

10. Fad Diets and Health: A Utopia

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Abstract:

In this book chapter in the first section introduction, relevance of fad diets has been highlighted in the changing context of food and nutrition as consequences of globalization. In the next section mention has been made about fad diets and their features. This has been followed by 3 sections on origin of fad diet, history of popular fad diets over time and classification of fad diets. Further sections have given glimpse of current scenario of consumption of fad diets. This is followed by a description of mechanism and health consequences of 7 trendy fad diets (viz., Ketogenic diet, Atkins diet, Paleolithic diet, Mediterranean diet, Vegetarian diet and Intermittent fasting). Last section of the book chapter is summary.

Keywords: *Fad Diet, Food and Nutrition, Health, Obesity, Trending fad foods, Weight loss.*

10.1 Introduction:

Globalization and the paradigm shift in the field of food and nutrition sciences resulting for nutrition transition which has strongly influenced the dietary pattern of the population. These transitions have paved the path for consumption of variety of foods.

In comparison to past people are more aware of what and why they are eating? but at the same time ironically, they start following random diet plans to reduce or maintain their weight.

Presently several types of diet plans are available in the market which has been endorsed by the social media influencers as well as through advertisements on television. Some of the diets have scientific base and they help to maintain health of an individual in real sense but some of them are lacking standard scientific base, especially the diet plans which are designed for rapid weight loss in short period of time. Currently world is going through double burden of malnutrition (viz., under nutrition and over nutrition).

The problem of over nutrition is emerging as increasing number of obese persons which not only affect one's physical health but also psychosocial wellbeing. In the modern society being slim is associated with attractiveness and good-looking personality whereas, chubby person is symbolized as unhealthy, diseased, and ugly which directly affects their personality (Bucher et al.,2018).

Being overweight always force people to get quick remedy of this problem in form of pills or crash diet planning (fad diet plan) that could help them to rapid weight loss in shortest period of time irrespective of their underlying health issues.

A study done by Bucher et al., (2020) reported that the people's inclination towards dieting has increased in the past two decades and inquires related to weight loss on internet had tremendously increased between the 2004 to 2018. Body Image conciseness and craziness for being slim push people to follow certain types of fad diets without realizing its long-term adverse health effects.

10.2 Fad Diets:

The word fad is derived from 16th century term fiddle (i.e., trivial). The dictionary meaning of 'fad' is, a style, activity, or interest that become famous for a very short duration due to different influencing agents. Fad diet is not a scientific terminology rather a trendy dietary pattern that is known to be a quick fix for obesity (Gui et al., 2008).

There is no definite definition of fad diets due to lack of scientific base and varying degree of consequences on health. However, some of the workers have attempted to define these diets. The American Dietetic Association defines fad diet is diet that promises instant weight loss without exercise. According to Centre for Disease Control and Prevention (2014) fad diet is a meal plan that promise faster weight loss results with imbalanced dietary modifications. As these diets neither have standard dietary recommendations nor full fill daily nutrient requirements, lead to serious health issues in long term and these effects may vary person to person.

These diets include variety of diet with many modifications resulting different outcome, merits, and demerits. On the basis of definitions fad diets can be conceptualized as "A tailored diet plan or eating pattern without any scientific standard, often promote appetite reduction, short term drastic weight loss and become hugely popular for a short period of time." or as dieting methods that altering the macro and micronutrients to specific proportion and instruct people to follow strict diet plan with the goal of rapid weight loss.

As far as the characteristics of fad diets are concerned most of the them may have similar kind of effects by restricting one or two macronutrient containing food items which results in expression of features (Bastine, 2004).

Identification of type of diet is pertinent before following it. One should ensure that weather a diet is a fad diet or a well-designed, customized diet. On the basis of definitions and promises of fad diets, British Dietetic Association (2014) has given certain features of fad diet as follows:

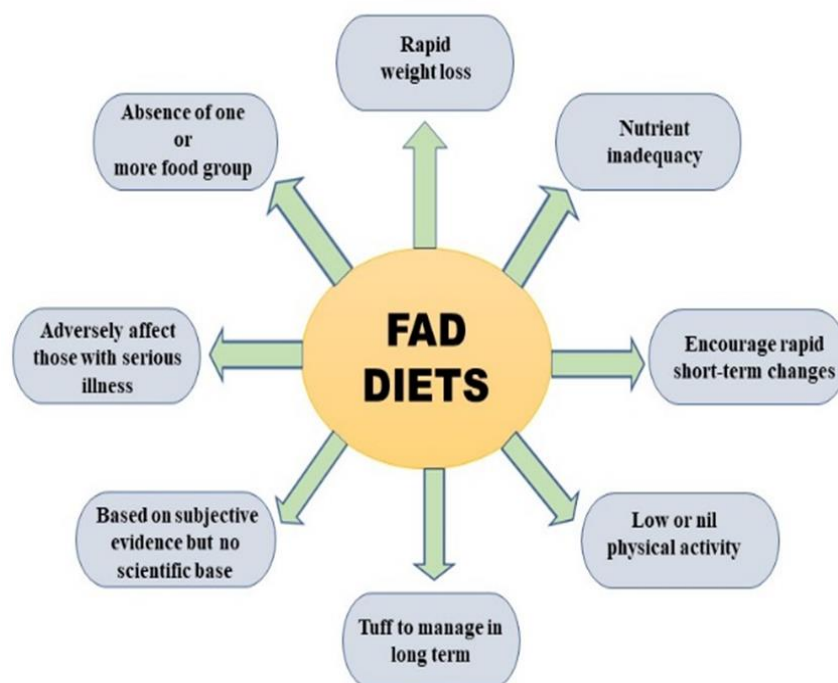


Figure 10.1: Features of Fad Diets:

10.3 Origin of Fad Diets:

Fad diets have a long history. These diets have been in vogue since 6th century BC. Today's modified fads diets have historical basis e.g., fasting diets and low carbohydrate diet date back to 300 AD and 1880, respectively (Foxcroft, 2012 and Rotchford,2013). Although today's popular fad diets have adverse health consequences, initially they had been used by Olympic athletes to maintain their health and some of the fad diets were originally designed by the experts for therapeutic application. Ketogenic diet was prepared for epilepsy patients and Mediterranean/ caloric restriction diets were designed for diabetic patients and healthy weight loss. There are evidences available in the literature on use of these diets by Greek and Romans for maintaining healthy lifestyle. As the time passed these diets were espoused by the Victorians and by 19th century, it was advocated by people for aesthetic purpose (Khawandanah, 2016). The timeline of fad diets witnesses that since 1820s to till date variety of fad diets with their modified forms came into the market with promise of quick weight loss. However, some of them became so popular because of their fastest result.

10.4 History of Popular Fad Diets Over Time:

The first fad diet (viz., vinegar diet) as appetite suppressant came into light in 1820, designed by Lord Byron using apple cider vinegar. This diet became famous as celebrity diet due to its tremendous weight loss results. This is being still used by the celebrities to reduce their weight (Foxcroft, 2012). Almost after a centenary gap, in 1930 a Grapefruit diet (very low calorie) for weight loss was launched which is still popular as Hollywood

Diet. In 1950s cabbage soup diet gained popularity due to its promise to reduce up to 4.5 Kgs in a week (Khawandanah et al., 2016). In 1954 British doctor Simeons proposed human Chorionic Gonadotropin (hCG) diet plan as a tool for weight loss. This fad diet is considered one of the most dangerous diet plans because in this plan people have to restrict their diet around 500 kcal and have to take injections of hormones (Chorionic Gonadotropin) present in the urine of pregnant woman to suppress appetite for rapid weight loss. The sleeping beauty diet (1970s) endorses the heck of rapid weight loss by sleeping most of the time not wake up for eating which will eventually lead to fast weight reduction (Rotchford, 2013). In 1975 "The cookie diet" was created by Dr. Sigal, South Florida, to suppress the appetite. This diet promotes having favourite cookies 9 times a day. Fit for life diet was created in 1985 which does not allow to mix high protein diet with complex carbohydrate. In 1996, The Blood Type Diet designed to promote and choose the food according to one's blood group (Rotchford, 2013). The macrobiotic diet plan drawn from Jain Buddhism and focuses on consumption of locally available grains and vegetables and complete exclusion of non-vegetarian foods once again noted for rapid weight loss in 2000, especially among celebrities. The date back created diet plans (viz., Gluten free diet and Paleodiet) again came in lime light during 2012 and 2013, respectively. In 2014-2015, KE feeding tube diet plan got popularity. This diet plan was suggested for to be brides by keeping them on complete tube feeding 10 days before their marriage for drastic weight loss.

Table 10.1: Classification of Fad Diets

Basis of Classification	Fad Diets
Herbal or other supplements	Synephrine (bitter orange)
Physical/physiological testing	Hair mineral analysis, Kinesiology, Face/tongue reading, Blood group analysis/ blood type diet, Sleeping beauty Diet
Very low Kcal diets (<800 Kcal/day)	Cabbage soup diet, Cambridge diet, Rotation diet, Baby food diet, Bernstein, Lighter Life Diet, Slim Fast Diet
Fasting	Alternate-day fasting (ADF), Alternate-day modified fasting (ADMF), Intermittent fasting (IF) (e.g., 5:2 diet), Time-restricted feeding (TRF)
Low carbohydrate diet(<100gm/day)	Atkins diet revolution, South Beach Diet
Very low-fat diet (<20% Kcal obtained from fat/day)	Pritikin Diet, Pasta Diet
Combination	Fit for Life, Zone Diet
Novelty (certain nutrients or foods)	Beverly Hills Diet, Junk Food Diet
Formula	Slim Fast, Last Chance Diet
Pre-measured	Jenny Craig, Nutri-System
Detox	The Master Cleanse, Wheatgrass diet
High fat	Ketogenic Diet

Basis of Classification	Fad Diets
High protein	Bodybuilder Diet
High-protein, Low carbohydrate diet	Dukan Diet Atkins, South Beach Diet, Zone Diet
Moderate-fat Low-carbohydrate diet	Jenny Diet, Nutri-System Diet, Weight Watchers Diet
Low-fat Very-high-carbohydrate diet	Ornish Diet, The New Pritikin program, LEARN Diet
Very-low-fat Low GI diet	Mediterranean Diet
Other types of diet	Apple Cider Vinegar Diet, Human Chorionic Gonadotropin (HCG) Diet, Macrobiotic Diet Scarsdale Diet, Raw Food Diet, Juice Diet The Werewolf Diet/Lunar Diet, Cotton Ball Diet Warrior Diet, The Five-Bite Diet, The Grapefruit Diet, Tapeworm Diet, Gluten-free Diet, The Magnetic Diet, Feeding Tube Diet, Hollywood 24 Hour Diet, The Lemonade Diet, The Beverly Hills Diet, The Cookie Diet, Military Diet/Hot Dog Diet Breatharian Diet, The Flecherizing Diet, The Sun Diet etc.
Source: Bastin, (2004) and British Dietetic Association, (2014)	

10.5 Current Scenario of Consumption of Fad Diets:

The current trends indicate that considerable number of populations in general and young generation in particular attracted towards fad dieting available on internet or promoted by influencers. Although literature related to fad diets, its type, advantages and disadvantages are available, very few population-based studies are conducted on fad dieting and its consequences on health, particularly in Indian context.

Fad diets are associated with body image. Following fad diet triggered as body dissatisfaction that have an impact on weight loss efforts with crash dieting. A study from Indonesia (2021) reported that females working in the modelling sector had negative body image (62%) and 7 out of 10 subjects made efforts to lose weight by using fad diets. Nearly 6 out of 10 subjects do fad dieting by consuming fat eliminating liquids (viz., shakes, slimming tea, fibrous drink etc.) and 55.7% followed dietary methods by consuming one type of food (carbohydrates, protein alone, or fruit and vegetables) only. (Vidianinggar et al., 2021). There are several factors which may influence consumption of fad diets. Peer pressure plays important role for fad dieting. Criticism of weight and diet by peer members is associated particularly with dieting in teenagers (Cattarin & Thompson, 1994). The photo shopped pictures and lean body (fat free bodies) presented in the magazines which have been considered ideal and far from the reality often attracts population to get slim body (Education. com, 2014). A study done on teenage girls reported that nearly 7 out of 10

(69%) girls confess that their idea about ideal body image get influenced by the photos presented in the magazines while 47% said that as a result they desired to shed weight (Field, 2000). According to a study, promotional events, ads have direct influence on the choices one make in future (Harris et al., 2009). Systematic review done by researchers on the role of social influence on fad diet consumption revealed that majority (62%) of the studies focused on the interpersonal influence on fad diet and social influence impacting a variety of fad diet behaviour (92%). Media acting as motivating factors for adoption of unhealthy dieting methods (54%) and in case of 23% studies showed interpersonal support impacted adoption and maintenance of fad diet use. Nearly 15% studies showed social norms influenced unhealthy weight control behaviour (Spadine and Patterson, 2022).

10.6 Trending Fad Diets and their Health Consequences:

Fad diets are known for centuries but there are 7 types of fad diets in fashion of which origin, types and health consequences have been discussed below as:

- **Ketogenic Diet:**

Originally keto diet was designed for treatment of epilepsy patients by Dr. Russell Wilder in 1920s. Later in the 1970s, it became popular for the treatment of obesity. The keto diet is distinguished by low carbohydrate and high fat with the ratio 1:4 (Dhamija et al., 2013). The four forms of keto diets are available in literature these forms are result of slight modifications in macronutrient distribution in the classic ketogenic diet. [i] **Classic ketogenic diet:** (fat: 90%, Protein: 6%, Carbohydrate: 4%) [ii] **Modified Atkins diet (MAD):** (fat: 65%, Protein: 25%, Carbohydrate: 10%), [iii] **Medium-chain triglycerides (MCT) ketogenic diet:** (fat: 70% (10% LCT & 60% MCT), Protein: 10%, Carbohydrate: 20%) [iv] **Low glycemic index treatment (LGIT):** Macronutrients distribution fat: 60%, Protein: 30%, Carbohydrate: 10%.

Mechanism: The ketogenic diets lower the blood glucose and insulin level and suppress the appetite which improves body fat and weight reduction (Joshi and Mohan, 2018). The mechanism for weight reduction in ketogenic diet involves reduced appetite, lipogenesis, an increase in lipolysis, and in metabolic cost of gluconeogenesis and the thermic effect of proteins (Nadeem et al., 2020). Ketogenesis and ketolysis are the two main mechanisms take place in body. The first step involves ketone bodies production in liver cells by oxidizing fatty acids, then transported through the blood to other organs to fulfil the energy requirements of cells in the body. The second step, ketolysis, involves the breakdown of ketone bodies. Low glucose levels in blood leads to increased rate of fatty acid conversion into the three ketone bodies in the liver cells. ACAC and BHB are converted to acetyl-CoA after their transferal to the extrahepatic tissues. Acetyl-CoA is then used as a fuel by TCA cycle to produce ATP. This complete process declines the insulin level in blood resulting in reduced accumulation of glucose and fat (Abek et al., 2020 and Nadeem et al., 2020).

Health Consequences: The beneficial effect of ketogenic diet in treatment of various diseases including seizure severity, and less frequency of occurrence seizure in epileptic patients have been reported by researchers (Kvernel et al., 2018, and Roehl et al., 2019). Davison et al. suggested that ketones protect cognitive impairment in obese (Feinman

et al., 2015). These diets have positive role in treatment of various neurological impairments like Alzheimer's, amyotrophic lateral sclerosis, autism, brain injury, depression, narcolepsy, parkinson's diseases, ischemic and traumatic brain injury (Neill et al., 2019). A study done on obese patients with mild kidney failure reveals that very low-calorie keto diet was safe and successful for weight management of patients (Bruchi et al., 2020). Ketogenic Diet improves the positive mood and reduces anxiety and depression neurotransmitters in overweight people (Davidson et al., 2013). The positive effect of ketogenic diets on weight reduction without any negative effect on physiological, psychological and metabolic parameters by following 12 weeks have been reported by Dahlin et al., (2012). On the other hand, it was found that being high in fat and low in carbohydrates, it is nutritionally inadequate, it is high in cholesterol and deficient in fiber and other micronutrients (viz., Vitamin A, vitamin E, folate, thiamine, vitamin B6, iron, calcium, potassium, and magnesium) may pose several adverse health consequences (Crowe, 2005). The adverse effect of KD can be seen as short-term side effects: constipation, fatigue, halitosis, headache, thirst, polyuria, nausea, muscle cramps, diarrhoea, general weakness, rash, chest pain, and hyperosmolar coma (Atkin et al., 1999 and freedman et al., 2004) and long-term side effects: Although in literature positive aspects of keto diet for epileptic patients have been reported, it has also shown to affect metabolism of bones. Prolonged intake of this diet in children with unmanageable epilepsy may progressively lead to a reduction in mineral content of the bone (Gower and Casazza, 2013). Following a keto diet causes ketoacidosis with symptoms such as fatigue, nausea, and vomiting (Blanco et al., 2019).

- **Atkins Diet:**

In the 1970s Dr. Robert Atkins a physician and cardiologist, United States, designed a high protein, low carbohydrate (HPLC) diet with the belief that the major cause of obesity and other metabolic abnormalities is caused due to high intake of carbohydrates. Through this concept he drawn attention on "Eat right not less". Reducing the quantity of energy from carbohydrates and adding high protein for balancing energy intake in diet, results in quick removal of fat from body and even helps in weight maintenance, if one follow for lifetime Macronutrients distribution of this fad diet is- fat: 65%, Protein: 25%, Carbohydrate: 10% (Apovian et al., 2018).

Mechanism: The Atkin diet has four phases: **(i) Induction phase:** The initial phase of this diet focuses on strict (20 gm or 10 percent) consumption of carbohydrates in form of vegetables (viz., asparagus, broccoli, celery, cucumbers, green beans peppers etc.) per day **(ii) Ongoing weight loss phase:** This is the balancing phase for carbohydrate intake. **(iii) Pre-maintenance phase:** In this phase the gradual intake of food can be included in the diet plan and **(iv) Lifetime maintenance phase:** This is the last phase which continue throughout the life once the weight loss is achieved (Kefalas et al., 2020 and Nadeem et al., 2020). This diet plan includes use of dipstick urine tests for monitoring of amount of the ketone in urine and ensure its presence (Nadeem et al., 2020).

Health Consequences: The positive health results of modified Atkin diets has been recorded. The modified version of this diet is not only conferring weight reduction but also prevents cardiovascular complications including metabolic abnormalities (Mansoor et al., 2016). The gradual increased intake of carbohydrate and lower intake of fat reduces the risk

of growth impairment, dyslipidemia and kidney stones compared to ketogenic diet. Improved concentration, fluent speech, more erect and straight posture and enhanced and improved mood are the health benefits of this diet. Atkins diet probably plays a role in the treatment of medically resistant epilepsy (Kossoff et al., 2012). The long-term adverse effect of this diet is noted as formation of urinary stone, mild gastroesophageal reflux disease (Nouvenne et al., 2018, Kossoff et al., 2013).

- **Paleolithic Diet:**

The Paleolithic diet was proposed by Eaton and Konner in 1985 but its official publication was done in 2010 by Dr. Loren Cordain. Low carbohydrate, high fat and protein ratio is the characteristic of this diet (Dolson, 2020). This diet is low in saturated fat in keeping with the lean flesh of wild animals, with a 1:1 ratio of energy from plant and animal foods. Fruits, roots and shoots supplied moderate amounts of carbohydrate. The diet plan focuses on the mismatch of genomic evolution and the modern-day diet. The nutritional intake of this diet plan is related with the human genetics and adaptation towards modern diet. Paleolithic diet focused on the foods that human use to consume in paleolithic period, therefore it is also known as 'primitive diet', 'hunter-gatherer diet', 'stone ages', and 'caveman diet'.

"The sources of this plan are wild-animal and uncultivated plant-based foods that includes lean meat, eggs, fish, vegetables, fruits, roots and nuts (Klonoff, 2009). Development of this diet plan was done with the belief that most of the disease including non-communicable diseases are because of modern diet. The food group strictly excluded in this diet are processed food, grains, legumes, dairy products, salt, refined sugar, and processed oil (Cordain, 2010 and Eaton et al., 2010) followed by restriction on calories and portion of food intake. The macronutrient composition of paleolithic diet is fat: 40%, Protein: 40%, Carbohydrate: 20% of total energy consumed.

Mechanism: The Paleolithic diet has three levels: **(i) Entry level:** This phase is very rigid and limited to protein intake and only oat bran and other vegetarian source of protein is allowed. **(ii) Maintenance level:** In this phase one can introduce non starchy vegetables on alternate days. **(iii) Maximal weight loss level:** Allows eat unlimited protein, vegetables and one serving of low sugar fruit every day.

Health Consequences: The positive effect of paleo diet is noted better in reducing metabolic syndrome and insulin resistance. This diet is also beneficial for people having digestive issues and allergic to lactose and gluten. As this diet includes enough vegetable and fruits, show beneficial effect in inflammatory bowel disease (Hou et al., 2011). According to an intervention study in one of the two weeks, of intervention of paleo diet showed improvement in cardio-metabolic health by reducing diastolic blood pressure, total cholesterol, and triglycerides levels (Boers et al., 2014). A 10 weeks intervention of paleo diet resulted in reduction in high density lipoprotein and increased total cholesterol level, low density lipoprotein and total cholesterol: high density lipoprotein ratio (Smith et al., 2014). Since this diet plan is rich in grains and animal meats, if not followed carefully will lead to several gastrointestinal problems (viz., Diarrhea, Constipation, changes in gut bacteria etc.). As this diet restricts dairy products may cause deficiency of calcium and vitamin D. Moreover, following such a diet for several months can cause bone related issues.

- **Mediterranean Diet (MD):**

In 1950s, Dr. Ancel Keys gave the concept of Mediterranean diet after long research conducted on Westerns and Europeans people mainly focusing on their dietary intake and cardiovascular health. The findings of this study revealed that Europeans had lower cardiovascular related mortality rate than Westerns, even after consuming high fat in diet, further it indicates direct association of dietary intake and heart health (Keys et al., 1957). The profile of this diet plan focuses on whole grains, good fats (fish, olive oil, nuts etc.), vegetables, fruits, fish, and very low consumption of any non-fish meat (Keys, 1975). It is considered one of the most nutritionally balanced plans and may have probably prevent micronutrient deficiencies (Quezada et al., 2014). The macronutrient composition of this diet is fat: 30%, Protein: 15-20%, Carbohydrate: 50-55%.

Mechanism: Unlike other diet plans Mediterranean plan is flexible and focuses on daily consumption of fruits, whole grains, vegetables and healthy fats; weekly consumption of healthy fats from fish and poultry, beans and eggs; moderate intake of dairy products and limited intake of red meat. The entire diet plan is based on the nine principles which aims for: **[i]** more than 2 servings of vegetables per day. **[ii]** more than 2 servings of fruit and 1 serving of nuts per day. **[iii]** intake of legumes more than 2 servings per day. **[iv]** consumption of whole grains more than 4-6 servings per day **[v]** more than 2 servings of fish per day. **[vi]** eat plant-based fats (avocado oil, olive oil, canola oil) and same use for cooking. **[vii]** less than 1 serving of low-fat dairy products. **[viii]** consumption of meat protein less than 1 serving per day (less than 3 servings per month of red meat). **[ix]** no more than 1 drink per day for women or 2 drinks per day for men.

Health Consequences: Finding of the research has revealed that this diet plan has preventive and therapeutic role in life threatening chronic diseases in general and in cardiovascular diseases, non-alcoholic fatty liver disease, metabolic syndrome, and some cancers (viz., colorectal and breast cancer) in particular (Romagnolo et al., 2017). A study done on 259 subjects to assess efficacy of low carbohydrate Mediterranean diet revealed that after consuming 12 months of this diet plan resulted highest weight loss, improved high density lipoprotein, triglycerides and HbA1c levels than American Diabetic Association (ADA) diet and traditional Mediterranean diet.

- **Vegetarian Diet:**

Vegetarian diet plan is the one of the most ancient plans. It is originated in 3200 BC and adopted by many parts of the country. The extension of vegetarianism has always been related with religions that shows respect for all living creatures and follows non-violence principles (Hargreaves et al., 2021). The non-violence property of this diet continues its popularity. The vegetarian diets exclude all food that come from animal origin (viz., meat and meat products, seafood, poultry, and sometimes other animal products like eggs, animal milk, and honey). On the basis of inclusion and exclusion of food vegetarian diets are of 4 types: **[i] Lacto-ovo-vegetarian:** a lacto-ovo-vegetarian diet includes eggs and dairy products but not any meat product **[ii] Lactovegetarian:** only dairy products along with vegetarian foods are included in this type. **[iii] Ovo-vegetarian:** it includes meat and dairy products not eggs. **[iv] Vegan:** It is a very strict form of vegetarian diet. a vegan does not

include any animal products (viz., meat, eggs, dairy products, and honey) (Marsh et. al, 2012). Further the vegan can be classified as (a) **Raw vegan**: only include raw form of food available in nature (b) **Vegan (general)**: plant-based food items in both raw as well as cooked form (c) **Whole-food vegan**: wholesome form of natural foods are included in this plan and exclude the processed items (viz., refined sugar, Processed and packaged food and refined oils).

Health Consequences: Besides ethical motivation, cultural aspects, religious belief, health benefits of vegetarian diets is attracting considerable number of population in general and population of western countries in particular (Leitzmann et al., 2014). Findings of several researches have demonstrated positive effects of vegetarian diets. Vegetarian diet has shown low cardiometabolic risk in vegetarian people, then non-vegetarians.

The prevalence of diabetes was reported higher in (6.1%) semi-vegetarians, followed by pesco-vegetarians (4.8%) and lacto-ova vegetarian (3.2%) which may be due to consumption of low Glycemic Index (GI) food (vegetarian dietary pattern typically include low GI foods) groups. (Tonstad et al., 2009). A large-scale prospective study observed that vegans had least weight gain than to fish eater and lower rates of heart diseases and cancers have also noted in vegetarians (Bossett et al., 2001 and Norat et al., 2005). On the basis of exclusion of food groups vegetarian diet sometimes become so strict may cause potential risk of micronutrient deficiencies (calcium, zinc, iron, vitamin E, vitamin B12, essential fatty acids, docosahexaenoic acid and eicosapentaenoic acid etc.).

- **Intermittent Fasting:**

Intermittent fasting is an eating plan which alternates between fasting and eating. Unlike other diet plans it focuses on programmed eating (when to eat) and it contrasts with the normal eating pattern. Intermittent fasting pattern is the result of experiment done on mice in 1940s. The calorie restriction in form of intermittent fasting has increased the life span of animal. Mihael Mosley made this diet plan popular in 2012. This fasting pattern is actually inspired by dietary pattern followed by pre historic stage human. They used to spend several hours and days without food as they did not learn to farm and cook which indirectly helps them to maintain their weight. Since this plan centered on programmed eating, frequency and duration of fast cycles may differ (Freire, 2009). Common forms of fasting available in the market are: [i] **Alternate day fasting**: Fasting alternated with a day of normal eating. [ii] **Time-restricted feeding**: Normal eating within a window of < 8 h per day. [iii] **5:2 diet or periodic fasting**: Fasting for 2 days with normal eating for 5 days [iv] **Night Time Fasting**: Fasting at night time for 9 hrs. with normal eating in day time (Cheminant et al., 2013).

Mechanism: The various fasting and feeding pattern that identified as intermittent fasting in which body evolves to go without foods for many hours, several days or more. During fasting body uses stored fats for energy resulting in reduction in adipose mass (Harvie et.al. 2011, Horne et.al, 2013 and Norrelund et al., 2014). During fasting body goes under nutritional stress which results in cellular level repairs, functional optimization and metabolic rejuvenation (Anson et.al, 2003, Raffaghelto et al, 2008, Wan et al., 2003, and Cheng et.al, 2003).

Health Consequences: Weight loss has been identified in people following intermittent fasting. A study done on non-obese subjects shown good weight loss followed alternative fasting for 22 days. However, as a side effect of this has decreased fasting insulin (Heilbronn et.al, 2005). The increased glucose uptake and prominent increase in lipolysis of adipose tissues were observed (Halberg, 2005) as health consequences of fasting. Night time fasting focuses on lower energy consumption, which ultimately results in weight loss. After following 2 weeks night fasting for 9 hours per day followed by 1 week washout period, observed reduction in weight (Cheminant et al., 2013). Increased metabolic rate during short term starvation and substantiated increase in resting metabolic rate during 36 and 48 hours have been reported by researchers (Taylor et al., 2001 and Zauner et al., 1990). The repeated fasting cycle for long term may result micronutrient deficiencies. Intermittent fasting induces lipolysis, which subsequently increases formation of free fatty acids. So, a prolonged course of fasting can lead to large fluctuations in FFA in normal weight individuals. It induces reductions in insulin sensitivity and acute glucose simulated insulin response (Salgin et al., 2009).

Detoxification Diets:

The process of detoxification of body is being practiced since ancient period by different cultures all over the world. Detox diet refers to a dietary regimen focuses in alterations of consumption habits to eliminate toxins from the body. A typical detox diet starts with fasting, followed by a strict diet of raw vegetables, fruits, juices and water. Complete starvation fasting, juice fasts, laxatives, dietary modification cleansing foods, herbs supplements and use of minerals (viz., magnesium), vitamins, diuretics, saunas bath, relaxation, physical activity, yoga, kriyas, and meditation are the effective approaches have been used for the removal of toxins (Khalil, 2017).

Mechanism: The process of detoxification involves the mobilization, biotransformation, and elimination of toxicants of exogenous and endogenous origin through liver, kidneys along with extra renal excretion of toxins in sebum and sweat without using the external detoxification process (Genuis et al., 2011). Calorie restriction alters the neuro peptides expression in the hypothalamus; which reduces metabolic rate and stimulates appetite, resulting in a weight loss plateau (Klein et al., 2015).

Health Consequences: Detoxification process eliminates toxins from the body, helps temporary in weight management, and improve the quality of life. Naturopathy doctors endorsed detox diet to prevent and for treatment of gastrointestinal disorders, autoimmune disorders including inflammation, chronic fatigue, fibromyalgia, and weight loss detoxification process is prescribed by naturopathic doctors (Allen et al., 2011). Vast nutritional gap has been observed due to being liquid, low in calorie and macro and micro nutrient deficient (WHO, 2007). According to Sultan (2021) after use of detox diet it has been observed that most of the subjects lost weight with small deficiency, whereas few of them gained weight. Strict diet plan leads to tough weight loss followed by elevated cortisol levels, stress, and sometimes increase appetite, binge eating (Pankevich et al., 2010, Mazurak et al., 2013 and Tomiyama et at., 2013). Energy restricted detox diets may result short term weight loss but inadequate and imbalanced nutritional distribution makes it an unhealthy option for long term use which pose serious health problems.

10.7 Summary:

Fad diets are the diet plans which neither have standard dietary recommendations nor full fill daily nutrient requirements. Most of the fad diets are derived from religion, culture and science and mostly used for weight loss using terms like ‘fat burner’ and endorsed by celebrities. Although fad diets promise to rapid weight loss, but inadequate and imbalanced nutritional distribution in terms of macro and micro nutrients makes it an unhealthy option for long term use which cause serious health issues. Hence following fad diets for maintenance of health especially for weight loss is like a utopia.

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