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## Effect of selected core strengthening workouts & Balanced diet in reducing weight among college teachers under Calicut University

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### Abstract

The study is to find out the effect of selected core strengthening workouts among the college teachers under Calicut University. Overweight and Obesity are the main health issues that faced by the college teachers of Kerala. Teachers having heavy workloads in colleges and home leads to several health issues. Obesity & excess weight of body leads to several health issues like hypertension, blood pressure, digestive disorders.. etc. All of the teachers aware about the importance of fitness and healthy living. But only a few of them are doing exercises regularly. 50 samples were collected from various government & aided colleges under Calicut University. In this 25 each male and female teachers who are aged from 25 to 55 were considered for the study. SPSS version 22, Descriptive statistics and paired T-test was used to analyze the data. A simple random survey was conducted to collect the sample. Body weight, Height and Hip to waist ratio (WHR) were measured in the survey. After the survey, all the 50 respondents were underwent 2 weeks of basic training and 8 weeks of core strengthening along with the prescribed healthy diet. The finding of the study is, selected core strengthening workouts along with healthy diet have the significant influence on reducing body weight and waist to hip ratio among college teachers. This training package is not only for college teachers but also for all common people who has the overweight and obese problems.

**Keywords:** Obesity, waist to hip ratio (WHR), core muscles, rectus abdominis, external obliques, internal obliques, transverse abdominis, multifidus, quadratus lumborum, lumbar erector spinae

### Introduction

Overweight and obesity are the life style diseases are the ultimate cause or stepping stone of all the health issues. The person with these health issues may under the threat of diabetes, Hypertension, Knee pain, Low Back Pain, digestive disorders, kidney problems etc. Sedentary lifestyle, unhealthy diet, lack of exercise is the major reasons for the overweight or obesity. Proper exercises with healthy diet will contribute a healthy body and life. Almost all the educated people in Kerala are aware about the healthy body and healthy living. But only few of them are practicing in the life. Everybody is busy with their on works and living a mechanical life. Unhealthy and instant foods are available in the market. Increased number of working micro families forced to have such junk foods everyday. Overweight and Obesity is not only an individual's issue but it is a social issue. The productivity of an obese person will reduced due to the health issues. This affects his family as well the working institution. If the victim is a teacher, this may influence his students. So it is essential to solve it in the beginning.

### Core muscles and its function

Core muscles are responsible for all the major movements of the body. These muscles give strength and stability to the movements like bending, twisting, crouching etc. Core muscles are situated at the lower back and abdominal area. They are rectus abdominis, external and internal obliques, transverse abdominis, multifidus, quadratus lumborum and lumbar erector spinae. All these muscles have their own function. Transverse abdominis is considered as the heart of core. This wrapped around the abdominal and lower back area of the body. Which act as a supportive muscle for the spinal cord. Muscles of core and its major function as follows.

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**Rectus abdominis:** This muscle is also called Six Pack muscles, which helps to flex and rotate the trunk.

**External obliques:** Provides stability and helps for hip flexion, rotation and sideward bending.

**Internal obliques:** Helps to flexion and rotation of the hip and also provides the stability of the spine.

**Transversus abdominis:** This muscle is also called heart of core. Plays very important role in trunk stabilization and supports the abdominal wall

**Multifidus:** This muscle supports the joints of vertebrae and also helps for spinal rotation and flexion.

**Quadratus lumborum:** This muscle helps the pelvis to connect the spine and helps the trunk to bend and twist.

**Lumbar erector spinae:** Like all other core muscles, it is the long muscle which is also responsible for twisting and bending of the trunk.

### Core Strengthening

Core strengthening is very important part of the training sessions. It is not only for sports persons but also for the common people. These muscles play a vital role in bending, twisting, sitting or standing for time.etc. One very important role these muscles are to hold the body straight. Rectus abdominis & transverse abdominis play a vital role in trunk flexion and extension. Weakening of core muscles is leads to sports injuries. Low back Pain among common people is also the impact of these muscles weakness. So core strengthening is very important for all the training programs.

### Balanced Diet

A balanced diet is that which contain proper proposition of all the nutrients required to a person. This includes supply of all type of foods like carbohydrates, proteins, vitamins and other nutrients in optimum level. Balanced diet is very important in healthy body and healthy living. Healthy body is the result of balanced diet and healthy habits. Here we are introducing a new diet with the training package for college teachers. These ideas are not new one, but it is an attempt to create capsule edition of fitness package. This package is only a step stone to the fitness and healthy living. It can be practiced in daily life; can live a healthy, pain free and happy life.

### Study Objectives

- To study the effect of Core strengthening among respondents in the study area.
- To examine the influence of diet among the teachers in the study area.

### Methodology & Data Source

The study is designed as pre- test random group design to study the effect of selected core strengthening workouts along with the prescribed diet among college teachers under Calicut University. Simple random sampling method (lottery method) was used to select the sample size of 50 which includes 25 each males and females in the Colleges under Calicut University. The data was collected through scheduled questionnaire. Respondents were undergone two weeks of basic training and ten weeks of specific training.

### Core Training Schedule

Warming up Exercises – 15 Minutes (Warming up stretching, Jogging for 15 Minutes/Walking in moderate speed 30 Minutes)

**Table 1:** Warming up Exercises should be done every day before doing core strengthening workouts

Sl. No	Exercise	Duration of Exercise	No. of Sets	Rest after each exercise	Rest after Set
1	Bent Knee Crunches	20-30 Sec	2-4 Sets	20-30 Sec	2-3 Minutes
2	Alternate Leg Lifts				
3	Floor bridge				
4	Plank				
5	Alternative toe touch with bent knees				
6	Double Crunches				

**Table 2:** Suggested Diet

Days	Breakfast	Snacks	Lunch	Snacks	Dinner
Monday	1) Wheat soup - 1 Cup 2) Banana-1 3) Milk- 150 MI 4) Egg White-2 Nos 5) Sprouted pulses- 25 gm	1) Pea Nuts-25 gm 2) Fresh Juice-100 ml	1)Rice-1 Cup 2) Leafy vegetable curry 3) Fish Curry	1) Tea & wheat biscuits-2 Nos	1) Chappathi-3 Nos 2) Chicken Curry with less spicy.
Tuesday	1) Iddali-4 Nos 2) Banana-1 3) Milk- 100 MI 4) Egg White-2 Nos 5) Sprouted pulses- 25 gm	1) Fresh Lime Juice-100 ml	1)Rice-1 Cup 2) Root vegetable	Orange Juice- 100 ml	1)Chappathi-3 Nos 2)Mixed Vegetable curry
Wednesday	1) Wheat Puttu-1 Cup 2) Banana-1 3) Milk- 150 MI 4) Egg White-2 Nos 5) Sprouted pulses- 25 gm	1) Cashew Nuts-10 gm 2) Fresh Lime Juice-100 ml	1)Rice-1 Cup 2) Mixed vegetable 3) Fish Curry	Banana small- 2 Nos	1)Chappathi-3 Nos Egg curry
Thursday	1) Ragi Puttu-1 Cup 2) Banana-1 3) Milk- 100 MI 4) Egg White-2 Nos 5) Sprouted pulses- 25 gm	1) Fresh Lime Juice-100 ml	1)Rice-1 Cup 2) Pulses	Tea & Pea nuts-25 gm	1)Chappathi-3 Nos Chicken curry
Friday	1) Wheat Uppuma-1 Cup	1) Dry Fruits- 25	1)Rice-1 Cup	Orange Juice-100	1)Chappathi-3 Nos

	2) Banana-1 3) Milk- 150 MI 4) Egg White-2 Nos 5) Sprouted pulses- 25 gm	gm Lime Juice-100 ml	2) Mixed vegetable	ml	Potato curry
Saturday	1) Wheat soup-1 Cup 2) Banana-1 3) Milk- 100 MI 4) Egg White-2 Nos 5) Sprouted pulses- 25 gm	1) Fresh Lime Juice-100 ml	1)Rice-1 Cup 2) Fish Curry	Cucumber/Carrot 50 gm	1)Chappathi-3 Nos Egg curry
Sunday	1) Dosa Small-3 Nos 2) Banana-1 3) Milk- 150 MI 4) Egg White-2 Nos 5) Sprouted pulses- 25 gm	1) Fresh Lime Juice-100 ml	1)Rice-1 Cup 2) Pulses	Banana small-2 Nos	1)Chappathi-3 Nos 2Mixed Vegetable curry

The food items suggested in the diet chart is mostly available and traditional foods of south India. Dosa, Iddali and puttu are main south Indian foods suggested in the chart. It can be replaced by chappathi, wheat bread and Roti by the other states.

**Other Instructions**

Use less oil, salt, sweet and other spices for cooking. Junk foods, Red meats, Alcohol, Smoking. etc. This instructions are not only for this training period, but also for everyday life.

**Analysis and Interpretation**

The analysis of the data collected goes in tune with the objectives for the study. Chi-Square test has been fit to found

out the association between gender with BMI and Waist to hip ratio. Paired sample t-test used to find the difference between pre-test and post- test.

**Table 3:** Gender distribution of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	25	50.0	50.0	50.0
	Female	25	50.0	50.0	100.0
	Total	50	100.0	100.0	

Table 3 shows the gender composition of the sample collected. Of the total 50 respondents, 50 percent are male (25 respondents) and 50 percentage are female (25 respondents).

**Table 4:** Gender & Pre- test BMI Cross tabulation

		BMI value pre test		Total	
		Normal (18.5- 24.9)	Overweight (25.0-29.9)		
Gender of the Respondent	Male	Count	15	10	25
		% within Gender of the Respondent	60.0%	40.0%	100.0%
	Female	Count	13	12	25
		% within Gender of the Respondent	52.0%	48.0%	100.0%
Total		Count	28	22	50
		% within Gender of the Respondent	56.0%	44.0%	100.0%

The study classifies the frequencies of BMI values as very severely underweight, severely underweight, normal and overweight and obese. It is clear that of the 50 respondents, 15 male (60%) respondents are under normal and 10 (40%) are overweight. But in the case of female respondents, 13(52%) are normal and 12 (48%) are in overweight category. We could see that as the frequencies of overweight cases in the female number is slightly higher than the male. Overall 22 respondents (44%) are in overweight category according their BMI values.

obesity.

**Table 5:** BMI and WHR Pre-Test Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BMI pre-test	50	19.63	29.30	24.2718	2.30104
WHR pre test	50	30.00	36.50	33.2600	1.79068

The above table shows the BMI & WHR range of the respondents. The mean value of BMI & WHR score shows that college teachers are at high risk of overweight and

**Table 6:** BMI and WHR Pre-Test Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BMI pre-test	50	19.63	29.30	24.2718	2.30104
BMI post test	50	19.68	27.34	23.6706	1.89676
Waist to hip ratio pre test	50	30.00	36.50	33.2600	1.79068
Waist to hip ratio post test	50	29.50	34.50	31.8300	1.25605

The table classifies the mean values of BMI and Waist to hip ratio of pre-test and post-test. It is clear that of the 50 respondents, BMI values in pre-test and post-test results are have the significantly difference. Same as the WHR values also significantly reduced than the pre-test. These values indicate that, suggested core strengthening workouts along with the balanced diet have significant influence in the controlling weight and WHR in college teachers.

**Table 7:** Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)	
				Lower	Upper				
Pair 1	BMI pre-test - BMI post test	.60120	.59711	.08444	.43150	.77090	7.119	49	.000
Pair 2	Waist to hip ratio pre- test - Waist to hip ratio post test	1.43000	.74238	.10499	1.21902	1.64098	13.621	49	.000

Given table indicate the difference between pre-test and post-test of selected two variables. BMI test values (0.000) of the respondents in pre- test and post- test are having the significant difference which means the study is effective. Pre-test and Post-test values of WHR are also indicate that result is highly significant. Suggested diet and core strengthening workout have significant influence on controlling the weights of the college teachers under Calicut University.

### Findings

The analysis results show that, the core strengthening workouts along with the suggested diet will contribute a healthy body and fitness standard to the participant. Overweight and obese cases among college teachers are highly increasing. Inactivity and unbalanced diet among this category is increased. Voluntary participation of the respondents is very important to get good results.

### Discussions

Obesity is a common health issue in all the human beings. Sedentary lifestyles, unhealthy diet, inactivity are leads to overweight and obesity. Having junk foods among children and teenagers are highly increasing. The lifestyle disease among these groups is also increasing. Overload in work leads to mental stress and other health issues. Studies have proved that, involving in fitness activities like walking, playing, cycling, swimming etc will reduce mental stress. Confidence level of healthy person is higher than an obese person.

### Suggestions

Overweight or obesity is not disease but it is condition that can be lead to various diseases. That is why; obesity is called step stone to all diseases. Some of the participants shared their views that they are regular habit of walking but their weight is not at all reduced since one year. Not only teachers but some other professionals also shared the same experience. Really it is a very difficult task to reduce our weight. Because it need lot patience and it is not only a weekly or monthly program. Body weight is the result of the imbalance in the use of daily energy level. If we take more than calories required, that will be deposited as fat. So this study suggested doing the scientific training along with the balanced diet and not for one or two months but make it as a habit. Definitely seek the help of a physical education expert or fitness trainer before starting the fitness workout.

### Conclusions

Practice healthy habits and balanced diet in daily life. Fitness workout along with healthy food habits will contribute a healthy and energetic life as well as a pain free and happy life. Practice healthy postures in sitting, standing and lifting. This will provide you a healthy body structure and pain free life. Teachers (also some parents) are the real role models to the children. So show them through the practice. Be a healthy parent and also a teacher.

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