EXERCISE: A PANACEA FOR FAT -WEIGHT PREVENTION AND CONTROL

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Abstract

This paper highlighted fat-weight prevention and control in man. Fat-weight is a hypokinetic disease and a condition where an individual weighs more than his age and height, and it is measured with the body max index. Causes of fat-weight are: heredity, granular disorder, fatness early in life, changes in basal metabolic rate, excess caloric intake and creeping obesity. The consequences of fat-weight are; premature aging, over- weight, low back problems, high blood pressure, obesity, stroke and diabetes as well as other cancers and death. The skin fold caliper is used to measure the adiposity on the skin at various sites to determine the skin fat level and the body max index is used in calculating the fat-weight of individuals. Fat-weight prevention and controlling theories were formulated to curb the condition. Exercise is physical activity done for the purpose of getting physically fit. So exercise in this context is considered as the panacea for fat-weight prevention and control because of its numerous advantage to body composition and which includes; reduction of the symptoms and risks of fat-weight related co-morbid conditions such as cardiovascular diseases; diabetes, pulmonary disorders, obesity and other orthopedic conditions. Recommendations of exercise for prevention and control of fat-weight were prescribed and they include; medical examinations before exercise, intensity of exercise must be as high as possible and should last for at least 30 mins, the use of strenuous exercise such as brisk walking, interval jogging, distance running, skipping, push-ups, sit-ups, roll-ups, cycling, and rowing as well as swimming should be encouraged among others.

Mankind is plagued with a lot of diseases that they got as a result of reckless living, bad habit, hereditary factor and environmental pollution among other factors. Hypokinetic diseases or condition is one associated with lack of physical activity or too little regular exercise. Examples include heart disease, low back pain, adult onset diabetes, obesity and chronic diseases (U.S. Department of Health and Human Service, 2000). Hypokinetic diseases are dangerous health conditions that shorten lives when left unattended to and research shows that exercise done on regular basis assist to prevent the onset of hypokinetic diseases and also manage and treat them.

Fat-weight is one of the hypokinetic disease which is a condition in which individual weighs more than his age and height. A person who has high muscular density may be over- weight, and maybe obese of he has large percentage of his weight as fat (Onyemekara, 2000).

Fat-weight is the amount of the body weight that is fat versus muscle, bone, organs and body fluid. This can be determined by using the amount of fat - weight as fat versus muscle, bone, organs and body fluid. This can be determined by using the amount of fat weight calculator (fitnessforweighteloss.com).

Conditions such as fat-weight, over-weight and obesity are gradually resulting in serious health problems such as premature mortality, morbidity, and social disadvantage (Harris & Defriese, 2009), because of increased food production, over-eating, growth of modern technology with its

attendant mass production of labour saving devices, increased rate of inactivity, emotional, psychological and physiological problems, problems of fat-weight is on the increase. Phinney (2001) states, that majority of the world population including Nigeria, now accumulate fat-weight around the heart, the chest, the abdomen, buttocks, the arms, the back, the thighs and other similar regions of the body. This has resulted in conditions such as fat-weight or obesity.

Middle aged percentage of our population appears to constitute the greatest victim to this phenomenon, due to increased inactivity and sedentary pattern of living during which fat-weight begins to occur. This is because calorie intake is known to exceed metabolic use on needs, a condition which results in positive caloric balance (Matthews & Fox, 1989).

According to Onyemekara (2000), it is necessary to differentiate between obesity and fat-weight. Baer (2002) see obesity, as a chronic disturbance in the homeostatic function whereby excessive fatness results. It is a body condition which is characterized by excessive fat deposition and storage of fat. Obesity is extreme over-fatness (America Anorexial/Bulimia Association, 2003). Nonessential fat is fat above essential fat levels that accumulates when one takes in more calories than can be expended. When nonessential fat accumulates in excessive amounts, over-fatness or even obesity can occur (Corbin, Welk, Corbin & Welk, 2004). A male individual is considered obesed when he is 25 – 30% above his ideal weight, while in female, it is 35% above. An obesed individual shows greater insulin secretion, a greater capacity to synthesize lipids, a greater storage of cholesterol triglycerides, free fatty acids and phospholipids and depressed sensitivity to growth hormone (Wilmore & Costil, 2004) Fat-weight on the other hand is a condition in which fat-weight has resulted in serious health problems and death.

Thousands of people are now involved in fat-weight control programmes both medically supervised and unsupervised commercial programmes. With the aim of a long-term successful outcome they maintain, have however been frustrating to physicians, exercise physiologists and other practitioners due to incomplete understanding of the factors that contribute to the development of fat-weight (Blackburn, 2000). Exercise is physical activity done for the purpose of getting physically fit, and there are aerobic and anaerobic types of exercise.

Exercise that can be sustained through relatively long period of physical activity is considered the most effective way for preventing and controlling fat-weight.

Causes of fat-weight

The following are what causes fat-weight (American College of Sports Medicine, 2001, Mokdad, 2003 & Manore, 2003):

- **Heredity:** Every individual is born with a predetermined weight, called one's set point. Research suggests that people are born with a predisposition toward fatness or leanness, and that one's body type or somatype is inherited. Clearly, some people will have more difficulty than others controlling fatness because of their body types and because they come from families with a history of fats in their weight. In fact, recent research by a well-respected team of scholars indicates the body has a "natural" fatness range, which is influenced by heredity. Individuals with a predisposition to high fatness will have a harder time having a low fat level, but with healthy lifestyles, even these people can maintain body fat levels within normal range. Research shows that regular physical activity is especially effective in the control of genetically determined predispositions to fatness;
- **Glandular disorders:** Glandular disorders can cause or contribute to over-fatness. For example, thyroid problems can cause a low metabolic rate that result in fat gain. However, most

experts suggest that by problems of this type, medical treatment is necessary for people suffering from these problems;

- **Fatness early in life leads to adult fat-weight:** Research studies have documented that body composition levels tend to track through the life span. Although there are exceptions, individuals that are overweight as children are more likely to be overweight, have fat-weight as adults. One explanation for this is that over-fatness in children causes the body to produce more fat cells. Although it was once thought that only children could add fat cells as a result of over-fatness, evidence now suggests that fat-weight can result in new fat cell production. Still the increase in the size of existing fat cells is the principal factor influencing body fat levels among adults. Since adults can only increase or decrease the size of existing fat cells, the number of cells becomes an important factor influencing fat levels;
- **Changes in basal metabolic rate:** The amount of energy expended each day must be balanced by energy intake to maintain body fat and body weight over time. Energy intake is determined by calories one consumes. Expenditure is determined by a combination of several factors. Basal metabolic rate (BMR) is the indicator of energy expenditure when one is totally inactive, and calories are expended digesting food and, of course, in the activities of daily living. BMR is highest during the growing years. The amount of food eaten increases to support this increased energy expenditures. When growing ceases, if eating does not decrease or activity level increase, fat-weight can result. Basal metabolism also decreases gradually as one grow older. One reason for this is the loss of muscle mass associated with inactivity;
- **Excess caloric intake:** Excess caloric intake results in an increase in fat cell size. Overfatness can result in an increase in the number of fat cells among children. For adults, fat-weight is a result of the increase in size of fat cells (hypertrophy). When fat cells near the skin become excessively large, they can cause dimples or lumps under the skin. Some people refer to these large fat cells as cellulite. All fatness among adults is a result of enlarged fat cells, and all fat is lost as a result of reduction in fat cell size; and
- **Creeping obesity:** Creeping obesity is a problem as one grow older. People become less active that their BMR gradually decreases with age. Caloric intake does seem to decrease somewhat with age, but the decrease does not adequately compensate for the decreases in BMR and actively levels for every persons. For this reason, body fat increases gradually for the typical person with age. This increase in fatness over time is commonly referred to as "creeping obesity" because the increase in fatness is gradual. For a typical person, creeping obesity can result in a gain of ½ to 1 pound per year. People who stay active can keep muscle mass high and delay changes in BMR. For those who are not active, it is suggested that caloric intake decrease by 3 percent each decade after twenty-five, so that, by age sixty-five, caloric intake is at least 10 percent less than it was at age twenty-five.

Consequences of Fat-weight

The consequences of fat-weight are detrimental to human health and wellness and some of them are as follows:

- Premature aging
- Over weight
- Low back problems and high incidence of ruptured inter-vertebral disc
- Creates respiratory difficulties

- Increase in the development of varicose veins
- Glucose intolerance (diabetes)
- Gallstones and problems during pregnancy in women
- Reduction of males sperm count and sex activity
- Profuse sweating
- Slow healing of injury
- High-blood pressure
- Heart disease
- Stroke
- Cancer
- Diabetes

Source: Ainswort (2003), Yu, 2003; Corbin, Welk, Corbin and Welk (2004).

Evaluating body fat

The following constitute the general information about skin fold measurement according to Blair and Jackson (2003): It is important to use a consistent procedure for "drawing up" or "pinching up" a skin fold and making the measurement with the caliper using the following procedures (Houtkooper & Going, 1997);

- **Lay the calipers down on a nearby table.** Use the thumbs and index fingers of both hands to draw up a skin-fold, or layer of skin and fat. The fingers and thumbs of the two hands should be about 1 inch apart, or ½ inch on either side of the location where the measurement is to be made.
- **The skin folds are normally drawn up in a vertical line.** However, if the natural tendency of the skin aligns itself less than vertical, the measurement should be done on the natural line of the skin fold, rather than on the vertical.
- **Once the skin fold is drawn up, let go with your right hand and pick up the caliper.** Open the jaws of the caliper and place it over the location of the skin fold to be measured and ½ inch from your left index finger and thumb. Allow the tips, or jaw faces of the caliper to close on the skin fold at a level above where the skin would be normally.
- **Let the reading on the caliper settle for 2 or 3 seconds; then note the thickness of the skin fold in millimeter.**
- **Three measurements should be taken at each location.** Use the middle of the three values to determine your measurement.

Body Mass Index (BMI)

Body max index is calculated using a formular and has a higher correlation with true body fatness than weights determined from height-weight tables. Nevertheless, the BMI may misclassify active people who have large muscle mass. The accepted international standards used by the United States and WHO are the BMI > 25 for over-weight and a BMI > 30 for obesity (America College of Sports Medicine, 2002).

Calculation of Body Mass Index

Use the steps listed below to calculate your BMI

- Divide your weight in pounds by 2.2 to determine your weight in kilograms

- Multiply your height in inches by 0.0254 to determine your height in meters
- Square your height in meters (multiply your height in meters by your height in meters)
- Divide your weight in kilogram from step 1 by your height in meters squared from step 3
- If you use these steps to determine your BMI, use the rating scale for BMI to obtain a rating for your BMI formular:

$$\text{BMI} = \frac{\text{weight in kilogrammes}}{\text{Height in meters}}$$

Rating scale for Body mass index (BMI

Classification	**BMI**
Obese (high risk)	Over 30
Marginal	25 – 30
Good fitness zone	17 – 24.9
Low	Less than 17

Early attempts at fat-weight prevention and control.

The percentage of fat-weight adults in the world today has steadily increased over the last several decades, making the problem of excess body fat a serious one is Nigeria (Onyemekara, 2000). Fat-weight affects 10 – 40% of school children, 80% of fat-weight children become obese adults (Polycarp, 2011).

A generation heading towards fat-weight problems needs help and encouragement so that they can function better, get out of their shells and live, love and enjoy life. Before the full implications of Western technology took hold of our society, people engaged in extensive manual work, long treks to markets and farms. This informal and indirect participation in physical activity helped to offset the adverse affects of accumulation of body fat in cases where it was found (Williams, 2000). Cosmetic reasons are often a primary motivation to control and prevent fat-weight. Extra body fat is associated with over twenty- six health conditions.

Maintaining healthy body weight is an important factor in self concept and emotional health. This is because most people feel better physically and mentally when certain body weight is attained. In a study of freshmen female college students, a favourable body image was the only factor related to weight loss among those who lost weight (Hodge, Jackson & Sullivan, 2000). Recognizing the serious problems of fat-weight among the population, various attempts have been postulated at controlling it. One of such methods is dieting. Fat-weight lost on a low caloric diet might be muscle rather than fat. Loss of muscle can lower the metabolic rate, making it harder to keep weight off since one muscle tissue needs more calories to support it than fat does (Odell & Kreger, 1999).

Some people who go on diets consider them to be temporary eating plans that must be tolerated for several days or weeks until a few pounds are shed. A “diet” must be permanent changes in eating habits. Do not waste your time or dieting if you are not committed to maintaining a healthy weight throughout life. Dieting has been found to result to some health problems. The negative health effects of losing and regaining fat-weight are most obvious in individuals 30 to 44 years of age (Odell & Kneger, 1999). It has been found that if one repeatedly diet, the body becomes fatter and make it harder to lose weight (Liebman, 2000). When the human body is continually being denied food through dieting, its metabolism slows down as if it were reacting to a famine. One’s body learns to gain weight back quickly and held on to it when food supplies are next denied and regained weight

contains a higher percentage of body fat. It is advised that there is no reason to diet unless you are going to permanently change your eating habits.

Fat-weight prevention and controlling theories

- Fat-weight stabilization by sexual activities especially for the emotional and careless eaters.
- Dietary programmes which include consuming large raw fruits salads, vegetables and proteins.
- Fasting has been found to account for the wrinkling and sagging tissues and which is similar to losses as a result of severe dietary restrictions.
- Increased energy expenditure and constant food intake.
- Decreased food intake and constant energy expenditure
- Fluid restrictions and hydration through excessive sweating.

The American College of Sports Science Medicine (2000) concludes that the simple and combined effects of these practices are generally associated with;

- A reduction of muscular strength
- A decrease in work performance
- Lower plasma and blood volume
- A reduction in cardiac functioning during sub maximal work condition
- A lower oxygen consumption especially when food restriction is a critical part of fat-weight control plan
- An impairment of thermoregulatory process
- A decrease in renal blood flow and in the volumes of fluid being filtered by the kidney and an increase in the amount of electrolyte being lost from the body.

Effects of exercise on fat-weight prevention and control

The effects of exercise on fat-weight prevention and control cannot be over-emphasized and they are as follows, according to Brownel (2005), Wilmore (2004) Corbin, Welk, Corbin and Welk (2004) and Chu (2009):

- Reduces the symptoms and risks of fat-weight related co-morbid conditions such as cardiovascular diseases, diabetes, pulmonary disorders and orthopedic conditions
- Keeps the best body composition functions
- Reduces the accumulation of body fats and cholesterol
- Improves the immune system
- Prevents regeneration of cell fats
- Burns out excessive body fats
- Reduces blood fat, including low density lipoprotein (LDLs)
- Reduces risk of stroke due to fat deposits in the artery
- Increases sweating which assist to reduce adiposity in the skin,

Recommendation of exercise of prevention and control of fat-weight

- Exercise must allow for gradual progression from low levels to higher levels of energy expenditure.
- Medical examination should be carried out before the commencement of physical exercise.
- Participants must be protected from injury with precautionary measures

- ❖ Exercise must be vigorous enough to result in increased body heat as evidenced by sweating.
- ❖ The intensity of exercise must be as high as possible and should last for at least 30 minutes
- ❖ Soreness must be prevented or relieved off by the interval training programme.
- ❖ Strenuous physical exercise training such as walking in a semi-racing style, interval jogging, distance running, skipping, push-up; roll-ups, cycling and rowing should be encouraged.
- ❖ The use of treadmill and bicycle ergometer for indoor physical activity should be encouraged.
- ❖ Participate should visit local gym and exercise physiologist for further therapy
- ❖ Fried foods and fatty food should be discouraged if exercise is to be very effective.
- ❖ Relatively use of dumbbell and barbell for light arm-curl and bench press should be introduced after 5 weeks of training.

Summary and Conclusion

Fat-weight is a hypokinetic disease which is a condition in which individual weighs more than his age and height. It is the amount of the body weight that is fat versus muscle, tone, organs and body fluid. Fat-weight gradually results in serious health problems that are detrimental to human health and wellness. Such condition results from genetic endowment, over eating, consumption of fatty diets and foods high in cholesterol, and sedentary lifestyles amongst others.

The body mass index is the best formular for calculating fat-weight in man, where weight in divided by height squared. Early attempts were made by man to prevent and control fat-weight, but none is as effective than the use of exercise. Exercise is physical activity done for the purpose of getting physically fit and divided into aerobic and anaerobic types.

Fat-weight individuals must gradually increase their exercises sessions from simple to complex and should be at least not less than 30 minutes, and should include range of exercise. Exercise produces a negative caloric balance in the fat-weight, and provides considerable protection against the loss of protein and fat-free weight. It enhances blood flow through the fat-weight major fat deposits.

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