	Sometimes	45	27.6
	Frequently	90	55.2
Calf Pain	Occasionally	30	18.4
	Sometimes	47	28.8
	Frequently	86	52.8

The findings indicated that about 43.6% of athletes were involved frequently in hyperesthesia and 56.4% [sometimes (32.5%) and occasionally (23.9%)] claimed that they felt physical sensitivity, especially of their skin. The reason behind this illness was that the enlarged sugar levels of diabetic athletes in their blood can affect peripheral neuropathy and nerves damage.

It was observed in results that 78.5% of retired athletes [frequently (42.3%) and sometimes (36.2%)] found pain in their bodies. Whereas, 21.5% of athletes have less body pain. Body pain can be existed in the muscles of diabetic athletes due to long-term and excessive levels of blood sugar and its abnormalities.

The findings showed that 45.4% of athletes were found frequently cramps in their muscles, whereas, 32.5% and 22.1% of retired athletes felt sometimes and occasionally muscles cramps respectively. Glucose is needed for body muscles to contract and relax appropriately, as a sensible interchange of electrolytes, for instance, calcium, magnesium, and potassium. Once imbalances occur as a result of high or low sugar in the blood, cramps can happen. Muscles become insatiable for glucose due to less glucose in the blood.

The results revealed that 82.8% of retired athletes [frequently (55.2%) and sometimes (27.6%)] have access flow in their urinary system, whereas, 17.2% of athletes were rarely involved in access urine. In diabetic athletes, the sugar levels in the blood remain strangely higher. Some of the additional blood glucose ends up in the urine somewhere it magnets further water. This causes abnormal capacities of urine excessively.

The findings indicated that 52.8% of athletes claimed frequent pain in their calf muscles whereas, 28.8% and 18.4% of retired athletes have sometimes and occasionally calf or leg pain respectively. Diabetic athletes felt calf or leg pain with a variety of complications such as diabetic peripheral neuropathy, peripheral artery disease, and deep vein thrombosis. All these can cause pain and swelling in the lower leg (calves), ankle, and feet.

The results revealed that diabetes of retired athletes can be managed well till they remained involve in exercise and sports [10,25]. Once the athletes remained away from their sports events and exercises, the levels of glucose start to

increase in their bloodstream [21,22]. One reason of this glucose abnormality was that the retired athletes were habitual to take healthy carbohydrates during their sports era to boost their energy levels to perform well in their training sessions and competitions and afterward, they still continued their healthy diet even when they were not involved/engaged in their sports and exercises. The findings of the previous studies were found in line with the results of the present research [2,4,10,12,18,20].

4. CONCLUSION

The aim of the current research was to provide knowledge and awareness to the retired athletes of Pakistan about their diabetes. The findings revealed that most of the athletes were found diabetic after their retirements. It was concluded that the retired athletes of Pakistan belonging to any sports should observe their blood glucose regularly. Furthermore, they should continue their exercises and sports involvements to maintain their fitness levels as well as to control the glucose levels in their blood. This enhances not only their healthy lifestyle but also they may spend their healthy lives. Through regular exercises and playing sports, we can control this illness (diabetes) nationally and globally as well.

CONSENT

According to national or international standards, the retired athletes' written consent has been collected prior to data collection and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

DISCLAIMER

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
<https://www.sdiarticle4.com/review-history/72648>