

Prevalence of Cervical Pain among Chitty Collection Agents in Palakkad District

Manu Chakravarthy. S¹ & Vivekanandhan. T²

¹Assistant Professor, Government College, Chittur.

²Associate Professor, Christ College Irinjilakkuda.

¹chakrjudo@gmail.com

²drvivekbpe@gmail.com

Abstract

The study is to find out the prevalence of Cervical Pain or spondylosis among the chitty collection agents of Palakkad district. Nature of job and workload among the staffs leads to many health issues. Among these issues Cervical pain (Neck Pain) is a prominent problem. To study the prevalence of cervical pain among the various chitty collection staffs in Palakkad district was chosen. Samples were collected from the various private limited companies in the Palakkad district. Total 50 male workers who aged from 25 to 50 were selected for the study. ANOVA, Paired t-test, Descriptive statistics and regression were the statistical tools used to analyze the data. The result of the analysis reveals that total 76% of workers have the cervical pain. BMI, Use of mobile phones, Habit of exercise, Practice of healthy body postures, Driving distance and Habit of smoking are the factors significantly influencing the cervical pain of the respondents. Pain intensity was measured by the Oswestry Low Back Pain Disability Questionnaire. Study concluded that there is a significant influence of lifestyle in controlling the cervical pain among the workers.

Keywords: LBP, Acute, Sub-Chronic, Chronic, Cervical, Thoracic, Lumbar, Sacrum, Coccyx

Introduction

Cervical pain is one of the common health issues of the modern world. Software professionals, drivers, the professional who are sitting in front of the computers and mobile phones for a long time are the victims of the neck pain or the cervical spondylitis. Eastern part of the Palakkad district in Kerala is sharing the border with the Tamilnadu and this area is having large number of private money lending agencies known as chitty companies. Around 50 registered private chit funds private companies are located at Gopalapuram (one of the border area of Kerala and Tamilnadu). All these companies are registered in Tamilnadu and majority of their business is in Kerala. Farmers, small scale business men, various shops and other common people living all over the district are the customers of these agencies. Approximately, 15 to 20 crore rupees per month business is taking place in these agencies. Difficult formalities to take loans in reputed nationalized banks is the main reason that common people approaching these agencies and getting money very easily with large rate of interest. There are 400 to 500 collection staffs are working in these agencies.

The staffs are the real workers those who meets customers directly and realizes the need of a common man. They travel 100 to 120 kilometers per day to meet the customers in the various parts of the district. They collect 25000 to 50000 rupees per day according to the chitty amount. Normal day of a collection agent starts at 9.am on this time they are reaching at the office and checking the collected amount collected on the last day. 11am they will leave the office daily for collection. Two wheeler is the main means of travel for the staff. This nature of profession leads to so many health issues among collection staff. Regular and repeated stress on the shoulders and lower back causes severe Low Back Pain and neck pain. Often various health issues reduces the duration of sleep as well as their productivity.

What is Neck (Cervical) Pain?

Neck is composed of seven vertebrae which lay between skull to torso. Bones, ligaments and muscles supports the cervical area and allows the motion of neck joint. Any abnormality to the supportive muscles and related bones leads to pain on the neck. Unprotected and abnormal movements to the neck may leads to severe pain. Usually a neck pain will disappear within a week but in some other cases it may be continues more than a week.

According to duration of pain, neck pain is divided into three types. They are

- a) Acute (Pain lasting for 1 week)
- b) Sub-Chronic (Pain lasting for 1 week to 4 weeks)
- c) Chronic ((Pain lasting for more than 4 weeks)

Anatomy

Human spine is divided into three parts, they are Cervical, Thoracic and Lumbar regions. Cervical (Neck) area composed of 7 vertebrae, Thoracic region (Chest) is composed of 12 vertebrae and Lumbar region (Lower Back) is made up of 5 vertebrae. Vertebrae are the set of bones which starts from the base of the skull and extents to the sacrum. Ligaments, tendons and nerves are attached to the vertebrae. Inside Vertebrae, there are round and spongy pads of cartilages called discs act as shock absorbers of the body. These spongy cartilages, protects the spine from the external pressure. Excessive pressure and stress on these cartilages leads to the pain on that location. Severe injury to the discs or the related muscles and tissues are also leads to pain at the area. Degeneration or bulging of the discs may leads to the failure to absorb pressure on the vertebrae is the common reason for the pain.

Study Objectives

1. To study the prevalence of cervical pain among respondents in the study area.
2. To examine factors determining cervical pain among the respondents in the study area.

Methodology and Data Source

Pre-test random group design is used to find out the prevalence of cervical pain among the chitty collection agents of the Palakkad district. Simple random sampling was used to collect samples of 50 male staffs aged between 25 to 50. Modified Oswestry Pain Disability questionnaire was used to measure the pain intensity of the respondents. Study was conducted during the period of January 2020. Research scholar visited respondents home and collected the data through prescribed questionnaire.

Analysis and Interpretation

The complete data collected is analyzed by using IBM SPSS version 22 software. Paired sample t-test, descriptive statistics, ANOVA and regression were used to analyze the data. Relation between cervical pain and lifestyle has been analyzed by paired t-test, Pain intensity was analyzed by using regression and ANOVA.

Table 1. *Prevalence of Cervical Pain*

| Pain Level | Frequency | Percent | Valid Percent | Cumulative Percent |
|------------|-----------|---------|---------------|--------------------|
| Always | 2 | 4.0 | 4.0 | 4.0 |

| | | | | |
|--------------|----|-------|-------|-------|
| Never | 12 | 24.0 | 24.0 | 28.0 |
| Occasionally | 28 | 56.0 | 56.0 | 84.0 |
| Often | 8 | 16.0 | 16.0 | 100.0 |
| Total | 50 | 100.0 | 100.0 | |

Table 1 reveals the percentage of cervical pain prevalence among the respondents. There are 24% of respondents are never experienced pain rest of the 76% are experiencing cervical pain. In this 20% are having regular pain occurrence. Large number of respondents (56%) falls under occasional pain victims.

Graph I. Prevalence of Cervical Pain

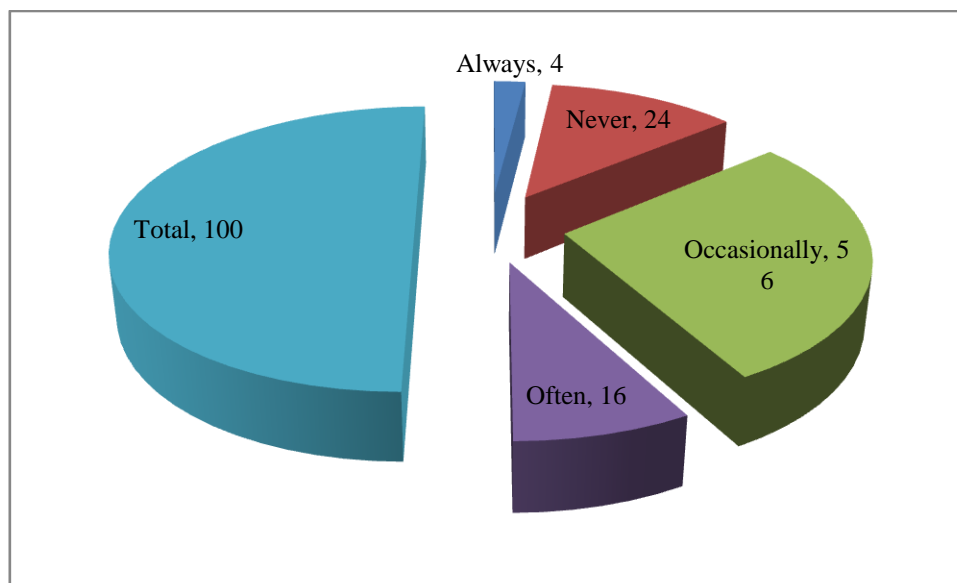


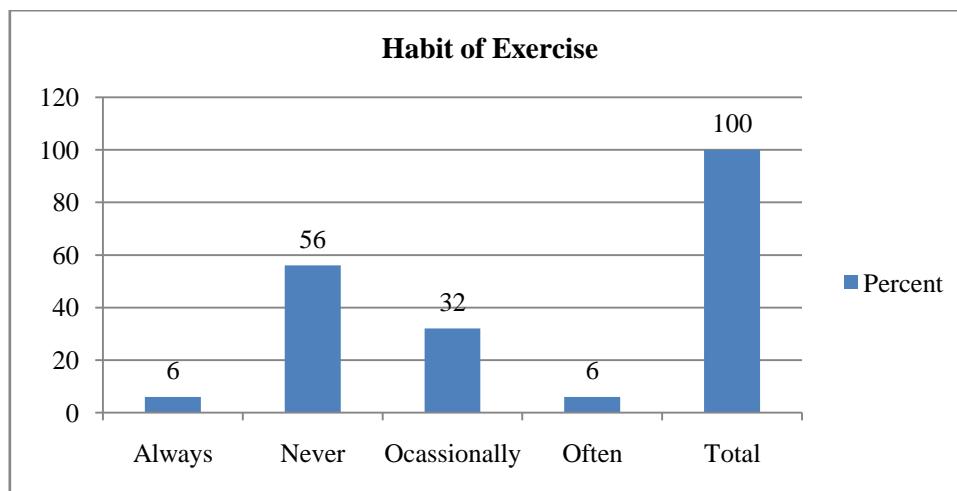
Table 2. Paired 't' test of Relation between Cervical Pain and Life Style

| Pairs | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|------------------------|--------------------|----------------|-----------------|---|----------|---------|----|-----------------|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | Upper | | | |
| CP & BMI | -21.52840 | 2.50119 | .35372 | -22.23923 | 20.81757 | -60.862 | 49 | .000 |
| CP & Use of Mobile | .40000 | 1.10657 | .15649 | .08552 | .71448 | 2.556 | 49 | .014 |
| CP & Habit of Exercise | .46000 | .99406 | .14058 | .17749 | .74251 | 3.272 | 49 | .002 |
| CP & Body | .74000 | .80331 | .11361 | .51170 | .96830 | 6.514 | 49 | .000 |

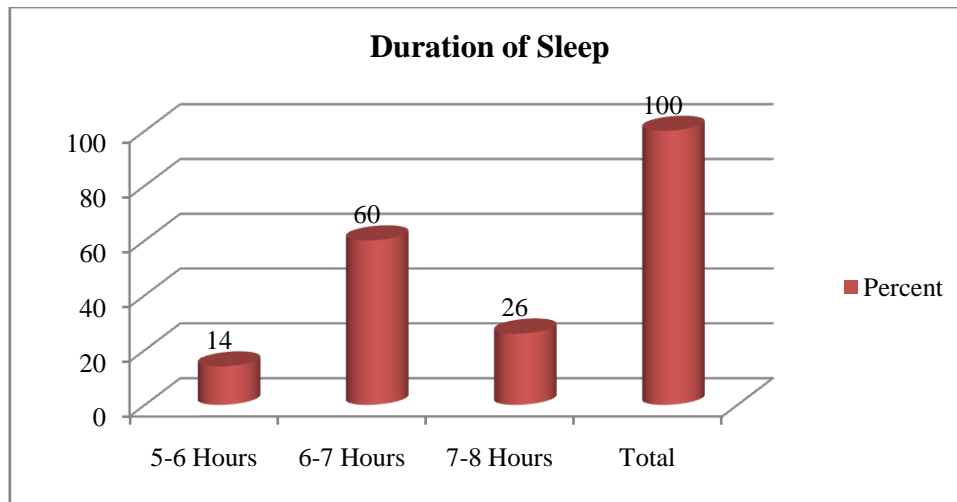
| | | | | | | | | |
|-----------------------|-----------|---------|--------|-----------|----------|---------|----|------|
| Posture | | | | | | | | |
| CP & Drive distance | -83.24000 | 6.22228 | .87996 | -85.00835 | 81.47165 | -94.595 | 49 | .000 |
| CP duration of sleep | -.28000 | .96975 | .13714 | -.55560 | -.00440 | -2.042 | 49 | .047 |
| CP & Habit of Alcohol | -.24000 | 1.00122 | .14159 | -.52454 | .04454 | -1.695 | 49 | .096 |
| CP & Habit of Smoking | .32000 | .79385 | .11227 | .09439 | .54561 | 2.850 | 49 | .006 |

Above given table shows the influence of lifestyle factors on cervical pain. There are seven lifestyle factors, BMI, Usage of mobile phones, habit of exercise, habit of healthy body postures, duration of sleep, Habit of alcohol and smoking were compared with the cervical pain in the table-2. With the 95% of confidence level and 0.05 margin of error level, habit of alcohol is insignificant. That means alcohol drinking is not significantly influencing the cervical back pain of the respondents. BMI, Usage of mobile phones, habit of exercise, habit of healthy body postures, duration of sleep and habit of smoking all these factors are significantly influencing the cervical pain of the respondents.

Graph II



Graph III



Factors Determining Cervical Pain Disability Level

A regression has been fit to see the pain disability level of cervical region of the respondents.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + U$$

Where Y = dependent variable (Cervical pain)

X = independent variables (X₁, X₂, X₃, X₄, X₅, X₆, X₇, X₈, X₉, X₁₀ pain intensity, personal care, lifting, walking, sitting, standing, sleeping, social life, travelling and employment

β = rate of change.

U = error term

Table 3. Regression Table of Pain Disability Level

| MOPDQ Index | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|----------------|-----------------------------|------------|---------------------------|-------|------|
| | B | Std. Error | Beta | | |
| (Constant) | .401 | .197 | | 2.035 | .049 |
| Pain intensity | .955 | .295 | .182 | 3.233 | .002 |
| Personal care | .946 | .233 | .135 | 4.056 | .000 |
| Lifting | 1.063 | .226 | .193 | 4.708 | .000 |
| Walking | .945 | .338 | .091 | 2.797 | .008 |
| Sitting | 1.083 | .247 | .133 | 4.383 | .000 |
| Standing | .792 | .209 | .155 | 3.784 | .001 |
| Sleeping | .847 | .281 | .104 | 3.014 | .005 |
| Social life | .874 | .283 | .095 | 3.085 | .004 |
| Travelling | .852 | .296 | .146 | 2.884 | .006 |
| Employment | .972 | .315 | .133 | 3.086 | .004 |

Dependent Variable: Total Pain Intensity Score

The obtained results in table-3 interpret the pain intensity level of the respondents. There are 10 factors to measure the pain disability level of the respondents. They are pain intensity, personal care, lifting, walking, sitting, standing, sleeping, social life, travelling and

employment. All the factors are having significant effect on pain disability level of the respondents.

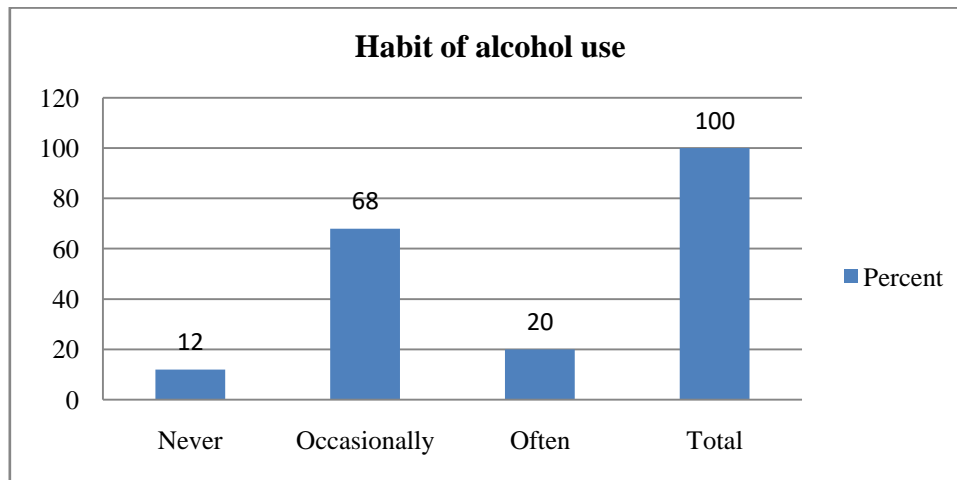


Table 4. ANOVA Table of Pain Disability Level

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|------------|----------------|----|-------------|---------|-------------------|
| Regression | 1060.904 | 10 | 106.090 | 164.866 | .000 ^b |
| Residual | 25.096 | 39 | .643 | | |
| Total | 1086.000 | 49 | | | |

Table 4 ANOVA table exhibits the pain disability level of respondents are highly significant.

Table 5. Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .988 ^a | .977 | .971 | .80218 |

a. predictors: (Constant), pain intensity, personal care, lifting, walking, sitting, standing, sleeping, social life, travelling and employment

The obtained R square value reveals the applied regression model and infers that the factors of the model explain 97.7 percent of the variations in the dependent variable.

Findings

The analysis results show that, prevalence of cervical Pain among chitty agents is very high. So we can say that, the person with regular exercises and sound sleep can live a pain free and healthy life. The lifestyle factors including BMI, Usage of mobile phones, habit of exercise, habit of healthy body postures, duration of sleep and smoking have significant influence on the cervical pain of the respondents. MOPDQ index factors are significant effect on the pain disability level of the respondents.

Discussions

Cervical pain is common in the modern world. Studies all over the world had proved that over use of smartphones is one of the major reasons behind the cervical spondylosis or pain. Children of various places are playing games in the Computers and mobile phones. These children got addicted with the games and avoiding outdoor games. Peer group of children as well as adults facing visual and cervical problems due to the overuse of smart phones and computers. Here the selected subjects have been riding two wheelers average 86 KM per day and 2580 KM per month. They are not interested to take leaves because their salary is purely decided by the amount collected by them daily. This leads to severe health issues like Low Back Pain and cervical pain. Most of the workers are undergraduates and not conscious about their health. From the samples only 12% of are no drinkers, 68% are occasional and 20% are often drinking alcohol. While considering to the habit of exercise, 56% of respondents never do exercises, 32% occasionally, 6% often and 6% always do exercises. Duration of sleep among the respondents as follows. 26% are sleeps 7 to 8 hours per day, 60% gets sleep 6-7 hours and 14 are sleeps 5 to 6 hours.

Conclusions

Moderate level of exercises with balanced diet, minimize the use of mobile phones, practice of healthy body postures in daily activities, reduce the distance of drive or take four days leave per month to take rest, sufficient sleep, avoid smoking will help to reduce the intensity of pain level.

Suggestions

Cervical pain is the specific issue which occurs at the neck and related tissues. It is not due to a single reason but caused by a large number of reasons and underlying problems with varying level of pain intensity. All kind of health issues have the problem of proper management at the right time. Cervical pain is also need proper treatment at the acute stages of pain otherwise it leads to the chronic stage. A well maintained diet along with the moderate level of exercises will give good results in the fitness level as well as in the pain management. Majority of the workers consume alcohol and do not have the habit of exercise. This study suggests the workers to be conscious on their lifestyle and health. Practice of healthy body postures and proper strengthening exercise to the cervical area will reduce the intensity of pain.

References

1. Bogduk, N. (2002). Innervation and pain patterns of the cervical spine. *Physical therapy of the cervical and thoracic spine*, 2.
2. HARTLEY, J. (1964). Acute cervical pain associated with retropharyngeal calcium deposit: a case report. *JBJS*, 46(8), 1753-1754.
3. Nordemar, R., &Thörner, C. (1981). Treatment of acute cervical pain—a comparative group study. *Pain*, 10(1), 93-101.
4. Pietrobon, R., Coeytaux, R. R., Carey, T. S., Richardson, W. J., &DeVellis, R. F. (2002). Standard scales for measurement of functional outcome for cervical pain or dysfunction: a systematic review. *Spine*, 27(5), 515-522.
5. Revel, M., Andre-Deshays, C., &Minguet, M. (1991). Cervicocephalic kinesthetic sensibility in patients with cervical pain. *Archives of physical medicine and rehabilitation*, 72(5), 288-291.
6. Rowlingson, J. C., &Kirschenbaum, L. P. (1986). Epidural analgesic techniques in the management of cervical pain. *Anesthesia and analgesia*, 65(9), 938-942.



ISSN: 2456-0057

IJPNPE 2020; 5(1): 109-112

© 2020 IJPNPE

www.journalofsports.com

Received: 12-11-2019

Accepted: 16-12-2019

Manu Chakravarthy S

Assistant Professor, Department
of Physical Education, Govt.
College Chittur, Palakkad,
Kerala, India

Dr. T Vivekanandhan

Associate Professor, Department
of Physical Education, Christ
College, Irinjalakuda,
Thrissur, Kerala, India

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

Manu Chakravarthy S and Dr. T Vivekanandhan

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.

Corresponding Author:

Manu Chakravarthy S

Assistant Professor, Department
of Physical Education, Govt.
College Chittur, Palakkad,
Kerala, India

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.

References

1. Brungardt K, Brungardt B, Brungardt M. The Complete Book of Core Training: The Definitive Resource for Shaping and Strengthening the "core"--the Muscles of the Abdomen, Butt, Hips, and Lower Back. Hyperion, 2006.
2. Delavier F. Strength training anatomy. Human kinetics, 2010.
3. Delavier F, Gundill M. Delavier's Core Training Anatomy. Human Kinetics, 2011.

4. Detz J. Ultimate Core Ball Workout: Strengthening and Sculpting Exercises with Over 200 Step-by-Step Photos. Ulysses Press, 2005.
5. Long R. Yoga Mat Companion 3: Anatomy for Backbends and Twists Bandha Yoga Publications LLC, 2011, 3.
6. Long R, Macivor C. The key poses of yoga. Bandha Yoga Publications LLC, 2009.
7. Manocchia P. Anatomy of exercise: A trainer's inside guide to your workout. Firefly Books Ltd, 2008.
8. Rubenstein, I. (Ed.). Exercise Ideas for Upper Body Strengthening. Visual Health Information, 2005.
9. Akuthota V, Nadler SF. Core strengthening. Archives of physical medicine and rehabilitation. 2004; 85:86-92.
10. Diraco G, Leone A, Siciliano P.. An active vision system for fall detection and posture recognition in elderly healthcare. In 2010 Design, Automation & Test in Europe Conference & Exhibition, IEEE, 2010, 1536-1541.
11. Granacher U, Gollhofer A, Hortobágyi T, Kressig RW, Muehlbauer T. The importance of trunk muscle strength for balance, functional performance, and fall prevention in seniors: a systematic review. Sports medicine. 2013; 43(7):627-641.