



Basic Education
Health



**NATIONAL NUTRITION WEEK AND NATIONAL OBESITY WEEK 2018:
“BREAKFAST – THE BEST WAY TO START YOUR DAY”**

USEFUL FACTS



THE HEART
AND STROKE
FOUNDATION
SOUTH AFRICA



South African Military Health Service

Breakfast consumption internationally and in South Africa

Globally, up to 30 per cent of children, adolescents and adults regularly skip breakfast. There is a clear association between breakfast consumption and age. Younger people are more likely to skip breakfast than middle-aged and older adults, with a higher percentage among adolescents and females.

The 2012 *South African National Health and Nutrition Examination Survey (SANHANES)* findings revealed that only 81 per cent of children aged between 10 and 14 years eat breakfast before school. This data is supported by a few localised studies, i.e. North West (81 per cent), Western Cape (75 per cent), and Gauteng, which showed a decrease across age groups (76.4 per cent, 63.8 per cent and 65.3 per cent for the age groups 13, 15 and 17 years respectively). A comparison between urban (Gauteng) and rural (Mpumalanga) adolescents show that 25 per cent of urban versus 8.87 per cent of rural adolescents consumed breakfast irregularly and that breakfast consumption among females in both groups is lower than in males.

Data on South African adults is limited. A study among health professionals in KwaZulu-Natal showed that 51 per cent skipped breakfast, compared to lunch (20 per cent) and dinner (11 per cent). The frequency of breakfast consumption increases with age.

Urban adolescent females in Gauteng, who could afford it, would buy fat cakes ('vetkoek'), which were sold at most schools before classes commenced. A few participants ate sweets and potato crisps purchased from community vendors, before attending school.

Reasons for eating breakfast

The majority of children in the 2012 SANHANES believed it was important to eat breakfast because it helped them concentrate better at school (86.1 per cent) and it helped to give them energy for the day (89.3 per cent). American rural adolescents who ate breakfast more frequently, reported that eating breakfast would have more positive school, social and health outcomes. More than half of rural adolescent females in Mpumalanga believed that breakfast was the most important meal of the day based on what they heard and was taught at school and at local clinics. Although most respondents believe in the benefits of breakfast, they would not eat breakfast at home owing to limited choices or lack of food. Some mentioned the consequences of not eating breakfast as loss of concentration in class or headaches. However, among urban adolescents in Gauteng who said "breakfast is the most important meal of the day" and "breakfast gives you energy", the majority said they did not eat breakfast.

Reasons for not eating breakfast

Internationally, children with low household income are less likely to eat breakfast than learners with a high household income. The family's low socio-economic status seems to be more related to either skipping breakfast or eating a nutritionally poor quality breakfast. Children in households with low food insecurity were less likely to eat breakfast at home and were more likely to consume food from other locations than food secure peers. Rural adolescents who skip breakfast three or more days per week report more barriers to eating breakfast and are less likely to report the positive benefits consuming breakfast on their academic, social and overall health status compared to students who skip breakfast nil to two times per week. Concerns about body weight, especially adolescent females or that they are not hungry, do not have enough time to eat breakfast, cost, food quality and stigma (school breakfast programmes) were also cited as reasons for skipping breakfast. Rural students also face longer commuting time to school in the morning adding additional time constraints.

In South Africa, 33.9 per cent of children in the 2012 SANHANES gave the reason for skipping breakfast as not having enough food in the house. A study among adolescents in Cape Town found that those from lower socio-economic backgrounds were more likely to skip breakfast. Other reasons given in the 2012 SANHANES were that they are not hungry in the morning (39.2 per cent), they cannot get up early enough to have breakfast at home (19.2 per cent), they did not have breakfast because people at home were not having breakfast (33 per cent) or that they cannot make their own breakfast (15%).

Effect of the home environment on breakfast consumption

Children from families that eat meals together, show better food choices and better dietary quality and are more likely to consume breakfast.

Rural American adolescents who consume breakfast three days per week, reported eating with their family at least one day per week. The frequency of eating breakfast together with family members was positively associated with adolescent preparation of breakfast meals for their own consumption and for their family. The majority of adolescents agreed that it is often difficult for family members to find a time when they can sit down to breakfast together (67 per cent), they are often too busy to eat with their family members (59 per cent) and they enjoy eating breakfast with their family (67 per cent).

Parents not only influence their children's decision to eat breakfast, but also the food they choose. A Japanese study found that adolescents who ate breakfast with their parents/grandparents tended to eat breakfast regularly.

A child's cognition towards breakfast consumption is partly shaped by the home environment. Parents are responsible for the availability of foods, setting the rules, and initiating family meal patterns. Parents are important role models regarding eating habits. A positive parental attitude represents a valid tool to instil healthy eating habits compared to either controlling or imposing dietary restrictions. Therefore, interventions to increase child and adolescent breakfast consumption should address parental breakfast consumption, as well as the underlying mechanisms that lead to family meal patterns, rules and modeling - such as parenting styles and practices. It is important to allow children to choose the kind of breakfast they prefer from the ones proposed; this helps to improve their ability to self-regulate food intake and reinforces their consumption habits.

Friends too can play an influential role on the quality of food intake among adolescents. A study found that significant positive associations were found for breakfast eating between adolescents and their friend groups/best friends regarding whole grain, dairy and vegetable intake.

Association of breakfast with other lifestyle factors

Children and adolescents skipping breakfast is associated with a number of health-compromising behaviours such as smoking, alcohol use, disordered eating, unhealthy weight management practices and physical inactivity. University students with good physical fitness were found more likely to eat breakfast compared with students with poor physical fitness.

Globally, predictors of skipping breakfast in adults include younger age, current tobacco use, late dinner, higher alcohol consumption and infrequent exercise.

Effect of breakfast on dietary quality

Effect of skipping breakfast

People who skip breakfast are more likely to consume unhealthy foods and beverages and tend to overeat throughout the day. There is an association between skipping breakfast and low nutrient adequacy of adult diets.

Children who skip breakfast have poorer nutrient intakes than those who eat breakfast. They less frequently fulfil the recommended daily intake of certain types of food such as vegetables and fruit and tend to snack more and choose high-fat snacks. Intake of cereals, milk, vegetables and fruit have been found to be significantly less in those skipping breakfast. A study conducted among children between two and 12 years of age found that people skipping breakfast consumed nearly 40 per cent of the day's intake from snacks, including snacks with added sugar.

Adolescents who skip breakfast tend to omit other meals and tend to eat more snacks, have lower micronutrient intake and consume more alcohol and sugar compared to those who eat breakfast regularly'

Due to a heightened feeling of hunger, children and adolescents who regularly skip breakfast tend to eat more food at the next meal, especially high-density, high-fat food. They tend to consume higher quantities of added sugar. In a study on university students where breakfast was found to be the most skipped meal, the students had a higher intake of fast foods, snacks, sweets, carbonated beverages and low intake of nuts, vegetables, fish, whole grains and legumes.

Adults who skip breakfast have higher energy intake, less intake of vegetables and fruit and consumption of more sugar-sweetened beverages. A study in KwaZulu-Natal where 51 per cent of health professionals skipped breakfast, found that 50 per cent frequently ate unhealthy snacks, 36 per cent ate salty foods, 49 per cent fried foods and 47 per cent ate food with lots of sugar. Most participants rarely ate fruits (77 per cent, vegetables (73 per cent) and drank water (68 per cent).

Effect of eating breakfast

Data on the types of foods consumed by South Africans at breakfast is limited. A study conducted among adolescents in the North West found that the most frequently consumed foods were porridge only with a drink (81 per cent) followed by bread, toast or a roll with a drink (77 per cent). About 55 per cent of the adolescents consumed added sugar in an average amount of 19 g (four teaspoons) and 17 per cent consumed margarine in an average amount of 14 g (three teaspoons).

Breakfast consumption improves an individual's nutritional status. Several studies found a relationship between regular breakfast consumption and increased fibre and intake of several micronutrients.

Children consuming breakfast patterns with significantly higher overall quality were found to be those patterns that include grains, lower fat milk and fruit. Among primary school learners who drank or ate on the morning of data collection, the most commonly consumed foods and beverages were milk (47 per cent), cereal (37.2 per cent) and fruit juice (31.7 per cent). The overall nutritional profile of British primary and secondary school-aged learners in terms of fibre and micronutrient intake was superior in regular breakfast consumers, supporting the promotion of breakfast as an important element of a healthy eating pattern in children.

The intake of fish, vegetables and fruit in the daily diet was significantly higher among Japanese adolescents who ate breakfast everyday than in those who did not. Adolescents consuming "good quality breakfasts" have higher intakes of bread, fruit, vegetables, milk and fruit juice and lower intakes of soft drinks than those consuming "low quality breakfast". Another study defined "high quality breakfasts" as those including whole grain, fruit and low-fat milk products or other sources of calcium.

A low glycaemic index breakfast with minimally processed starchy foods has the greatest influence over energy intake for the rest of the day. Studies show that taking a complete and nutritious breakfast prevents feeling hungry in the morning, which can lead to nibbling snack foods, particularly those high in sugar and fat. In obese adults who skip breakfast, simply adding breakfast to their daily routine resulted in lowered dietary fat intake and reduced impulse eating.

Adding protein to a meal can help to control appetite and to enhance satiety. Consuming more than seven grams of protein as part of a breakfast containing carbohydrates and 18g as part of lunch, is sufficient to support a positive protein balance for the next nine hours. A high-protein breakfast lowers blood glucose after a meal and does not magnify the glucose effect after a second meal. No difference was found in the post-prandial response or in the 24-hour food intake after consumption of breakfasts higher in protein with different types of protein, i.e. animal protein versus plant protein in either normal weight or overweight women. The approximate protein content of some foods are: One egg: 6g; one slice of bread: 2.5g; one cup of maize meal/mabela/oats porridge: 3g; one cup of milk: 8g; ½ cup of low-fat, unsweetened yoghurt: 5g.

Effect of breakfast on overweight and obesity

Data supports an association between skipping breakfast and obesity, which has led to the recommendation to consume breakfast as a possible strategy to achieve a healthy body weight and successful weight management. This association between skipping breakfast and a higher body mass index (BMI) has been reported globally in studies in children, adolescents and adults. In an urban and rural study among South African adolescents, it was found that females made significantly more tuck shop purchases than males and

that the frequency of purchases was more regular among younger females who tended to gain weight. Females who skipped breakfast might consume more food at other times such as from tuck shop purchases and thereby gain more weight.

Most studies have shown that children, adolescents and adults who regularly eat breakfast have more favourable weight outcomes (e.g. lower BMI, lower waist circumference, lower risk for obesity), than those who skip breakfast.

Effect of breakfast on reducing the risk for non-communicable diseases (NCDs)

Epidemiological studies provide strong evidence of a relation between skipping breakfast and cardiometabolic risk. In addition to overweight and obesity, these include a greater risk for diabetes mellitus, cardiovascular disease and hypertension. Skipping breakfast negatively affects lipid profile and insulin sensitivity.

Skipping breakfast is positively associated with a greater risk of type 2 diabetes mellitus incidence. Children who do not eat breakfast daily were found to have poorer blood glucose control, more insulin resistance and a higher risk for type 2 diabetes.

Results from clinical trials show that a breakfast with a low glycaemic index suppresses appetite and glucose intolerance during the whole day. The positive association between breakfast quality in body fat measures and metabolic syndrome could possibly be explained through mechanisms involving appetite control and satiety. In addition, fibre-rich foods, through slow absorption and digestion from starch from carbohydrates blunt postprandial glycaemic response, improve insulin sensitivity response to the next meal and prevent hypoglycaemia between meals.

An increased risk of heart disease has been found among middle-aged men who skip breakfast. Regular breakfast consumption can in the long run have positive effects on metabolic parameters related to cardiovascular risk. In cross-sectional studies, daily breakfast eaters were less likely to have cardiovascular risk factors, including increased serum LDL, low serum HDL cholesterol and increased blood pressure. An overall breakfast quality, high in cereals, fruit and vegetables and low in red and processed meat may be helpful to maintain a healthy cardiometabolic profile, especially in middle-age men.

Effect of breakfast on cognitive functioning, academic and class performance

Many studies have shown that breakfast consumption has an immediate positive effect on cognitive performance, in particular on memory and attention span, especially in the second half of the morning, when there is a decline in these skills. Several authors emphasise how a low glycaemic index breakfast positively influences these functions.

A healthy breakfast is associated with an increased ability to solve mathematical problems and better comprehension while reading and listening. The activity in regions of the brain involved with mental arithmetic is functionally greater in children who had breakfast compared to those whose last meal had been dinner the night before.

Regular breakfast consumption have a positive impact on school performance, specifically improved academic grades. Parameters such as memory, concentration, grades obtained and attendance were found to differ significantly between those skipping breakfast and those who do not. Significantly improved grades in mathematics have been found in regular breakfast eaters.

Adolescents who regularly eat breakfast that provide more than 25 per cent of their total estimated energy needs and included four or more food groups from cereals, fruit, dairy and fat were more likely to achieve higher grades than consuming no breakfast or breakfast lacking the specified food groups. In another study, higher than average grades were obtained in adolescents who habitually consumed a breakfast containing three food groups from cereals, fruit and dairy compared with those consuming no breakfast or breakfast providing one of the specified food groups.

Regular breakfast eaters show improved school attendance, less tardiness, less disruptive behaviour in class and less hyperactivity (as rated by their teachers), whilst they were engaged in class learning activities.

Children who are food insecure or undernourished have been found to have poorer cognitive functioning when they miss breakfast. Children and adolescents experiencing hunger have lower mathematics scores, poorer grades and are more likely to repeat a grade.

Studies have highlighted how the positive effect of breakfast on cognitive functioning is greater in children whose nutritional status is compromised. The positive effect of breakfast on children's behaviour and cognitive performance, particularly with regard to memory and attention, is most demonstrable in children with below normal height or weight for their age. Regular breakfast consumption has an immediate positive effect on cognitive performance, with regard to alertness, attention, memory, problem-solving and arithmetic grades, particularly among undernourished children.