



A Brief Review on Health Implication of Skipping Breakfast with Emphasis on Weight Gain in Adults

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Regular eating of breakfast contributes to the nutritional health of an individual. Some people skipped breakfast because of the desire to lose weight. An individual that consumed breakfast regularly is more likely to exhibit high level of physical activity and cardio-respiratory fitness. This short review aims to examine health implication of skipping breakfast with emphasis on weight gain in adults. Skipping breakfast is a wrong step in weight loss management as several available literature links irregular consumptions of breakfast to weight gain. Skipping breakfast over an extended period has a negative effect on cardiometabolic risk profile. It increases the risk of developing metabolic syndrome that increases the risk of cardiovascular diseases and type 2 diabetes mellitus development. Consumption of breakfast regularly has been found to be an alternative means of weight management. Future research is needed to examine eating and time of breakfast as well as types of breakfast adults' in developing countries consumed in relation to their body mass index.

Keywords: Skipping breakfast; Overweight; Obesity; Cardiovascular diseases; Type 2 diabetes; Metabolic syndrome**Introduction**

Breakfast is the first-morning meal, and many acknowledged it to be the most important meal of the day as taking breakfast is essential in promoting nutritional health [1]. Lippevelde et al. [2] described breakfast to be meal which can be in the form of food and/or drinks ate between 7am and 11am. Eating breakfast maintain healthy body mass index (BMI) in children and adolescent [3,4]. It also maintains weight-loss in adults [5]. Generally, people that eat breakfast regularly have better nutrient intakes, show better cognitive performance and less depressed [6]. Skipping breakfast leads to a decrease in academic and physical performance [7]. Apart from eating breakfast, the frequency of breakfast [8] and type of meal [5,6,9] are also important in maintaining healthy nutritional lifestyle and weight. Adulthood is marked with several responsibilities that range from work, family and hurried lifestyle which many may respond to by skipping breakfast [5]. A study conducted among 1066 UK adults, showed that two-thirds of the study population were habitual breakfast eaters while 1 in 16 never had breakfast [6]. Children, adolescents and adults skipped breakfast because there is a misconception that skipping breakfast could help to control weight [10]. The first step many made when they desire to lose weight is to skipped breakfast [11]. Females are more likely to skipped breakfast than males and taste, health concerns and appetite influences individual breakfast behaviour [6]. Literature reveals that skipping breakfast is a risk for overweight and obesity [6,11-13]. Irregular or skipping breakfast is linked to weight gain, type 2 diabetes and other adverse health outcomes [10]. There is an increased risk of coronary heart disease

(CHD) among men who skipped breakfast [12]. Regular breakfast eaters are more likely to exhibit a high level of physical activity, and they reported high level of cardio-respiratory fitness [6].

Consumption of breakfast that are low glycaemic index and, bran based enhances cognitive performance compared to breakfast cereals with a high glycaemic index [6]. A study reported lower mean values for total cholesterol, waist circumference, blood pressure, blood glucose, BMI, and lower prevalence of metabolic syndrome among adults that frequently eat typical Italian breakfast [5]. Women reported to be less hungry, fuller, happier, more relaxed, satisfied with their body image and weight after consuming a cereal-based breakfast compared to a muffin, despite similar calories being provided by both breakfasts [6]. High carbohydrate intake for breakfast and reduces calories for dinner have a long-term protective effect against the development of metabolic syndrome as is a useful alternative for management of overweight and obesity [13]. Furthermore, consumption of ready-to-eat cereal breakfast was linked with an improved cardiometabolic risk profile compared to other types of breakfast [10]. Skipping breakfast is associated with impair serum lipids and postprandial insulin sensitivity [12] while regular breakfast is associated with a lower risk for development of type 2 diabetes (T2D) [10]. Obesity is a common risk factor to development of hypertension, dyslipidemia, T2D [14,15] and cancer [16]. Gradual weight gain resulted from skipping breakfast [10] will cumulate to overweight which if not well managed, progresses to obesity that is assumed to contribute to the burden of cardiovascular diseases [14].

Overweight and obesity are of public health concerns as its recognised to be risk factors for many chronic diseases and described as a global pandemic due to his rising prevalence in many countries. Overweight is defined as body mass index (BMI) greater than or equal to 25 and lower than 30 while obesity is BMI greater than 30 [17]. It is caused by a long-term positive energy balance occurring when the energy intake outweighs the energy expenditure [2]. Overweight and obesity increased the rate of developing cardiovascular diseases (CVDs), type 2 diabetes [16,18,19], metabolic syndrome [5], chronic back pain and osteoarthritis [20]. It increases the burden of diseases globally [14], and the universal rising in overweight and obesity may lead to future declines in life expectancy [17]. Metabolic syndrome is a common underlying pathophysiological disturbance [13]; it increases CVDs risk by 20% and the risk for type 2 diabetes mellitus by 50% [5]. Skipping breakfast has 3.4-fold higher risk of developing Mets compared with less than three hours dinner before bedtime [7]. Skipping breakfast over a long period has a negative effect on cardiometabolic risk profile [5]. It increased the risk of overweight and increased postprandial insulin resistance as well as hyperinsulinemia in response to foods consumed at the next meal [10]. Thomas et al. and Cahill et al. reported that skipping breakfast results to overweight, obesity, dyslipidaemia, increased blood pressure, insulin sensitivity, diabetes mellitus, increased risk of coronary heart diseases [12,21]. Yoko et al reported on a study conducted in the United States that people skipped breakfast became obese at a rate five times higher than people who ate breakfast [7]. Overweight and obesity are associated with increased risk for development of diabetes and hypertension [20,22]. There are limited studies that reported on type(s) of meal(s) consumed by African and time for breakfast in relation to BMI and waist-hip ratio. Skipping breakfast causes a shift in the phase of expression of the clock gene, resulting in a nocturnal lifestyle pattern, which may be associated with obesity [7]. In conclusion, regular eating of breakfast is important in prevention of overweight and obesity which subsequently control and prevent all its associated health problems. The prevalence of metabolic syndrome like cardiovascular diseases and T2D in developing countries is on the increased [20,23,24]. Overweight and obesity were estimated to cause 3.4 million deaths, 3.9% of years of life lost and 3.8% of disability-adjusted life years (DALYs) globally [17]. Therefore, this review calls for need for future research on consumption and time of breakfast as well as types of breakfast consumed by African in relation to adults' body mass index (BMI).

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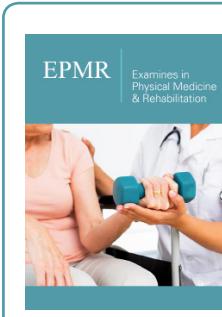
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