

## EFFECT OF (SKILL-BASED) EXERCISE UPON VETERAN ATHLETE AND NON-ATHLETES OBESITY LEVEL (BODY FATNESS)

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### ABSTRACT:

**Background:** Being overweight is the core problematic issue of the contemporary era exclusively for individuals 40 years of age. Which sort of intervention should be prearranged for old age is constantly questionable. There are divergent aspects that lead to being overweight nesses such as blood pressure, body mass index, and blood glucose.

**Objective:** The objective of the research was to put in the workout exercise for overweight veterans Athlete Group (AG) and Non-Athlete Group (NAG) to triumph against the growing rate of obesity.

**Design:** These veterans were set apart into two groups' athletes (AG) and non-athletes (NAG), athletes have their proficient sport-skilled background, and non-athletes have a recreational connection only. Both groups were obese, with hypertension and likewise, the glucose level was immensely elevated. The simultaneously veteran group was given exercise coinciding under control conditions and periods. According to the World Health Organization, 150 minutes of aerobic or 75 minutes of intensive exercise is effective for weight loss, therefore the study exercise training lasted 6 weeks and was done three times a week to complete the 120 to 150-minute training.

**Results:** Subsequently the conclusion of the six-week workout, the weight of the athlete group was lost by 7.04% and the non-athlete group by 6.82%. The body Mass Index (BMI) of the participants also bettered by 7.01% AG and 6.82% by NAG, correspondingly the effect of the exercise program exposed a significant effect on the blood pressure level of both groups as Systolic Blood Pressure (SBP) of AG 7.00% and NAG with 6.34% get lowered from their initial point. Diastolic Blood Pressure (DBP) of AG 9.76% and NAG 10.76% get lowered from their baseline measurement. Obesity and diabetes have always remained in close contact so keeping in view the level of blood glucose also improved after the training program of AG with 8.89% and NAG with 6.00% with their previous baseline estimation.

**Conclusions:** This study was conducted among veteran athletes and non-athletes due to their increasing rate of obesity after their professional life in sports. Weight loss through exercise brings so many improvements in other lipid profile factors especially by reducing weight helps in maintaining the level of blood pressure both points diastolic and systolic. Besides this factor also improves the BMI and glucose level in the blood.

**Key words:** Veteran, Systolic Blood Pressure, Diastolic Blood Pressure, Blood Sugar, Body Mass Index

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## **INTRODUCTION:**

Obesity, which is distinct as an excessive stockpile of stout in the human body, has grown-up into a present-day condition with devastating consequences. Developed states, such as the United States, consider the disease to be an epidemic due to its uncontrolled and rapid spread (Malambo et al., 2018). According to a WHO poll conducted in the United States of America, 39 percent of the male population suffers from obesity. There are approximately 2 billion overweight adults in the world. Obesity is thought to impact 650 million people. Obese people are defined as those with a BMI of  $\geq 30$  kg/m<sup>2</sup>, which was a significant percentage of the population at the time. Increase in weight can be a bad thing for people, hence BMI is considered to be a combination of height and weight (World Health Organization, 2017; Biadgilign et al., 2017).

The BMI level shows that, 18.5 considered as an underweight category, while 18.5-22.9 as normal, 23-24.9 pre-obese, 25-29.9 class-I obesity, 30-34.9 class-II obesity and less than or equal to 35 is considered to be the class-III obesity (Nam & Park, 2018).

The prevalence of obesity has been increasing at an alarming rate. A survey directed in the United States in year 2010 and backed by the Center for Disease Control (CDC), with estimates ranging from 10% to 30% has been found with in the 20-25 years from the period of 1985 to 2010. Obesity has increased in both occurrence and severity during the last 20 years (Hurt et al., 2010). In another study, treatment was given to overweight or obese people aged 21 to 55 years old three times a week for eight weeks, with each session lasting 45 minutes and yielding considerable weight loss (Chen et al., 2016).

The total generality of overweight and obesity has reached intimidating levels in Asian countries, with progressively

increasing rate of obesity in Pakistani reaching up to 25 percent in a survey from the general population (Al-Almaie, 2005; Jafar et al., 2006). According to the study's findings, the problem of obesity is swiftly extensive among Pakistan's older people (Asif et al., 2020).

Obesity is a prolonged issue that impacts 42.8 percent of middle-aged individuals, according to the CDC. Other chronic conditions, such as heart disease, hypertension, and type 2 diabetes, are intimately linked to this syndrome (Sung & Etemadifar, 2019). Rate of hypertension resultant from prolong obesity was shown to be prevalent in adults aged 40 to 49, 50 to 59, 60 to 69, and 70, with prevalence rates of 11.8 percent, 22.6 percent, 30.7 percent, and 36.6 percent, respectively (Zhang et al., 2019).

Overweight and obesity are the leading causes of cardiovascular disease, which causes premature mortality in many people. These are estimated to be the cause of illness for 2.6 million people annually, where obesity has been identified as a significant risk factor for diabetes at type 2, liver disorders, and sleep disorders (Van Gaal et al., 2006; Poirier et al., 2006; Klein et al., 2007) it also considered to be the life-threatening disease (Centers for Disease Control and Prevention, 2012).

Obesity is thought to be responsible for 80-85% of the risk of getting type 2 diabetes. Overweight persons are up to 80 times more likely than those with a BMI of less than 20-22 to acquire type 2 diabetes, according to studies. It thought to be considered a major factor in the progression of type 2 diabetes (Gungor et al., 2005; Malone & Hansen, 2019).

Obesity is enormously expensive, not only financially, but also in terms of individual health, and psychological well-being. It needs intensive care and management owing to its increasing tendency. Obesity is medically described by measurements that estimate fat from body weight and height. The Body Mass Index

(BMI) is a metric for determining whether or not a person is overweight or obese, and it is thought to be a more accurate indicator of body fat.

Hypertension raises the risk of cardiovascular and renal complications. It is also the leading cause of heart attack, renal failure, and other vascular diseases.

Physical activity is thought to be a key factor in determining one's good health and weight. Walking looks to be a beneficial exercise, with an energetic walking program having a positive impact on obesity levels. Walking burn calories slowly and commonly considered as a safe and easy first-line physical activity for the population of African Americans (Berke et al., 2007; Wang, Lee & Kwan 2018).

It is clearly stated that a high knees activity burns more calories than regular jumping jacks in an exercise program (Türk et al., 2017). High-knee running is also an excellent way to burn calories quickly as a high-intensity activity for almost 24 hours (Donnelly et al., 2009). According to a recent research, weight loss and the cardiorespiratory system are both enhanced by high knee activity (Khattak et al., 2020). Twister might help you tighten up your muscles and lose weight around your waist. Simply by utilizing this tummy trimmer for 10 minutes every day, you may minimize fat around your belly and thighs (Tyagi, 2017).

In exercise language neighborhood is also known as “accompanied with professionals” which has a positive effect. Similarly, in walking and exercise with professional coaches, trainers, and athletes has also a positive effect on the outcome of the participants. It is convenient and appealing to senior citizens, even those with chronic illnesses (King, 2001; Fuller et al., 2010; Chor et al., 2016; Van Cauwenberg et al., 2018).

## Methodology:

### Research Design:

This study was encompassed of cause-and-effect procedure, besides an exercise program. Researcher applied longitudinal research design to get the pre and post results of the observed variables. Both groups were examined through the same exercise program at the same time.

**Figure-1**

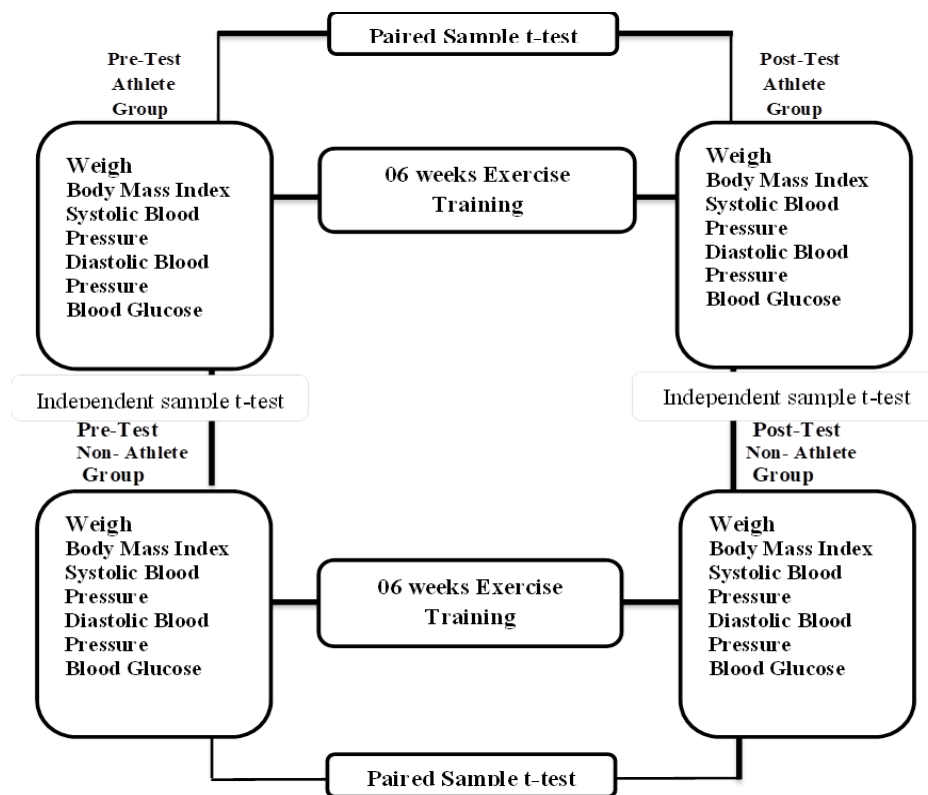


Figure 1 showing the nature of experimental research design.

### Participants:

The foremost emphasize the participants of both groups was due to containing the age of above 40 years. They must have the sporting experience, such as professional playing involvement at least national level set for Athlete Group and recreational expertise for Non-Athlete Group. All the active participants were male and have the vicinity of district Bhakkar, Pakistan.

### Skilled Participants:

The core determination behind the inclusion was their skills and perceive about the exercise training of only professional and recreational personnel's, if not, they would get proper training session before starting the periods of exercise workout.

### Inclusion Criteria:

The study's lower age limit restriction was customary at 40 years, with no specified upper age limit; in consideration of the growing risk of old age medical complications inclusion of sports athletes and non-athlete personnel who have no serious health issue except overweight and obesity.

### Proposed Exercise:

**Table No. 1**  
**Table showing the exercise Plan with time, sets and repetitions**

Weeks	Days	Walk		Tummy twister			High Knees		
		Duration	Rest	Sets	Rep	Rest	Sets	Rep	Rest
1	3 Days a week	30 m	No rest	3	15	30 sec	3	10	30 sec
2	3 Days a week	30 m	No rest	3	15	30 sec	3	10	30 sec
3	3 Days a week	30 m	No rest	3	15	30 sec	3	10	30 sec
4	3 Days a week	35 m	No rest	3	15	30 sec	3	10	30 sec
5	3 Days a week	35 m	No rest	3	20	30 sec	3	12	30 sec
6	3 Days a week	35 m	No rest	3	20	30 sec	3	12	30 sec

*Rep= Repetitions*

The overhead table presenting the complete exercise plan division with respect to the duration, sets, and repetitions for the complete duration. Before the starting of exercise a 5 minute warm-up session was necessary and at the end of the exercise a warm-down exercise was obligatory.

**Table No. 2**  
**Table showing the observed variable and the instruments used to measure these variables**

S. No	Variable	Apparatus/Equipment to be used
1	Height	stadiometer /measure tape (cm)
2	Weight	Manual weight machine kg (pound)
3	Body Mass Index	BMI Chart
4	SBP & DBP	Sphygmomanometer (mmhg)
5	Blood Glucose	Sinocare (China) Glucometer (% and mg/dL)

The table 2 shows the appropriate instruments used to measure the observed variable before and after the implementation of the exercise program.

### **Statistical Software**

The study was experimental in nature so the descriptive and inferential statistics was applied to get the comparative analysis of the observed items. For this purpose, researcher used the Statistical Package of Social Science (SPSS), version 26, which is a useful statistical tool to find out different research analysis and calculations.

### **Results**

In this study above 40 years of age 12 participants made their volunteer contribution. The researcher correspondingly separated the participants according to their nature of sports, participation either they have the professional or recreational experience before get into the age of 40 years shown in table 3 of demographics.

Initially the data was obtained from participants. All observed variable along with the target variable shown in the figure-1.

**Table No. 03**  
**Age and personal playing experience of veteran participants**

<b>Age and experience of the veteran participants</b>				
<b>Variable</b>	<b>Athletes</b>		<b>Non-Athletes</b>	
	<b>Age</b>	<b>Experience (Professional)</b>	<b>Age</b>	<b>Experience (Recreational)</b>
<b>Age and Experience (Professional/ Recreational)</b>	42	18	44	8
	43	21	45	9
	41	16	46	10
	45	19	45	13
	46	22	43	11
	46	21	43	7

Table-3 showing the age and experience either they are professional athletes or took part in sports just for the purpose of the recreation. The athlete group age limits were 41-46 ( $m=43.84$ ) years and the age group of non-athlete participants was 43-46 ( $m=44.34$ ) years. While the athletes has the professional sports



experience in 16 to 22 ( $m=19.50$ ) years and non-athletes with experience of recreational level range from 7 to 13 ( $m=9.67$ ) years.

**Table No. 04**  
**Baseline data of the observed variables**

Variable	Athletes		Non-Athletes	
	Mean	S.D	Mean	S.D
Weight (lb.)	224.13	9.2160	232.21	6.02
Height (cm)	176.10	7.4775	177.80	7.1842
BMI (kg/m <sup>2</sup> )	33.34	3.8815	34.16	3.4880
SBP (mmhg)	140.50	5.4680	141.83	.9831
DBP (mmhg)	90.50	7.5033	91.33	1.2110
Blood Glucose (%)	6.18	.3060	6.33	.0816

*lb= unit of pound, cm= centimeter, BMI= Body Mass Index, SBP= Systolic Blood Pressure, DBP= Diastolic Blood Pressure*

Table 4 shows the baseline data of the participants before starting the exercise program of the outcome variable of the participants where the mean and standard deviation of weight, height, BMI, SBP, DBP, and blood glucose (%) had been stated.

**Table No. 05**  
**Post-date data of the observed variables**

Variable	Athletes		Non-Athletes	
	Mean	S.D	Mean	S.D
Weight (lb.)	208.35	5.8733	217.10	6.1046
Height (cm)	176.10	7.4775	177.80	7.1842
BMI (kg/m <sup>2</sup> )	31.00	3.0331	31.83	2.9944
SBP (mmhg)	130.66	3.8815	132.83	4.8339
DBP (mmhg)	81.66	5.3541	81.50	5.3197
Blood Glucose (%)	5.63	.1751	5.95	.1378

Table 5 showing the data of the participants after the completion of the exercise program of the outcome variable of the participants where the mean and standard deviation of weight, height, BMI, SBP, DBP, and blood glucose (%) had been mentioned.

**Table No. 06**  
**Comparison of Pre and post outcome of the observed variables**

Variable	Athletes			Non-Athletes		
	t- val ue	p- valu e	% imp	t- val ue	p- valu e	% imp
Pre-Weight Vs Post- Weight	10.4 29	0.00 0	7.04 %	19.6 94	0.00 0	6.5 %
Pre-BMI Vs Post-BMI	5.53 4	.003	7.01 %	7.00 0	.001	6.82 %
Pre-SBP Vs Post-SBP	11.2 71	.000	7.00 %	3.89 7	.011	6.34 %
Pre-DBP Vs Post-DBP	8.44 4	.000	9.76 %	4.98 3	.004	10.7 %
Pre-Blood Glucose Vs Post-Blood Glucose	7.20 1	.001	8.89 %	7.06 4	.001	6.00 %

*Imp= improvement*

Table 6 showing difference between pre and post outcome of the both groups. Category of weight of ( $t=10.429$ ,  $p=0.000$ ) with 7.04% weight loss of the athlete group, while for non-athlete group ( $t=19.694$ ,  $p=0.000$ ) with 6.5% weight loss. Similarly, in the category of BMI for athlete group ( $t=5.534$ ,  $p=0.003$ ) with 7.01% lower from the baseline, while for non-athlete group ( $t=7.000$ ,  $p=0.001$ ) with 6.82% lower than the baseline readings. The significant effect of exercise was noticed in SBP of AG with ( $t=11.271$ ,  $p=0.000$ ) with 7.00% lower than before, for NAG ( $t=3.897$ ,  $p=0.01$ ) with 6.34% lower, similarly the changes had also been noticed in DBP ( $t=8.444$ ,  $p=0.000$ ) of AG with 9.76% and for NAG ( $t=4.983$ ,  $p=0.004$ ) with 10.7% lower than the baseline values. Fasting blood glucose level of

both group had been measured for AG ( $t=7.201$ ,  $p=0.001$ ) with 8.89% lower than the initial sample collection and for NAG ( $t=7.064$ ,  $p=0.001$ ) with 6.00% lower than the baseline values.

### **Discussion:**

The contemporary study was conducted to come to be influences of 06-week exercise program upon the veterans (Athletes and Non-Athletes), from district Bhakkar, Pakistan. Both AG and NAG has shown a significant effects of exercise upon the observed variable where (*Weight of AG=0.000 Vs NAG=0.000*), (*BMI of AG=.003 Vs NAG=.001*), (*SBP of AG=.000 Vs NAG=.011*), (*DBP of AG=.000 Vs NAG=.004*), (*Blood Glucose of AG=.001 Vs NAG=.001*). Supported by the literature that walking, high knee, and tummy twister has a significant effect on weight management and weight loss; which provide a significant effect on observed variables too (Donnelly *et al.*, 2009; Türk *et al.*, 2017; Tyagi, 2017). A combination of exercise protocol for both groups of veteran personnel shown a significant result, but athlete group improve more than the non-athlete group. So, the present study limited the exercise program and their time which get significant result. Further research is needed to reduce the obesity level, blood glucose level as well as the systolic and diastolic pressures of the blood for the other veteran population other than the professional athletes and recreational participants of the sport.

Similarly, extendable time period of this exercise program would be more beneficial for obese or overweight people of the society. Surprisingly, the joint exercise of the athlete and non-athlete group shows an overall significant result, so it is further recommended to give the exercise program in a single session to older people with professional of the sport. A further research in neighborhood/ accompanied exercise program is needed to get the benefit of joint efforts.

### **Conclusion:**

Older obese or overweight people can get the benefit from this research, along with physiotherapist, trainers, medical practitioners, and blood pressure patients can get benefit. Obese people having coronary disease, hypertension, or type 2 diabetes patient can get benefit for the joint exercise session with the professional athletes with same exercise for extendable period of time. In future it is hoped that this joint exercise session will lead veteran toward healthy and prosper life in their busiest economical life. More research and innovation is needed to help out the veteran people to get out the disease of obesity and premature death. Furthermore, a research is needed by reducing the time duration or increasing the repetitions of exercise from moderate level to intense will provide more improvement in the observed variable.

**Consent Form:**

A prior consent was taken from the participant of the study. The entire participant made their volunteer contribution in the study for the period of 6- weeks.

**Approval:**

Before initiating the research, we acquired official approval from the Departmental Supervisory Committee (DSC) of Gomal University's Department of Sport Sciences and Physical Education in Dera Ismail Khan.

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