INTRODUCTION

DEFINITION OF OBESITY AND OVERWEIGHT

GLOBAL TRENDS OF OBESITY

PREVALENCE OF OBESITY AND OVERWEIGHT

PROBLEMS OF OBESITY

SOLUTION FOR THE PROBLEM OF OBESITY

COMBINATION TREATMENT AVAILABLE FOR WEIGHT REDUCTION AND MAINTANCE OF WEIGHT

OPERATIONAL DEFINITION

OBJECTIVES OF THE STUDY
INTRODUCTION

Overweight and obesity is increasing worldwide at an alarming rate. Health is a dynamic life process, which begins at birth is governed by genetic and environmental factors throughout life. Now a day, due to sedentary life style and industrialization several health problems have cropped into people’s life among which obesity is predominant (Vijya Lakshmi et al. 2005).

Obesity is one of the biggest health problems today, which affect a person not only physically but psychologically as well. In developing countries, obesity is more common in middle-aged men and women, people of higher Socio-Economic status and those living in urban communities.

Obesity is usually determined using body mass index (BMI), calculated as the weight in kilograms divided by the square of the height in meters (kg/m²). A BMI over 25kg/m² is defined as overweight, and a BMI of over 30kg/m² as obese. These markers provide common benchmarks for assessment, but the risk of disease in all population can increase progressively from lower BMI levels.

Obesity can be seen as the first wave of a defined cluster of non-communicable diseases called "New World Syndrome," creating an enormous socioeconomic and public health burden in poorer countries. The World Health Organization has described obesity as one of today's most neglected public health problems, affecting every region of the globe.

India is the second most populous country in the world that comprises~17% of the world's population and contributes to 16% of the world's deaths. Nutritional status of the Indian population varies significantly across the regions. Certain regions are associated with extremely high rates of childhood under nutrition (ranging from 20% to 80%), whereas others have a high prevalence of adult under nutrition (>50%), and some have both.

India is gaining weight. Traditionally known for malnutrition, Indians now report more and more frequently with overweight, obesity, and their consequences. Indians exhibit unique features of obesity: Excess body fat,
abdominal adiposity, increased subcutaneous and intra-abdominal fat, and deposition of fat in ectopic sites (such as liver, muscle, and others). Obesity is a major driver for the widely prevalent metabolic syndrome and type-2 diabetes mellitus (T2DM). Although this phenomenon is a global one, India is unique in that it has to grapple with both over- and under nutrition at the same time.

Obesity is a complex, multi-factorial condition in which excess body fat may put a person at health risk. National data indicate that the prevalence of obesity in the United States is increasing in children and adults. Reversing these trends requires changes in individual behavior and the elimination of societal barriers to healthy lifestyle choices. Basic treatment of overweight and obese patients requires a comprehensive approach involving diet and nutrition, regular physical activity, and behavioral change, with an emphasis on long-term weight management rather than short-term extreme weight reduction. Physicians and other health professionals have an important role in promoting preventive measures and encouraging positive lifestyle behaviors, as well as identifying and treating obesity-related co-morbidities. Health professionals also have a role in counseling patients about safe and effective weight loss and weight maintenance programs.

Obesity is most commonly caused by a combination of excessive food intake, lack of physical activity, and genetic susceptibility. A few cases are caused primarily by genes, endocrine disorders, medications, or mental illness. Evidence to support the view that obese people eat little yet gain weight due to a slow metabolism is not generally supported. On average, obese people have a greater energy expenditure than their thin counterparts due to the energy required to maintain an increased body mass

Food intake is regulated via neural circuits located in the hypothalamus. A hormone produced in adipocytes (fat cells) known as leptin has the function of informing the hypothalamus about the state of fat stores. Leptin inhibits food intake and increases energy expenditure via an interaction with specific leptin receptors located in the hypothalamus. Differences in leptin levels may explain differences in BMI. (Baskin et al, 1999)
Social factors play a major role in weight gain. Situations during life in which weight gain is more likely to occur include: adolescence, pregnancy, mid-life in women, and following marriage in men. Persons who emigrate to a more urbanized culture tend to gain weight. Behavioral or environmental changes in life, such as smoking cessation, are associated with weight gain. Weight gained during holiday periods and festivals is more than at other times of the year and tends not to be lost. (Yanovski et al, 2000) The chance of becoming obese increases by 57% if one has a friend who becomes obese in a given interval. Among pairs of adult siblings, if one sibling becomes obese, the chance that the other becomes obese increases by 40%. If one spouse becomes obese, the likelihood that the other spouse becomes obese increases by 37%. (Christakis and Fowler, 2007). Adopting a healthy diet and exercise program is part of an overall health promotion strategy.

Obesity is mostly preventable through a combination of social changes and personal choices. Changes to diet and exercising are the main treatments. Diet quality can be improved by reducing the consumption of energy-dense foods, such as those high in fat and sugars, and by increasing the intake of dietary fiber. Medications may be taken, along with a suitable diet, to reduce appetite or decrease fat absorption. If diet, exercise, and medication are not effective, a gastric balloon or surgery may be performed to reduce stomach volume or bowel length, leading to feeling full earlier or a reduced ability to absorb nutrients from food.

Young adults in Indian cities are blissfully unaware of the dangers of obesity. "The problem is a serious one as over 58 percent of young adults do not consider obesity as a disease and thus have a casual approach about the problem," said bariatric surgeon Jayashree Todkar, who conducted the survey in collaboration with Hiranandani Hospital.

According to the survey, 70 percent of the concerned population has a family history of obesity. It also stated that the urban, young population lacks awareness about the disease.
"Only 28 percent of the total population know the scientific definition of obesity and the health hazards associated with it," the report said. The survey report was an outcome of a sample size of 9,670 youngsters from 10 city-based colleges.

"The most worrisome fact is that the young, Indian male population does not view obesity as a health hazard, but view it only as a matter of size and shape. A meagre 6 percent of the young Indian population is involved in some kind of physical activity."

Obesity is a leading preventable cause of death worldwide, with increasing rates in adults and children. In 2014, 600 million adults (13%) and 42 million children under the age of five were obese. Obesity is more common in women than men. Authorities view it as one of the most serious public health problems of the 21st century. Obesity is stigmatized in much of the modern world (particularly in the Western world), though it was seen as a symbol of wealth and fertility at other times in history and still is in some parts of the world. In 2013, the American Medical Association classified obesity as a disease.

Most common chronic diseases prevalent among adults are cardiovascular disease, cancer, chronic obstructive pulmonary disease (COPD), diabetes, hypertension, chronic kidney disease, and HIV/AIDS. The World Bank has predicted that coronary heart disease will become the leading cause of premature death in India by 2015 and that the maximum number of diabetic patients in the world will be in India (Bulatao and Stephens, 1992). Unlike undernutrition, these diseases are less recognized to be associated with poverty. Clearly, the Indian population is passing through a transition phase where subsistence conditions are being replaced by plentiful food and reduced physical work. An understanding of the changing nutritional scene and dual burden of malnutrition is critical.

This indicates that undernourished people in many developing countries including India are exposed to the risks of adult diseases owing to current nutritional transition. With increase in income and growing affluence, shift in diet patterns and activity is becoming more and more obvious in urban areas. In
contrast, drastic changes in diet, activity or other life style factors are not so obvious in rural populations than urban population in India. The risks of adult diseases can only be minimized by conscious efforts to avoid drastic shifts in diet and activity patterns.

Nutritional status may be defined as health of person as influenced by the quantity and quality of foods eaten and the ability of body to utilize these foods to meet its needs as per age, activity pattern and physiological conditions of the person. Assessment of human body composition is an important factor in determining the nutritional status of an individual and of populations.

The prevalence of obesity is increasing in most parts of the world, not sparing any age and sex group. Globally there are more than one billion overweight adults and at least 300 billion of them obese `(WHO, 2000). If immediate action is not taken, many more will suffer from an array of serious disorder. Experts believe that if the current trend continues by 215 approximately 2.3 billion adults will be overweight and more than 700 billion obese, moreover, obesity is no longer just a concern for developed countries, but it is becoming an increasing threat to many developing countries like India.

India is passing through a transitional phase of socio-economic development while the country has still to overcome problems arising from under development and poverty. India 14% populations is suffering from obesity (12%males and 16% females) while a third of India’s population stills falls below the poverty line (NFHS, 2007).

Health Ministry, diabetes foundation of India,(AIIMS), Indian Council of Medical Research, National Institute of Nutrition and 20 other health organization have jointly released new guidelines for assessment of obesity. The country’s new diagnostic cut-off for the body mass index is 25kg/m$^2$ as opposed to 30kg/m$^2$. According to guidelines, cut offs for waist circumstances will now to be 90 cm for Indian men (as opposed to 102 cm. globally) and 80 cm. for Indian women (as opposed to 88 cm. at the international level ). According to revised statistics, the additional 15-20% of the Indian population who can now be clinically termed obese (Diwan, 2008).
Body composition is an understanding of the amount of fat and lean muscle tissue in the human body. These are commonly expressed as a percentage of a person's total weight. Body weight alone is not a clear indicator of good health because it does not distinguish how many kilos are from fat and how many are from lean body mass. The popularity of body compositions is growing as professionals realize its value in determining health risks (Sidhu et al., 2007).

Body weight is the sum of bone, muscle, organs, body fluids and adipose tissues, some or all of these components are subject to normal change as a reflection of growth, reproductive status, variation in exercise levels, and the effect of aging. Maintaining a constant body weight is orchestrated by a complex system of neural, hormonal and chemical mechanism that keeps balance between energy intake and energy expenditure within fairly precise limits. Abnormalities of these mechanisms result in exaggerated weight fluctuation. Of these, the most common are overweight and obesity. (Mahan and Stump, 2000)

The importance of measuring body composition has increased due to the need to evaluate changes in the nutritional status, which can affect body reserves differentially. Subjects can gain body fat, fat-free mass, cellular mass components as a result of overeating and sedentary lifestyle. These changes can only be detected by using valid body composition techniques. One of the important aspects of health of individuals is their nutritional status which is defined as a result of interaction of body composition, energy balance and body functionality. Body composition assessment in terms of lean body mass and fat mass is the best long term indicator of nutritional status. The occupationally sedentary women are prone to obesity and sarcopenia. Age is an important criterion, which contributes to these two metabolic disorders posing them to an increased risk of several degenerative diseases.

The energy expended in physical activity is an important component in controlling energy expenditure. Increases in physical activity lead to increases in energy expenditure, which can induce an energy deficit. In addition physical activity can also affect energy expenditure by promoting muscle growth, thereby increasing FFM. As FFM is the main determinant of resting energy expenditure, an increase in FFM can lead to a subsequent increase in RMR, which in turn can affect energy balance.
Indeed the increase in the prevalence of obesity, observed worldwide has been linked with widespread declines in the level of daily physical activity as well as increased availability of energy-dense foods and changing food habits. Thus it is acknowledged that prevention and treatment must rely on modification of diet and activity patterns. However it is also understood that obesity is ultimately caused by a complex interaction between genetic, behavioral and environmental factors and recent studies have aimed to investigate the efficacy of current treatment strategies and to better understand the exact mechanism and potential synergy between diet and physical activity along with other determinants as an effective means for prevention and treatment of obesity.

As increasing energy expenditure can also promote negative energy balance, an increase in physical activity could also promote weight loss. In addition weight loss due to exercise may be associated with retention of lean body mass. Although the increase in energy expenditure during the exercise period help to encourage energy imbalances, additional mechanisms may increase resting metabolism, thus further promoting energy imbalances. Given the association between lean tissue and RMR, the most apparent impact of exercise training on resting metabolism is the ability to initiate skeletal muscle growth. Numerous studies have also shown that increased sedentary behaviour such as watching television and playing computer games are associated with increased prevalence of obesity, while involvement in more physically active pursuits provides protection from obesity in children. In addition recent results from a 6 year observation of the Nurses’ Health Study cohort suggested that 30% of new cases of obesity could be averted by adapting a relatively active lifestyle. The effects of physical activity alone on body weight have also been examined in randomized controlled trials. Frey Hewitt et al 36 randomly assigned 121 overweight men to 1 year of energy restriction or engagement in walking/jogging when compared with a control group. Although the reduction in bodyweight and fat mass in the dieters was greater than in the exercise group, exercise training was superior to dieting with respect to the maintenance of fat free mass. This was highlighted in a more recent randomized controlled trial, where no difference was reported in weight loss between diet or exercise only intervention, but exercise alone was associated
with substantial reductions in total and abdominal mass, and preservation of
skeletal muscle mass. As the preservation of FFM is believed to be an important
factor for weight maintenance, physical activity is universally promoted as a
necessity for weight maintenance. It has been suggested that the outcomes of
exercise intervention studies with respect to body compositional alterations may
to be related to the type of exercise with intensity, frequency and duration of the
exercise bouts as limiting factors.

Obesity has reached and epidemic proportion globally with approximately
106 billion adults and attend 20 million children under the age of five being
overweight. (Flegal et al. 2004)

Convenience foods are becoming very popular with urbanites become of
tremendous increase in the numbers of working women, busy life schedules,
changing life style etc. These convenience foods are usually rich in trans fatty
acids, cholesterol, saturated fats, sugar's energy contribute to rise in the incidence
of obesity. Regular physical activity is associated with the lower morbidity and
mortality rates from cardiovascular diseases, diabetes, cancer and osteoporosis.
Despite this proven health benefits the majority of the adult population does not
meet the public health recommendation for physical activity.

Diet management coupled with exercise is one of the ways to provide a
positive solution for the problem of obesity. The word diet is often used to
describe an eating plan intended to aid weight loss. However diet really refers to
the foods persons eats in the course of a day or week. These are many different
types of diet, low fat diet, low CHO diet, very low calorie diet, crash diet,
balanced weight loss diet etc.

There is intense debate about which type of diet is most effective for
treating obesity. The dramatic increase in obesity worldwide remains challenging
and underscores the urgent need to test effectiveness and safety of several widely
used weight loss diets.

Obesity has very high costs for societies, as the resulting disabilities and
disease create huge burdens for families and health systems. The experience of
developed countries clearly demonstrated that the cost of morbidity and mortality associated with increasing obesity and related non-communicable disease would be overwhelming for them. Rapidly changing diets and lifestyles are fueling the global obesity epidemic.

Obesity in the most common nutritional disorder of the affluent countries of the west as the high socio-economic groups of our country. In relation to body weight and health, it is important to know the body composition, i.e. how much of the body weight comes from fat and how much from lean body mass (IBM.) The mean value of body fat for a normal adult man is 12% total body weight and for normal adult women is 26% of total body weight. Accordingly, obesity occurs when the percentage of body fat in total body weight is more than 20% in men and more then 30% in women. Adiposity refers to the distribution and the size of the adipose tissue depots.

The consequences of obesity are many and varied, ranging from an increased risk of premature death to several non fatal but debilitating complaints that have an adverse effect on quality of life. The fat loss induced by physical activity is relatively small. However, exercise helps to prevent the otherwise inevitable loss of muscle during caloric restriction.

A large body of observational data show an association between higher levels of physical activity and lower rates of many chronic diseases. Conversely, physical inactivity is a component of reduced life expectancy. The energy produced by physical activity is a component of energy balance that is particularly important in the pathogenesis of obesity and in its treatment. The components of energy expenditure are resting (basal) energy expenditure (REE) (e.g., heat production for maintenance of body temperature, maintenance of ionic gradients across cells, and resting cardiac and respiratory function), diet-induced thermogenesis, and physical activity.

There are a number of characteristics that differ between men and women that may contribute to the difference in weight loss success. Characteristics favouring greater weight loss in men include a greater percentage of muscle mass compared with fat mass, contributing to higher resting and total energy
expenditure and a greater potential impact of exercise on weight loss. On the contrary, women have higher concentrations of leptin, an appetite regulation hormone that reduces energy intake. While research supports these points, there is still no consensus on whether these physiological mechanisms lead to differences in weight loss success between men and women. Other considerations contributing to weight loss variability between men and women include the study design and nature of the lifestyle interventions implemented in the current weight loss interventions.

There are a number of systematic reviews that have investigated the effectiveness of lifestyle interventions with a focus on either men or women, or men and women combined, but this is the first to focus on the differences in weight loss between men and women. A systematic review published in 2012 sought to determine intervention characteristics associated with weight loss and maintenance in men. The review by Young et al. found that a prescribed energy-restricted diet, frequent contact and group face-to-face contact were features associated with weight loss success in men. Young et al. also conducted a meta-analysis that demonstrated that weight loss interventions were effective compared with no-intervention controls. Another systematic review, published in 2013, sought to determine the effectiveness of weight management programmes in young women and found that just over 60% of the studies (n = 8) reported a significant weight loss in the intervention groups compared with controls. However, with few studies identified, the authors could not determine a particular type of intervention that was more beneficial for weight loss. Of the studies conducting reviews of men and women combined, reduced energy diets, diet plus exercise, weight loss medications and weight loss surgery have been found to be effective for weight loss, with advice-only or exercise-only interventions less effective. Although pharmacotherapy and surgical interventions have been shown to result in large weight losses, the safety of weight loss medications and the sustainability of surgery as a population-based strategy have come under scrutiny, along with the cost of these options, both short- and long-term. Therefore, this current review will address only lifestyle interventions, such as diet and exercise, along with meal replacements and nutritional supplements, given these are widely used in conjunction with lifestyle interventions.
The optimal management of overweight and obesity starts with a combination of diet, exercise, and behavioral modification. In addition, some patients eventually require pharmacologic therapy or bariatric surgery. Physical exercise and activity are also important for maintaining long-term weight loss and can be beneficial in preserving lean body mass while dieting.

In discussing the treatment of obesity, it is necessary to emphasize that one is dealing with the syndrome than a disease. Unfortunately in our society only the weight reduction period is emphasized and the obese subject is exposed to endless variety of weigh reduction methods which include diet, drugs, hormones, and psychotherapy and social treatments.

Surgery is also a treatment for obesity, but it is very expensive to be done. Surgery such as liposuction or a tummy tuck should be done only in very extreme cases, because of the fact that these surgeries are very dangerous. Similarly drugs are creating enormous side effects on health.

In recent years nutrition and fitness has assumed an increased importance in the management of chronic condition and minimizing risk factors. For this purpose the requirement is to work quta a way to help the population to improve personal and family nutrition in face of economic hand grip.

The rising epidemic reflects the profound changes in society and in behavioural patterns of communities over recent decades. While genes are important in determining a person's susceptibility to weight gain, energy balance is determined by calorie intake and physical activity. Thus societal changes and worldwide nutrition transition are driving the obesity epidemic. Economic growth, modernization, urbanization and globalization of food markets are just some of the forces thought to underlie the epidemic.

As incomes rise and populations become more urban, diets high in complex carbohydrates give way to more varied diets with a higher proportion of fats, saturated fats and sugars. At the same time, large shifts towards less physically demanding work have been observed worldwide. Moves towards less physical activity are also found in the increasing use of automated transport, technology in the home and more passive leisure pursuits.
Weight loss reduces overweight and obesity-related risks. Weight loss of only 5 – 10% of initial body weight can significantly reduce cardiovascular and other risks related to obesity (Bray & Bouchard, 2008; NHLBI & NID, 1998; Williams & Frühbeck, 2008). Weight loss also reduces blood pressure and improves cholesterol and blood glucose levels. The single most effective strategy for weight loss is restriction of dietary energy intake. Low calorie diets (LCD) and increases in physical activity (PA) are both associated with weight loss (NHLBI & NID, 1998; Rippe, McInnis, & Melanson, 2001). Combined LCD and PA produce greater weight loss than either independently and are associated with decrease in abdominal fat, and increase in cardiorespiratory fitness. Behavioral therapy provides additional benefits in assisting patients to lose weight short term, without additional benefit noted at 3-5 years without continued intervention, and multimodal behavioral therapy of high intensity is associated with greater weight loss. Pharmacotherapy and surgical intervention are also associated with weight loss. Long term weight loss is associated with a combination of dietary reduction, increased physical activity, and behavior modification.

Long-term management and regular monitoring is required for people who are overweight or obese. Weight management is primarily the individual’s responsibility, with healthcare professionals recommending strategies and providing continuing support. All successful strategies involve some form of continuing lifestyle change. A tailored approach is likely to be the most effective, as success is highly dependent on personal variables. Goals should focus on behaviour change and improved health as well as weight loss. For most overweight and obese adults, weight loss of 5% of initial body weight is achievable and reduces health risks, including lowering blood pressure and reducing the risk of or delaying progression of type 2 diabetes. The benefits increase with further weight loss, particularly in people with obesity.

Multi-component lifestyle intervention (healthy eating plan, increased physical activity and support for behavioural change) is the first approach and brings a range of health benefits. More intensive interventions such as very low-energy diets and medication can help some people to reduce weight further, and may assist motivation to continue with lifestyle change towards longer term
weight loss goals. Bariatric surgery is currently the most effective intervention for severe obesity. The decision to use intensive interventions takes the individual’s situation into account and may require referral to healthcare professionals with expertise in obesity management.

Long-term weight management is difficult, due to strong physiological responses that increase hunger and encourage weight regain. Regular support over the long term is essential, along with repeated lifestyle interventions and, if needed, more intensive treatments.

Another way to decrease weight is doing exercise. This method although is useful in decreasing weight but has several consequences such as time consuming, cost consuming and has related injuries in the case of inappropriate exercise. In addition, anaerobic exercise built power and muscle mass but its fat burning is not satisfactory. RESISTANCE EXERCISE (RE) is recommended by both the American College of Sports Medicine and the American Heart Association as an integral part of an exercise program. There is substantial evidence showing that aerobic exercise and RE can improve body composition by increasing lean body mass and/or decreasing fat mass.

Similarly, de Glisezinski et al. demonstrated that 60 min into endurance exercise, the highest rate of lipolysis matched a significant increase in fat oxidation. Thus availability and rate of fatty acid delivery may partially mediate whole body fat oxidation. In the aerobic type of exercise one should exercise continuously activities that rhythmic in nature 3 to 5 times a week for at least 30 to 60 minutes such as running, jogging and bicycling and related aerobic exercises. This method is so effective for weight loss and increase metabolism. For fat people this method is difficult and harmful because it affects on their knee joint also in the case of aged people it can affect their heart bit and as a result increases the chance of heart attack. Public health recommendations now include the option of accumulating 30 minutes of moderate-intensity physical activity a day for health and well-being. These new options may offer a viable alternative to those who dislike or cannot sustain continuous vigorous exercise programs and may provide a realistic starting point for obese patients. Patients who have been
Sedentary can begin slowly. For example, patients can take the stairs at work rather than using the elevator, or park their cars a bit farther away to begin walking more. As patients become more exercise tolerant, they can engage in longer sessions and higher-intensity activities. Thus it's better to use another safe method such as EMS.

Electro Muscle Stimulation is a process where electronic pulses are sent to a designated area of the body to cause involuntary muscle contractions. Laughman, R (1983) found that the use of the EMS belt significantly increased abdominal strength and endurance, decreased waist girth, and improved self-perceived abdominal firmness and tone. The results probably can be attributed to the strength of the electrically induced muscle contractions made possible by the quality of the electrodes utilized in the belt system, as well as the stimulator itself. Electric muscle stimulators will not cause you to lose weight. The US Federal Trade Commission ordered the makers of belts that send an electrical impulse into the belly muscles must stop advertising that the devices build muscle and get rid of fat.

The most popular way to decrease overweight is mixed method. In this method people use the combination diet, medication and exercise but this method also has the problem of all method as well. The importance and problem associated with fatness requires choosing an appropriate way that simultaneously overcome the above mentioned problems and help people in decrease overweight in an efficient way. In this direction, prescribe a useful workout, good diet, and safe medication together is the best way to control and losing weight in obesity peoples. Also producing technological devices like Electro Muscle Stimulation appears as producer claims can help people to reach this goal efficiently.

The success rate of conventional weight reduction programmers is extremely low therefore non-conventional methods are subject to world wide speculation. The present study is an endeavor to determine weight reduction by using diet, active exercise and electronic exercise. Looking to this need development of Nutrition and Complete Lifestyle Modification Package on weight reduction by using electronic Devices, diet and physical exercise treatment would be of great help.
OPERATIONAL DEFINITION

- **Adult:** An adult is a human being or other organism that is of reproductive age in human context and attained full growth or maturity and an adult people refers to, a person of relatively age between 30-40 years.

- **Overweight:** Overweight refers to persons with body weight 10% in excess of the ideal weight or BMI over 25kg/m$^2$.

- **Physical exercise:** Exercise is physical activity that is planned, structured, and repetitive for the purpose of conditioning any part of the body. Exercise is used to improve health, maintain fitness and is important as a means of physical rehabilitation.

- **Electronic muscle exerciser:** Electronic muscle exerciser is an electronic device that is used to exercise the muscles by passing an impulse through the muscle, which stimulates the muscle (motor nerves control muscle activity).

- **Nutritional status:** Nutritional status is the sum total of the condition of body tissues and body functions which have been influenced or produced by the foods, consumed and metabolized.

OBJECTIVES

This study had been undertaken by keeping following objectives in mind:-

i. To assess the nutritional status of overweight adult people.

ii. To develop nutrition and complete lifestyle modification package for overweight adult people.

iii. To find out the effectiveness of nutrition and complete lifestyle modification package on nutritional status of overweight adult people.

iv. To find out the gender difference in the effectiveness of nutrition and complete lifestyle modification package on overweight adult people.