

A Literature Review on Processed Foods and a New Lifestyle

Paphada Putchakarn

Triam Udom Suksa School

DOI: <https://doi.org/10.5281/zenodo.7034908>

Published Date: 30-August-2022

Abstract: Background: Nowadays, food technology has improved a lot according to people's lifestyle. To highlight my point, current society especially in metropolis, people have to be in hurry lifestyle to compete with other people, traffic congestion and a lot of problems in their lives. Therefore, some people may ignore their nutrition and consumption habits which can lead to many manufacturers create a large number of ultra-processed food to meet people's demand. Because of this, I am very interested in ultra-processed food and food nutrition.

Objective:

1. To study tendency of ultra-processed food consumption in metropolis
2. To study the effect of ultra-processed food related to food nutrition
3. To study food nutrition of ultra-processed food

Method: Browsing and studying at least ten research paper and concluding it together to sum up every aspect of ultra-processed food

Result: Obtaining various knowledge and numerous aspects of ultra-processed food such as health risk and health complications regarding with consuming ultra-processed food, less food nutrition of ultra-processed food and rise tendency of ultra-processed food consumption in this present time.

Conclusion: Ultra-processed foods have both advantages and disadvantages. To highlight my point, benefits of consuming ultra-processed food are people's convenience and save time from having ultra-processed foods instead of big meal. However, it still has non-beneficial aspects which are health risk and less food nutrition.

Keywords: Ultra-processed food, health risk, NOVA, food nutrition, consumption, metropolitan.

1. INTRODUCTION

Background

Ultra-processed foods have a large number of definitions but overall, the meaning of they are that they are made mostly from substances extracted from foods, such as fats, starches, added sugars, and hydrogenated fats. They may also contain additives like artificial colors and flavors or stabilizers to highly respond people's sense of taste

Nowadays, food technology has improved a lot according to people's lifestyle. To highlight my point, current society especially in metropolis, people have to be in hurry lifestyle to compete with other people, traffic congestion and a lot of problems in their lives. According to the research in the United States which is "Ultra-processed food consumption among US adults from 2001 to 2018" that the main context of it is about adjusting for changes in population characteristics, the consumption of ultra-processed foods increased among all US adults from 2001-2002 to 2017-2018. In contrast, the consumption of minimally processed foods decreased significantly over the study period. The consumption of processed culinary ingredients increased from 3.9 to 5.4 %kcal, whereas the intake of processed foods remained stable at ~10 %kcal throughout the study period.

There are many health complications that stem from consuming ultra-processed foods in a large amount. According to the research “The Effects of Ultra-Processed Food Consumption” it can be concluded that the growing trends in the incidence of chronic non-communicable diseases and an overall higher mortality risk. Therefore, the perspectives on the soaring popularity of highly processed foods relate mainly to health and technological aspects. It may also promote overeating and thus result in metabolic disorders. Other research also showed that ultra-processed foods may lead to overeating and facilitate the development of obesity or type 2 diabetes due to their high energy value and appetitive properties.

Therefore, there are a lot of non-beneficial aspects that result from the rapid increase trend of ultra-processed food. It can lead to several social problems such as health problems among children. Because of this, I am very interested in ultra-processed food and food nutrition.

Objective

1. To study tendency of ultra-processed food consumption in metropolis
2. To study the effect of ultra-processed food related to food nutrition
3. To study food nutrition of ultra-processed food

Processed Foods and a New Lifestyle

1. What is ultra-processed food

Definition : Ultra-processed foods are the category where almost 50% of our calories come from and where we should cut back. These foods go through multiple processes (extrusion, molding, milling, etc.), contain many added ingredients and are highly manipulated. Examples are soft drinks, chips, chocolate, candy, ice-cream, sweetened breakfast cereals, packaged soups, chicken nuggets, hotdogs, fries and more. [1]. Ultra-processed foods are made mostly from substances extracted from foods, such as fats, starches, added sugars, and hydrogenated fats. They may also contain additives like artificial colors and flavors or stabilizers. Examples of these foods are frozen meals, soft drinks, hot dogs and cold cuts, fast food, packaged cookies, cakes, and salty snacks[2]. Ultra-processed foods are defined as “formulations of several ingredients which, besides salt, sugar, oils, and fats, include food substances not used in culinary preparations, in particular flavours, colours sweeteners, emulsifiers, and other additives used to imitate sensorial qualities of unprocessed or minimally processed foods and their culinary preparations or to disguise undesirable qualities of the final product” [3]. Ultra-processed foods are the food that are made from substances extracted from food such as sausages, meat balls, chicken nuggets and chocolate.

Types of food : There are 3 types of food 1. Unprocessed or minimally processed foods: Think vegetables, grains, legumes, fruits, nuts, meats, seafood, herbs, spices, garlic, eggs and milk. Make these real, whole foods the basis of your diet. 2. Processed foods: When ingredients such as oil, sugar or salt are added to foods and they are packaged, the result is processed foods. Examples are simple bread, cheese, tofu, and canned tuna or beans. These foods have been altered, but not in a way that’s detrimental to health. They are convenient and help you build nutritious meals. 3. Ultra-processed foods: Here’s the category where almost 50% of our calories come from – and where we should cut back. These foods go through multiple processes (extrusion, molding, milling, etc.), contain many added ingredients and are highly manipulated. Examples are soft drinks, chips, chocolate, candy, ice-cream, sweetened breakfast cereals, packaged soups, chicken nuggets, hotdogs, fries and more [1]. The term ‘processed food’ has a bad rap, but cheese and fresh bread are both considered processed, so don’t always assume the worst. The NOVA food classification divides the foods we buy into four groups, from unprocessed to ultra-processed – Group one: Unprocessed and minimally processed : Unprocessed and minimally processed foods make up 30 per cent of the calories eaten in a typical UK diet. Unprocessed foods include fruit, vegetables, nuts, seeds, grains, beans, pulses and natural animal products such as eggs, fish, milk and unprocessed meat. Minimally processed foods may have been dried, crushed, roasted, frozen, boiled or pasteurised, but contain no added ingredients. They include frozen fruits and vegetables, frozen fish, pasteurised milk, 100 per cent fruit juice, no-added-sugar yoghurt, spices and dried herbs. Group two: Processed culinary ingredients : Processed culinary ingredients, include oils, fats such as butter, vinegars, sugars and salt. These foods are not meant to be eaten alone, but usually with foods in group one. Around 4 per cent of the calories we eat in the UK comes from this category. Group three: Processed : Processed foods are products that are usually made using a mix of group one and two ingredients. They include smoked and cured meats, cheeses, fresh bread, bacon, salted or sugared nuts, tinned fruit in syrup, beer and wine. The main purpose of the processing is to prolong the food’s life or enhance its taste and almost 9 per cent of calories eaten in the UK are from this group. Group four: Ultra-processed : Ultra-processed foods usually contain ingredients that you wouldn’t add when cooking homemade food. You may not recognise the names

of these ingredients as many will be chemicals, colourings, sweeteners and preservatives [4]. The NOVA Food Classification System are GROUP 1: Unprocessed or minimally processed foods : Unprocessed or Natural foods are obtained directly from plants or animals and do not undergo any alteration following their removal from nature. Minimally processed foods are natural foods that have been submitted to cleaning, removal of inedible or unwanted parts, fractioning, grinding, drying, fermentation, pasteurization, cooling, freezing, or other processes that may subtract part of the food, but which do not add oils, fats, sugar, salt or other substances to the original food. Group 2 : Oils, Fats, Salt, and Sugar : Group 2 is also called Processed Culinary Ingredients. These are products extracted from natural foods or from nature by processes such as pressing, grinding, crushing, pulverizing, and refining. They are used in homes and restaurants to season and cook food and thus create varied and delicious dishes and meals of all types, including broths and soups, salads, pies, breads, cakes, sweets, and preserves. Use oils, fats, salt, and sugar in small amounts for seasoning and cooking foods and to create culinary preparations. As long as they are used in moderation in culinary preparations based on natural or minimally processed foods, oils, fats, salt, and sugar contribute toward diverse and delicious diets without rendering them nutritionally unbalanced. Group 3 : Processed Foods : Processed foods are products manufactured by industry with the use of salt, sugar, oil or other substances (Group 2) added to natural or minimally processed foods (Group 1) to preserve or to make them more palatable. They are derived directly from foods and are recognized as versions of the original foods. They are usually consumed as a part of or as a side dish in culinary preparations made using natural or minimally processed foods. Most processed foods have two or three ingredients. Group 4 : Ultra-Processed Foods : Ultra-processed foods are industrial formulations made entirely or mostly from substances extracted from foods (oils, fats, sugar, starch, and proteins), derived from food constituents (hydrogenated fats and modified starch), or synthesized in laboratories from food substrates or other organic sources (flavor enhancers, colors, and several food additives used to make the product hyper-palatable). Manufacturing techniques include extrusion, moulding and preprocessing by frying. Beverages may be ultra-processed. Group 1 foods are a small proportion of, or are even absent from, ultra-processed products. [5]

Benefits: Ultra-processed food can bring a lot of convenience to people which it can reduce time-consuming from making some big meal and also reducing time in having a meal. Because of this, ultra-processed food can respond people's satisfaction especially city men.

Drawbacks: Ultra-processed food has less nutrition than raw or natural food which it can lead to health problems such as lack of nutrition. Moreover, ultra-processed food passes a lot of process which means that it was filled up with plenty of additive that can lead to health complications.

Conclusion: Ultra-processed foods have both advantages and disadvantages. To highlight my point, benefits of consuming ultra-processed food are people's convenience especially in metropolis and saving time from having ultra-processed foods instead of cooking and having big meal. However, it still has non-beneficial aspects which are health risk and less food nutrition.

2. TENDENCY OF CONSUMING ULTRA-PROCESSED FOODS

Increase trend of consuming ultra-processed foods : Adjusting for changes in population characteristics, the consumption of ultra-processed foods increased among all US adults from 2001-2002 to 2017-2018 (from 53.5 to 57.0 %kcal; P-trend < 0.001). The trend was consistent among all sociodemographic subgroups, except Hispanics, in stratified analyses. In contrast, the consumption of minimally processed foods decreased significantly over the study period (from 32.7 to 27.4 %kcal; P-trend < 0.001) and across all sociodemographic strata. The consumption of processed culinary ingredients increased from 3.9 to 5.4 %kcal (P-trend < 0.001), whereas the intake of processed foods remained stable at ~10 %kcal throughout the study period (P-trend = 0.052) [6]. Dietary intake from youths were analyzed (weighted mean age, 10.7 years; 49.1% were girls). From 1999 to 2018, the estimated percentage of total energy from consumption of ultraprocessed foods increased from 61.4% to 67.0% (difference, 5.6% [95% CI, 3.5% to 7.7%]; P < .001 for trend), whereas the percentage of total energy from consumption of unprocessed or minimally processed foods decreased from 28.8% to 23.5% (difference, -5.3% [95% CI, -7.5% to -3.2%]; P < .001 for trend). Among the subgroups of ultraprocessed foods, the estimated percentage of energy from consumption of ready-to-heat and -eat mixed dishes increased from 2.2% to 11.2% (difference, 8.9% [95% CI, 7.7% to 10.2%]) and from consumption of sweet snacks and sweets increased from 10.7% to 12.9% (difference, 2.3% [95% CI, 1.0% to 3.6%]), but the estimated percentage of energy decreased for sugar-sweetened beverages from 10.8% to 5.3% (difference, -5.5% [95% CI, -6.5% to -4.5%]) and for processed fats and oils, condiments, and sauces from 7.1% to 4.0% (difference, -3.1% [95% CI, -3.7% to -2.6%]) (all P < .05 for trend). There was a significantly larger

increase in the estimated percentage of energy from consumption of ultraprocessed foods among non-Hispanic Black youths (from 62.2% to 72.5%; difference, 10.3% [95% CI, 6.8% to 13.8%]) and Mexican American youths (from 55.8% to 63.5%; difference, 7.6% [95% CI, 4.4% to 10.9%]) than the increase among non-Hispanic White youths (from 63.4% to 68.6%; difference, 5.2% [95% CI, 2.1% to 8.3%]) ($P = .04$ for trends) [7]. It can be concluded that the ultra-processed food consumption rate increased significantly from the past among young people and adult.

Causes

Changing lifestyle : On average each year, 71% of all mortalities globally occur from non-communicable diseases (NCDs), and the risk of NCDs is increased by lifestyle behaviours such as physical inactivity and unhealthy diet. Indeed, the percentage of individuals in high-income Western countries who do *not* meet their recommended level for physical activity is alarmingly high, and health-depleting diets are consumed around the world. These risk factors for NCDs can be lowered through modification of lifestyle behaviours. Yet these modifications are remarkably difficult to achieve, as previous research on maintenance of treatment gains around physical activity and diet is limited and equivocal. Since the early 2000s, the Norwegian Directorate of Health has recommended establishing Healthy Life Centres (HLCs) as a part of primary health care services in Norway. The main goal of the HLCs is to promote physical and mental health through structured, individual and group experiences that focus on physical activity and diet. Yet to date, little is known about whether or not HLCs can successfully promote behaviour change and maintenance. For instance, one study revealed that participants in HLCs did not report an increased level of physical activity. A second study, with a high rate of dropout, revealed that participants who adhered to the program reported an improvement in general health. A third study revealed that participants in HLCs had a reduced risk of diabetes after 24 months. Other studies that examined the initiation of health behaviour change found that emotional baggage and feeling “stuck” in old habits were barriers to change, that mental distress could lead participants to question the efficacy of HLCs, and that the feelings of shame and guilt could hinder participants’ taking responsibility for changing their lifestyle behaviours. Taken together, these studies suggest that lifestyle change is a challenging process to initiate and maintain successfully. Recently, a systematic review underscored the importance of five factors that help promote successful change *and* maintenance of new lifestyle behaviours, namely, having autonomous reasons for the health behaviour change, having skills to monitor and regulate the health behaviour change, making the new lifestyle behaviours habitual, having physical and psychological resources available, and having supportive environments available. It is interesting to note, therefore, that numerous studies using self-determination theory (SDT) have shown that health behaviours that are initiated and regulated with autonomous motivation are more likely to be maintained over time. From the perspective of SDT, the quality of motivation can be distinguished as either more controlled or more autonomous. Controlled motivation involves an experience of pressure or coercion to think, feel, or behave in a particular way, perhaps in order to comply with a health care provider’s request or to avoid shame and guilt for not living in a healthy way. In contrast, autonomous motivation involves an experience of choicefulness, volition, and reflective endorsement of action, such that the individual understands the value of the new lifestyle behaviour and engagement in the behaviour is congruent with a broader set of values and beliefs that the individual endorses. Also, from the perspective of SDT, all individuals require support for satisfaction of the basic psychological needs for autonomy (an experience of self-determination), competence (an experience of effectance), and relatedness (an experience of close connection with others) in order to function in a healthy, integrated way. Importantly, satisfaction of these basic psychological needs is conducive to autonomous motivation, physical health, thriving, and psychological well-being. Other theories and research outside of SDT have elaborated on the process of goal pursuit, and have underscored the importance of planning and executing actions that promote goal attainment as well as resolving cognitive, emotional, and behavioural challenges that impede success. Lazarus, for instance, defined coping as the cognitive and behavioural efforts that are used to manage stressful events, and highlighted the importance of emotional coping skills for successful goal pursuit. Ferrer and Mendes underscored the importance of affective states in health decisions, as health-promoting behaviours can be undermined by stress or poor emotion regulation. Altering cognitions to help regulate emotions has been shown to be beneficial in treating obesity, and maladaptive cognitions have been shown to be barriers to successful treatment. Behavioural strategies, such as exercise, have been shown to be valuable for emotion regulation, too. Lifestyle change is a complex and multifaceted process that requires successful regulation of various experiences and competing motives. Although HLCs might have the potential to promote optimal (or autonomous) motivation for physical activity and diet, and offer guidance on how to plan, execute, and cope with lifestyle changes, there is a gap in knowledge around how the initiation and maintenance of such changes are experienced by participants in HLCs over time. The initiation and maintenance of health behaviour change can be difficult for individuals to disentangle in retrospect, as they tend to experience one continuous process of lifestyle change. Accordingly, the aim of

the current study was to examine the factors that participants in an HLC perceive as relevant for the initiation and maintenance of lifestyle changes toward more physical activity and consumption of a healthier diet. From the report, it can be concluded that people's lifestyles in this present time have changed a lot from the past including physical activities, mental health, behaviours as well as consuming behaviours. [8]

Variety of ultra-processed food : There are various kind of ultra-processed food in the world such as pop and fruit drinks, sweetened yogurt, sweet or savoury packaged snacks, candies and cake mixes, mass-produced packaged breads and buns, margarines and spreads, breakfast cereals, cereal and energy bars, energy drinks, instant soups, sauces, and noodles, poultry and fish nuggets, hot dogs, and many ready-to-heat products like pre-prepared pies, pasta, and pizza dishes. Therefore, it can be concluded that ultra-processed food is so various that many people can access to it easily. [3]

Comfort : According to the research, in this present time, people's lifestyles have changed a lot to more hurry lifestyle than in the past. Furthermore, the research inform that people started consuming ultra-processed food more than in the past. Therefore, it can be concluded that ultra-processed food is more convenient than other food so it can meet people's satisfaction during hurry lifestyles. [7] [8]

Price : Comparing by degree of food processing, ultra-processed foods cost \$0.55/100 kcal; processed foods cost \$0.64/100 kcal, and unprocessed foods cost \$1.45/100 kcal. Prices for unprocessed foods were significantly above all other NOVA categories. The lowest cost was for culinary ingredients, mostly fats, oils and sweeteners: \$0.14/100 kcal. Because of this, it can be concluded that ultra-processed food has lower price than other food. [9]

Taste : Although the term ultra-processed came into common usage a decade ago, other terms that are often used to define similar categories are highly processed food, processed food, hyperpalatable food, junk food, as well as specific categories such as fast food, sugary beverages, and snack food. Since there is not yet consensus on a single term and these terms are often used interchangeably, in this paper we use UPF to refer to the broad category of products that have undergone a significant amount of processing. We define appeal as the power to attract consumers to purchase and consume certain products repeatedly. Based on our literature scan, we identified three broad categories of variables that influence appeal. First, characteristics of products influence appeal. The amount of sugar, fat and salt and the taste, color, odor, and texture of a product make it more or less appealing. Second, characteristics of people determine what they find appealing. These include biological affinities for salt, sugar, and fat; brain pathways that are activated by these ingredients; psychological dynamics and lived experiences influencing food choice; and socio-economic and cultural characteristics that affect the appeal of UPF. Finally, the practices of food manufacturers, distributors, and retailers – product design, marketing, retail distribution, and pricing –also influence appeal. In the real world, the three Ps of products, people, and practices intersect to shape the appeal of UPF and are not mutually exclusive categories. However, for purposes of organization, we summarize findings in each category separately, then consider how they have interacted to increase the appeal of these products over time and place. From this data, it can be implied that ultra-processed food has more addictive than other food which means that it has various and strong tastes than others. [10]

Hygiene : Ultra-processed foods are foods that have been manufactured from ingredients that are already highly refined, such as cheap vegetable oils, flours, whey proteins, sugars and emulsifiers. Whilst that does not sound particularly appetising, the foods that are produced in this way are often cheap, attractive, convenient and often very tasty [11] It can be concluded that ultra-processed food has been put into hygiene process during production which means that ultra-processed food is more hygienic than some unprocessed food.

3. HEALTH RISKS FROM CONSUMING ULTRA-PROCESSED FOODS

The results of numerous studies support the claim that the orientation of global food supply towards ultra-processed foods may partly explain the growing trends in the incidence of chronic non-communicable diseases and an overall higher mortality risk. Therefore, the perspectives on the soaring popularity of highly processed foods relate mainly to health and technological aspects. A properly balanced diet is an important element in the prevention of civilization-related diseases such as cardiovascular disease, diabetes and obesity. Small and Di Feliceantonio found that the method of food preparation and processing, apart from contributing to energy density or palatability, may also affect physiology, promote overeating and thus result in metabolic disorders. Other research also showed that ultra-processed foods may lead to overeating and facilitate the development of obesity or type 2 diabetes due to their high energy value and appetitive properties [12]. 20 studies (12 cohort and 8 cross-sectional studies) were included in the analysis, with a total of 334,114 participants and 10

health outcomes. In a narrative review, high UPFs consumption was obviously associated with an increased risk of all-cause mortality, overall cardiovascular diseases, coronary heart diseases, cerebrovascular diseases, hypertension, metabolic syndrome, overweight and obesity, depression, irritable bowel syndrome, overall cancer, postmenopausal breast cancer, gestational obesity, adolescent asthma and wheezing, and frailty. It showed no significant association with cardiovascular disease mortality, prostate and colorectal cancers, gestational diabetes mellitus and gestational overweight. [13]. According to a 2020 review published in *Nutrients*, the more ultra-processed foods consumed in your diet, the higher your risk of obesity, heart disease and stroke, type 2 diabetes, and cancer. A variety of factors are thought to contribute to these adverse health outcomes. “Ultra-processed foods are formulated to be highly palatable, meaning they’re often rich in added sugars, fats, salts and other additives, and as a result are generally nutritionally unbalanced,” Christina says. “This, coupled with attractive packaging, convincing marketing claims and ready-to-eat convenience, makes them very easy to overconsume while displacing less processed and more nutritious whole foods from the diet.” Industrial processing itself can also be damaging to your health. Cancer-causing carcinogens can be formed during high-temperature cooking and certain food additives can disrupt your gut bacteria and trigger inflammation in the body, which is linked with an increased risk of disease [14]. Conclusion: Ultra-processed food is linked with a plenty of health risks and health effect due to the fact that ultra-processed food has been passed a lot of processed during its production especially adding some fat, sugar or food addictive which can lead to health problems such as heart disease, hypertension, and overweight.

4. TENDENCY OF PEOPLE’S LIFESTYLE IN METROPOLIS

Overall, 348 study participants were included in the study. Among those respondents, 52.3% (182) were female study participants and the mean age of the respondents was 30.95 ± 14.4 . In this study, there was a significant decrement in non-homemade food from 20.4% to 13.4% at ($P = <0.001$). Concerning water intake, 11.5% (40) of respondents consumed ≥ 8 cups/day before the coronavirus disease 2019 pandemic, and the percentage increased to 14.7% (51) during the coronavirus disease 2019 pandemic ($p = 0.01$). Of the participants, 46% participants were reported never engaging in any physical activity before the coronavirus pandemic, and the percentage decreased to 29.9% during the pandemic ($P = 0.002$). The respondents also exhibited increment tension in large from 4.9% to 22.7% before and during the coronavirus disease 2019 pandemic, respectively. Furthermore, about 6.3% of the study participants slept badly before the coronavirus disease 2019 pandemics and the effects of sleeping badly and restlessly increased to 25.9% during the coronavirus disease 2019 pandemic ($P = <0.001$) [15]. The sample comprised, 3412 participants from the first survey (S1) and in the S1 and 3635 from the second (S2). SMILE-C score decreased across surveys ($p < 0.001$). The rates of positive screenings for depression and anxiety were similar between the surveys, whereas those for alcohol abuse decreased ($p < 0.001$). Most participants in S2 reported that their lifestyle had not changed compared to those before the pandemic. Variables independently associated with an unhealthier lifestyle were working as an essential worker, lower educational level, previous mental disease, worse self-rated health, totally/moderate changes on diet, sleep or social support, as well as positive screenings for alcohol abuse, anxiety and depression [16]. Conclusion : Nowadays, people’s lifestyles have changed a lot especially during COVID-19 pandemic. People have changed their lifestyles into unhealthier ways such as improper diet including more processed and ultra-processed food, less exercise as well as not enough sleeping hours.

Research : Adjusting for changes in population characteristics, the consumption of ultra-processed foods increased among all US adults from 2001-2002 to 2017-2018 (from 53.5 to 57.0 %kcal; P-trend < 0.001). The trend was consistent among all sociodemographic subgroups, except Hispanics, in stratified analyses. In contrast, the consumption of minimally processed foods decreased significantly over the study period (from 32.7 to 27.4 %kcal; P-trend < 0.001) and across all sociodemographic strata. The consumption of processed culinary ingredients increased from 3.9 to 5.4 %kcal (P-trend < 0.001), whereas the intake of processed foods remained stable at ~ 10 %kcal throughout the study period (P-trend = 0.052) [7]. Dietary intake from youths were analyzed (weighted mean age, 10.7 years; 49.1% were girls). From 1999 to 2018, the estimated percentage of total energy from consumption of ultraprocessed foods increased from 61.4% to 67.0% (difference, 5.6% [95% CI, 3.5% to 7.7%]; $P < .001$ for trend), whereas the percentage of total energy from consumption of unprocessed or minimally processed foods decreased from 28.8% to 23.5% (difference, -5.3% [95% CI, -7.5% to -3.2%]; $P < .001$ for trend). Among the subgroups of ultraprocessed foods, the estimated percentage of energy from consumption of ready-to-heat and -eat mixed dishes increased from 2.2% to 11.2% (difference, 8.9% [95% CI, 7.7% to 10.2%]) and from consumption of sweet snacks and sweets increased from 10.7% to 12.9% (difference, 2.3% [95% CI, 1.0% to 3.6%]), but the estimated percentage of energy decreased for sugar-sweetened beverages from 10.8% to 5.3% (difference, -5.5% [95% CI, -6.5% to -4.5%]) and for processed fats and oils, condiments, and sauces from 7.1% to 4.0% (difference, -3.1% [95% CI, -3.7% to -2.6%]) (all $P < .05$ for trend). There was a significantly larger increase in the estimated percentage of energy

from consumption of ultraprocessed foods among non-Hispanic Black youths (from 62.2% to 72.5%; difference, 10.3% [95% CI, 6.8% to 13.8%]) and Mexican American youths (from 55.8% to 63.5%; difference, 7.6% [95% CI, 4.4% to 10.9%]) than the increase among non-Hispanic White youths (from 63.4% to 68.6%; difference, 5.2% [95% CI, 2.1% to 8.3%]) (P = .04 for trends). [7]. Conclusion : It can be concluded that the ultra-processed food consumption rate increased significantly from the past among young people and adult.

5. HOW TO CONSUME FOOD IN AN APPROPRIATE WAY

There are a whole host of processed foods available today. Some items are just minimally processed (like pre-sliced apples or bagged lettuce) and other items are very highly processed (like hot dogs or cookies). Incorporating minimally processed foods is generally appropriate and can even make healthy eating a little easier; however, eating highly processed or ultra-processed foods on a regular basis is not recommended. There are solutions how to reduce ultra-processed foods which are 1. Cutting out highly processed-foods including keep a food journal, avoid highly processed meats such as sausages and meat balls, give up the processed carbohydrates, skip processed junk foods, discontinue drinking sweetened beverages, avoid frozen meals, and skip fast foods 2. Making nutritious substitutes and choices including read the food label, make foods by yourself, chose healthier treats and snacks, and choose water over processed drinks 3. Maintaining a well-balanced diet including design a meal plan, minimize processed protein sources, make half of your plate a fruit or vegetable, and choose 100% whole grains [17]. It can be concluded that people should always realize that ultra-processed foods can bring a lot of illness to your bodies so you should eat ultra-processed food in appropriate amount or change to consume other types of food instead. Conclusion : Ultra-processed foods have become more popular during this present time especially in COVID-19 outbreak. Ultra-processed foods have both advantages and disadvantages. To highlight my point, benefits of consuming ultra-processed food are satisfying people's convenience and saving their time from having ultra-processed foods instead of preparing and having big meal. However, it still has non-beneficial aspects which are health risk that can lead to health effects and mortality as well as less food nutrition. Therefore, people should consume ultra-processed food in appropriate amount or seek to consume other types of foods instead of ultra-processed foods by using healthy ways including cutting out highly processed-foods, making nutritious substitutes and choices, and maintaining a well-balanced diet .

REFERENCES

- [1] Heart and Stroke Foundation of Canada. What is ultra-processed food and how can you eat less of it? [Online]. 2022 [Accessed June, 15 2022]. Available from: <https://www.heartandstroke.ca/articles/what-is-ultra-processed-food>
- [2] Harvard Medical School. What are ultra-processed foods and are they bad for our health? [Online]. 2020 [Accessed June, 15 2022]. available from: <https://www.health.harvard.edu/blog/what-are-ultra-processed-foods-and-are-they-bad-for-our-health-2020010918605>
- [3] Canadian Society of Intestinal Research. Everything in moderation? Focusing on ultra-processed foods [Online]. 2019 [Accessed June, 15 2022]. Available from: <https://badgut.org/information-centre/health-nutrition/ultra-processed-foods/>
- [4] BBC Food. What is ultra-processed food? [Online]. 2022 [Accessed June, 15 2022]. available from: https://www.bbc.co.uk/food/articles/what_is_ultra-processed_food
- [5] Food, Nutrition & Fitness. The NOVA Food Classification System [Online] 2018 [Accessed June, 15 2022]. Available from: <https://educhange.com/wp-content/uploads/2018/09/NOVA-Classification-Reference-Sheet.pdf>
- [6] Filippa Juul, Niyati Parekh, Euridice Martinez-Steele and et al. Ultra-processed food consumption among US adults from 2001 to 2018. *Am J Clin Nutr*[Online]. 2022 [Accessed June, 15 2022] 2022;11:115(1):211-221. Available from: <https://pubmed.ncbi.nlm.nih.gov/34647997/>
- [7] Lu Wang, PhD, MPH1; Euridice Martínez Steele, PhD2,3; Mengxi Du, MS, MPH, RD1; et al. Trends in Consumption of Ultraprocessed Foods Among US Youths Aged 2-19 Years, 1999-2018[Online]. 2021 [Accessed June, 15 2022]. *JAMA*. 2021;326(6):519-530.. Available from: <https://jamanetwork.com/journals/jama/fullarticle/2782866>
- [8] Cille H. Sevidl, Christopher P. Niemiec, ... Anne Marie Lunde Husebø and et al. Initiation and maintenance of lifestyle changes among participants in a healthy life centre: a qualitative study. *BMC Public Health* 20, 1006 [Online]. 2020 [Accessed June, 15 2022] . Available from: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-09111-8>

- [9] Shilpi Gupta, Terry Hawk, Anju Aggarwal, and Adam Drewnowski. Characterizing Ultra-Processed Foods by Energy Density, Nutrient Density, and Cost. Department of Epidemiology, Center for Public Health Nutrition, University of Washington, Seattle, WA, United States [Online]. 2019 [Accessed June, 15 2022]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6558394/>
- [10] Emilia F. Vignola, Aydin Nazmi, Nicholas Freudenberg. What Makes Ultra-Processed Food Appealing? A critical scan and conceptual model. *World Nutrition* [Online]. 2021 [Accessed June, 15 2022] 2021;12(4):136-175. Available from: <https://worldnutritionjournal.org/index.php/wn/article/view/805/691>
- [11] CPD Online College Knowledge base. What is Ultra-Processed Food? [Online]. 2022 [Accessed June, 15 2022]. Available from: <https://cpdonline.co.uk/knowledge-base/food-hygiene/ultra-processed-food/>
- [12] Anna Gramza-Michałowska. The Effects of Ultra-Processed Food Consumption—Is There Any Action Needed?. Department of Gastronomy Sciences and Functional Foods, Faculty of Food Science and Nutrition, Poznań University of Life Sciences, Wojska Polskiego 31, 60–624 Poznań, Poland [Online]. 2020 [Accessed June, 15 2022]. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7551378/>
- [13] Chen, X., Zhang, Z., Yang, H. et al. Consumption of ultra-processed foods and health outcomes: a systematic review of epidemiological studies. *Nutr J* [Online]. 2020 [Accessed June, 15 2022]. 2020;19, 86 Available from: <https://nutritionj.biomedcentral.com/articles/10.1186/s12937-020-00604-1>
- [14] Health Agenda magazine. Ultra-processed foods: what are the health risks? [Online]. 2022 [Accessed June, 15 2022]. Available from: <https://www.hcf.com.au/health-agenda/food-diet/nutrition/eating-less-processed-food>
- [15] Zemene Demelash Kifle, Alem Endeshaw Woldeyohanins, Biniyam Asmare and et al. Assessment of lifestyle changes during coronavirus disease 2019 pandemic in Gondar town, Northwest Ethiopia. *PLOS ONE* [Online]. 2022 [Accessed June, 15 2022]. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0264617>
- [16] Jose Cervera-Martínez, Beatriz Atienza-Carbonell, Jurema C. Mota and et al. Lifestyle changes and mental health during the COVID-19 pandemic: A repeated, cross-sectional web survey. Corresponding author at: Department of Medicine, Teaching Unit of Psychiatry and Psychological Medicine, University of Valencia, Blasco Ibáñez, 15, Valencia 46010, Spain [Online]. 2021 [Accessed June, 15 2022]. 2021;173-182. Available from: <https://www.sciencedirect.com/science/article/pii/S0165032721008181>
- [17] Theresa Fitzpatrick, LMSW. How to Eliminate Ultra Processed Foods from Your Diet. [Online]. 2021 [Accessed June, 15 2022]. Available from: <https://www.wikihow.health/Eliminate-Ultra-Processed-Foods-from-Your-Diet>