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EFFECT OF DIET AND FITNESS PROGRAM ON SELECTED BIO-CHEMICAL & HAEMATOLOGICAL VARIABLE ON OVER WEIGHT COLLEGE GOING STUDENTS OF RAJKOT CITY

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Abstract:

The purpose of this study was to find out the effect of by diet and fitness program on selected bio-chemical and haematological variables among over weight science colleges in Rajkot city of Gujarat. To achieve the purpose of the study 40 male over weight science college students from different science colleges in Rajkot city were randomly selected as subjects and their age were 20 - 25 years. They were assigned into two groups, namely, experimental group and control group. Experimental group was experimented with diet and fitness program and the control group were not given any experiment. The variables selected for the study biochemical and haematological variables selected for this study were high density lipoprotein, low density lipoprotein, total cholesterol, triglycerides, total cholesterol and red blood cell, white blood cell, Platelets, Haemoglobin. All tests were administered to all the subjects as per prescribed procedure. The paired mean and ANCOVA were used to analyze the data. The level of significance was set at 0.05. It has been observed from the analysis of given data and interpretation of findings that significant relationship was found between Experimental Group and Control Group of this study.

Key word: Biological and Haematological Variables, Aerobic, Over Weight, BMI, Diet etc...

Introduction:

"Health is wealth" this saying rightly translates Health into wealth. Because if you are health you can enjoy all happiness and joy of life but if you are not well, all comfort, luxury and treasures and useless.

Traditionally health is looked as a physical well-being but with expansion of the knowledge and understanding, the restricted meaning of health was broadened to cover psychology (Mental) well- being. if you are physically fit but mentally disturbed you cannot enjoy the worldly comports . Even a strong person can be easily defeated, if he/she is feeble mentally. And that`s why the consensus emerged to include mental fitness in the definition of health

The necessity to include social fitness along with physical and mental fitness started emerging in the second half of the twentieth century. World health organization, the premier organization of the health, working world wide has proposed a definition of health embracing all three dimensions "Health is a physical, mental and social well-being and not merely absence of any diseases of infirmity."

The food that we eat is assimilated in the body and is used for the growth and maintenance of tissues. life cannot exist without food and it is for this reason every living organism strives its utmost to obtain its food requirement. Nutrition is the process through which organisms obtain substances which are utilized for growth, maintenance and for meeting energy needs. In other words, nutrition can be defined as a Process by which living beings procure food or synthesize it and change it into simple absorbable from by a series of bio-chemicals processes.

Nutrient is the name given to those chemical substances which are present in food and are necessary for the survival of an organism , thus a nutrient can be defined as " a substance which as organism obtains from its surrounding and uses it as a source of energy or as raw material for the biosynthesis of body constituents" the chemical substance which are require by an organism in larger quantities are called macronutrient such as oxygen , nitrogen ,carbon , sodium, potassium , Iodine,etc. and those which are require in very low quantity are called micronutrients

Hematology, also spelled **hematology**, is the branch of internal medicine, physiology, pathology, clinical laboratory work, and pediatrics that is concerned with the study of blood, the blood-forming organs, and blood diseases. Hematology includes the study of etiology, diagnosis, treatment, prognosis, and prevention of blood diseases. The laboratory work that goes into the study of blood is frequently performed by a medical technologist. Hematologist's physicians also very frequently do further study in oncology - the medical treatment of cancer.

"Blood diseases" affect the production of blood and its components, such as blood cells, hemoglobin, blood proteins, the mechanism of coagulation, etc.

Physicians specialized in hematology are known as **hematologists.** Their routine work mainly includes the care and treatment of patients with hematological diseases, although some may also work at the hematology laboratory viewing blood films and bone marrow slides under the microscope, interpreting various hematological test results.

Cholesterol is a waxy steroid. Much of the cholesterol synthesis in vertebrates has taken place in the liver. A small fraction of the cholesterol made there is incorporated into the membranes of hepatocytes (liver cell), but most of it is exported. The name cholesterol originates from the Greek word chole- (bile) and stereos (solid), and the chemical suffix-ol for an alcohol. Francois poulleteir de la sale first identified cholesterol in solid from in gallstones, in 1769. However, it was only in 1815 that chemist Eugene Chevreul named the compound, "cholesterine"

It is an essential structural component of mammalian cell membranes. It is required to establish proper membrane permeability and fluidity. In addition, cholesterol is an important component for the manufacture of bile acids. Steroid hormones and vitamin D. Although cholesterol is important and necessary for mammals, high levels of cholesterol in the blood can damage arteries and are potentially linked to diseases such as those associated with the cardiovascular system (heart diseases). Cholesterol is recycling. It is excreted by the liver via the bile into the digestive track. Typically about 50 percentage of the excreted cholesterol is reabsorbed by the small bowel back into the bloodstream.

The major benefits of aerobic exercises are stronger and more efficiently operating heart and lungs, more energy, physical flexibility, conditioned muscles, proper use of fats and effective burning of calories. The increased oxygen flow gained through aerobics re-energies by giving any one more energy and a "reawakening "of his senses

Methodology:

Sixty students are selected from different colleges in Ahmadabad. The subjects are from different family background and homogeneous in their academic activities. The subjects are selected at purposive sampling techniques. They are in the age group of 20 - 25 years. Obesity of the subjects is determined through a person's BMI by the following formula: Metric: BMI = kilograms / meters^2. The subjects are randomly divided into two groups and each group contains thirty subjects. Group one acted as experimental group-one and group two acted as control group. Group-one undergoes diet and health fitness programme training and control group is not exposed to any treatment. The requirement of the experiment procedures, testing as well as exercise schedule is explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The investigator got individual consent from each subject. The obtained written informed consent from each subject.

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The subjects were free to withdraw their consent in case they felt any discomfort during the period of their participation, but there were no dropouts in this study. In order to analyze the data, the ANCOVA was used. The level of significance was set at 0.05.

The research scholar reviews the various scientific literatures pertaining to diet and fitness programme on selected fitness, biochemical and Haematological variables from books, journals, and research papers, taking into consideration the feasibility of criteria, availability of instruments and the relevance of the variables of the present study, the following variables are selected.

A. Dependent Variables
The following fitness, biochemical and haematological Variables are selected as dependent variables.
1) **Fitness Variables :** Body Composition
2) **Biochemical Variables**
   - High Density Lipoprotein (HDL)
   - Low Density Lipoprotein (LDL)
   - Triglycerides
   - Total Cholesterol
3) **Hematological Variables**
   - Red Blood Cell
   - White Blood Cell
   - Palates
   - Hemoglobin

B. Independent variables
   - Three month of diet and fitness program Training

Result

Table I
Biochemical and Hematological Variables results as following

Tests of Between –Subjects Effects					
Variables	Mean Square	F	Sig.	Means Control	Means Exp.
BMI	23.758	45.710	.000	25.154	23.599
High Density Lipoprotein	.521	.391	.535	54.900	55.500
Low-Density Lipoprotein	2689.964	99.209	.000	127.02	110.65
Triglycerides	192.621	2.347	.134	181.256	176.559
Total cholesterol	1309.252	29.989	.000	214.26	202.44
Red Blood Cell	1.981	61.529	.000	4.520	4.966
White Blood Cell	2400151.94	15.438	.000	6450.281	6954.719
Platelets	8.772	18.848	.000	287327.963	317122.037
Haemoglobin	13.531	26.684	.000	13.058	14.222

BMI

Table F-ratio at 0.05 level of confidence for 1 and 38 (df) =4.10 *Significant

The obtained Mean value on pre test scores of both groups almost near so it has proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value **45.710**was greater than the required F value of 4.10. This proved that the differences between the post test means of the subjects were significant.

High-density lipoprotein

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value 0.391was smaller than the required F value of 4.10. This proved that the no differences between the post test means of the subjects were significant. But here is one things is that somehow difference between mean but we haven't proved statistically.

Low-density lipoprotein

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value **99.209**was Greater than the required F value of 4.10. This proved that the differences between the post test means of the subjects were significant.

Triglycerides

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value 2.347was smaller than the required F value of 4.10. This proved that there was no differences between the post test means of the subjects were significant. But here is one thing is that somehow difference between mean but we haven't proved statistically.

Total cholesterol

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value **29.989**was greater than the required F value of 4.10. This proved that there was differences between the post test means of the subjects were significant.

Red Blood Cell

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value **61.529**was greater than the required F value of 4.10. This proved that there was differences between the post test means of the subjects were significant.

White Blood Cell

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value **15.438** was greater than the required F value of 4.10. This proved that there was differences between the post test means of the subjects were significant.

Platelets

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value **18.848**was greater than the required F value of 4.10. This proved that there was differences between the post test means of the subjects were significant

Haemoglobin

The post test scores analysis proved that there was significant difference between the groups, as the obtained F value **26.684** was greater than the required F value of 4.10. This proved that there was differences between the post test means of the subjects were significant.

Discussion:

The present study also revealed that the above findings of the study were supported by Susan Stocktonand David Baker.(2013), Daniel J. Hoffman et al.(2006), Xiao fen Deng Keating et.al.(2005), Terry T.-K. Huang et.al.(2003)., Tara M. Cousineau , Marion Goldstein.(2004)., Mickey T. Trockel et al.(2000), Lara J. LaCaille et. Al.(2011)., Janet Buckworth, Claudio Nigg.(2004), Bernardine M. Pinto, .(1995), Shirley Haberman, Deborah Luffey.(1998), Kent Griffinet.al.(2013) through direct or indirect and some variables effected by these types of similar training program of this study.

The analysis of the data revealed that significant relationship was found between pre-test and post-test on research sample of this study. Researcher given good result by diet and fitness program trainingbut it don't gives confirm because the student workout demands, lack of sufficient time, nature of person activity level, habit and not control diet also.It might be good and confirmed result due to the less sample size, time, gymnasium facility and low skill level of the player, otherwise gives more scientifically result with confirmed principal provided by this research.

Conclusions:

On the basis of obtained final results, it has been observed scientifically that there was significant difference found in Pre-test and after taken post-test of overweight students of science college experimental group as well as control group. Results also revealed that experimental group did have training of diet and fitness program. Researcher given to student about introduction of research and techniques of Exercise after their performance with respect to very high level of Efficiency during bottom of diet and fitness program period. It was observed that significant difference found in both group but more difference found in post test of experimental group than control group. It was observed that control group also reduced their weight because of awareness of health, looking his weight status on pre test time, motivation from experimental groups workout, etc. finally study confirmed that experimental group weight control

after giving diet and fitness program training in this stage.

Reference:

Ahsan , Jawaid.(2010). *Creative Biology.* New Delhi: Srijan publishers P. Ltd.

Fatima , Dulsy et al. (2010).*Elements of Biochemistry.* Tamil Nadu: Saras Publication.

Gina, Kolata.(2002). *Why some people won't be fit despite exercise.* The New York: Times Publication.

Varma, Prakash J. (2000). *A textbook on sports Statistics*, Gwalior: Vines Publication.

Journal

Buckworth, Janet and Nigg,Claudio.(2004). Physical Activity, Exercise, and Sedentary Behavior in College Students.*Journal of American College Health,*Volume 53, Issue 1.

Cousineau , Tara M. , Marion Goldstein.(2004). A Collaborative Approach to Nutrition Education for College Students. *Journal of American College Health* ,Volume 53, Issue 2.

Griffin Kent et.al.(2013).The Impact of a Mastery Motivational Climate on Obese and Overweight Children's Commitment to and Enjoyment of Physical Activity: A Pilot Study. *American Journal of Health Education*, Volume 44, Issue 1.
Haberman,Shirle, Luffey, Deborah .(1998). Weighing in College Students' Diet and Exercise Behaviors. *Journal of American College Health*, Volume 46, Issue 4, 1998.

Hoffman, Daniel J. et al.(2006). Changes in Body Weight and Fat Mass of Men and Women in the First Year of College: A Study of the -Freshman 15, *Journal of American College Health*, Volume 55, Issue1.

Huang , Terry T.-K. et.al.(2003). Assessing Overweight, Obesity, Diet, and Physical Activity in College Students. *Journal of American College Health* ,Volume 52, Issue 2

Keating, Xiao fen Deng et.al.(2005).A Meta-Analysis of College Students' Physical Activity Behaviors. *Journal of American College Health,* Volume 54, Issue 2.

LaCaille, Lara J. et. Al.(2011). Psychosocial and Environmental Determinants of Eating Behaviors, Physical Activity, and Weight Change among College Students: A Qualitative Analysis. *Journal of American College Health*, Volume 59, Issue 6.

MohapatraAnimesh K., Jha, Shail Kumari.(2011). Low density lipoprotein (LDL) cholesterol: The Bad cholesterol. *A Quarterly Journal of Science Education*, Noida Volume 49 No 3.

Pinto, Bernardine M. (1995).A Stages of Change Approach to Understanding College Students' Physical Activity. *Journal of American College Health,*Volume 44, Issue 1.

Stockton , Susan and Baker, David.(2013).College Students'

Perceptions of Fast Food Restaurant Menu Items on Health. *American Journal of Health Education* ,Volume 44, Issue 2.

Trockel , Mickey T. et al.(2000).Health-Related Variables and Academic Performance Among First-Year College Students: Implications for Sleep and Other Behaviors. *Journal of American College Health*, Volume 49, Issue 3.

Others

Health and Physical Education.(2008). *Gujarat state board of school textbooks.* Ahmadabad: Vaibhav offset.

Websites

http://www.news-medical.net/health/What-is-Hematology.aspx

http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/Triglycerides_UCM_306029_Article.js

http://medical-dictionary.thefreedictionary.com/hematology

wordnetweb.princeton.edu/perl/webwn

http://www.thefreedictionary.com/platelets

http://www.mayoclinic.com/health/hemoglobin-test/MY00529.

http://www.thefreedictionary.com/high-density+lipoprotein

http://www.thefreedictionary.com/low-density+lipoprotein

http://cholesterol.about.com/od/cholesterolglossary/g/totalcholesterol.htm