BREAKFAST

Importance of Breakfast

Breakfast literally means "breaking the fast". For some people, especially younger children, the overnight fast can last for over 12 hours, at times.

Research refers to breakfast as "the most important meal of the day". [1,2] Still the phenomenon of breakfast skipping is widely prevalent as documented by several studies conducted across the globe. [2, 3, 4, 5]

Breakfast consumption: The Indian Scenario

'India Breakfast Habits Study'

A study supported by Kellogg India revealed some startling insights into breakfast eating habits of urdan Indians. Skipping of breakfast and having nutritionally inadequate breakfast was reported to be the most common phenomenon across four cities – **Mumbai, Chennai, Kolkata and Bangalore.**

Every **'1 in 4 urban Indian'** claim to skip breakfast and skipping of breakfast meal was seen across all age groups studied (Figure 1 & 2)[5] and about **72% skimp** by having a nutritionally inadequate breakfast meal (Figure 3A). Further the importance of consuming a well-balanced breakfast was largely undermined as only **3% regarded breakfast as essential.**

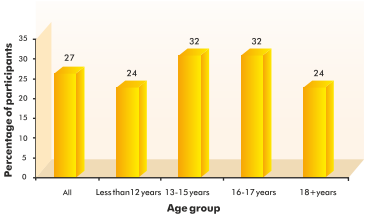

Figure 1: Skipping of meals across age groups.[5]

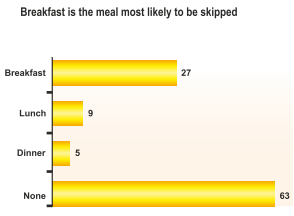

Figure 2: Skipping of meals across 4 cities.[5]

The nutritional adequacy of the breakfast meal vis-à-vis the recommended dietary allowances (RDA) for energy and other nutrients was also evaluated in the same study. The findings reported **suboptimal intakes of fibre and certain vitamins and minerals.** Also intake of only **calcium was found to be high (30% of daily RDA)** possibly due to consumption of milk at breakfast (Figure 3B).[5]

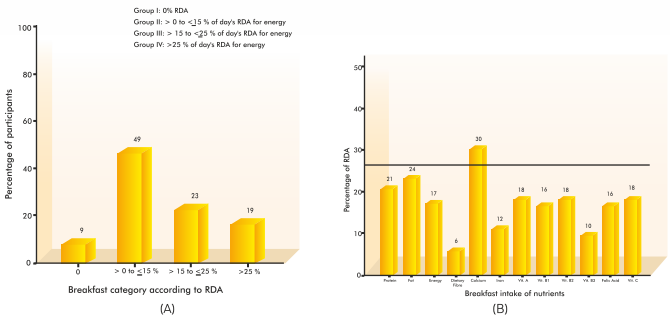

Figure 3 (A) & (B): Nutritional adequacy of breakfast benchmarked against the RDA (25%) for energy and other nutrients.[5]

Figure 4 illustrates breakfast inadequacies of nutrients like iron, fibre and certain B complex vitamins not being compensated by the day's intake of food through other meals across all age groups studied. Also intake of nutrients at breakfast plus midmorning meal was unable to meet 25% of the RDA for all nutrients, thereby highlighting the utmost importance of the first meal of the day.[5]

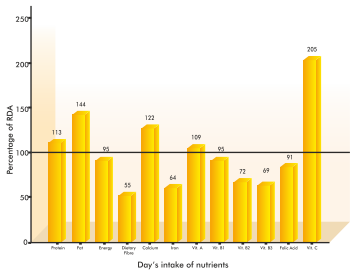

Figure 4: Daily intake of nutrients benchmarked againt % RDA.[5]

Breakfast skipping was observed to a large extent in Mumbai followed by Delhi and Kolkata. The phenomenon of having an inadequate breakfast was also widespread across the 4 metro cities. Around 79%, 76%, 75% and 60% of the study participants in Mumbai, Delhi, Kolkata and Chennai respectively were found to have an inadequate breakfast (Figure 5).[5]

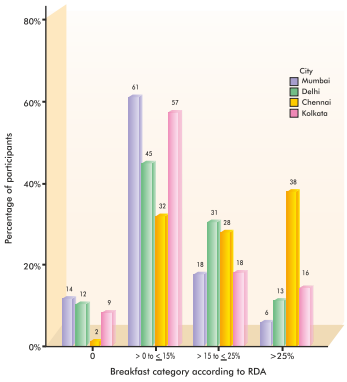

Figure 5: Comparison of breakfast consumption patterns according to RDA in four cities - Mumbai, Delhi, Kolkata and Chennai.[5]

A well-balanced breakfast provides the nutritional foundation for a productive and healthy day, at any age. First thing in the morning, the body is low on energy reserves and needs fuel, hence breakfast calories become very essential to kick start the day. The U.S. Department of Agriculture (USDA), for example, offers school breakfast programs providing specific caloric ranges for each age/grade group.[6] Studies have shown that key nutrients such as fibre, vitamins and minerals, missed at breakfast are not being compensated for through other meals of the day.[1,2]

Hence missing breakfast can impact general health, both in the short and long term.

Benefits of breakfast

a. Breakfast helps support brain function

- Skipping breakfast may worsen early morning tasks and slow down memory, leading to lower rates of intellectual performance. This is particularly relevant in the case of children since they have a two-fold higher utilization of glucose by the brain than adults. Also because of greater sleep demands for glucose they have lesser stores in the morning.[7] Therefore healthy breakfasts that steadily increase glucose levels are extremely beneficial for cognitive performance in children.
- A recent research review of studies on the effects of fasting vs breakfast on cognition in children and adolescents confirms that breakfast consumption has immediate (within 4 hours of ingestion) positive effects on cognitive functions such as attention and memory.[8]
- A recent study reported that cognitive performance of adolescents (11-13 year old) was enhanced after eating breakfast as compared to breakfast skippers. Skills that improved with regular breakfast consumption were verbal fluency. arithmetic, tests of attention, memory, creativity and cognitive functioning. The authors also stressed on the need for educating the parents. teachers and the school community about the importance of regular habits of breakfast eating as adolescents spend majority of their time in the school.[9]
- Likewise, studies in adults also document a robust advantage for memory after consuming a healthy breakfast. This maybe because regions of the brain that control memory are more affected by a lowering of blood glucose that occurs after an overnight fast.[10]
- The benefits of breakfast in improving the performance in cognitive tasks translates into better academic achievement. Lui et al, 2013 showed that children who regularly have breakfast on a near-daily basis had significantly higher full scale, verbal and performance IQ test scores compared to children who 'sometimes have breakfast.[11]
- Children who consumed breakfast had significantly higher scores in tests that assessed competencies in language (reading fluency, comprehension and spelling), mathematics, problem solving and science.[7,12]

Thus the regular consumption of a healthy breakfast is important for both enhanced cognitive performance as well as better academic achievement.

b. Breakfast can improve nutrient intakes

- It is universally recognized that regular consumption of a healthy breakfast plays an important role in attaining optimal nutritional profile by promoting a healthier intake of macro and micronutrients. Breakfast cereals can give a head start to our body's daily vitamin and mineral needs and overall nutrient intake.[13]
- Recent studies have reported reduced intakes of many nutrients such as calcium, magnesium, phosphorous, potassium, vitamin A, vitamin D, folate, zinc and dietary fibre in children and adolescents who skip breakfast.[3,14]
- Among adults too there are definite dietary advantages of consuming breakfasts that include grains, cereals, low fat milk and whole fruits. Breakfast consumers had higher daily intakes of shortfall nutrients such as dietary fibre, vitamin A, vitamin D, calcium, potassium, folate, iron and magnesium. They also scored higher on the Health Eating Index scores than the breakfast skippers.[15]

c. Breakfast-eaters tend to have healthier body weights

- Several cross-sectional studies across the world have reported that children, adolescents and adults who skip

breakfast have greater body weights, higher BMI and waist circumference, excess adiposity, and a greater prevalence of obesity.[15, 22, 23, 24]

- Although strong evidence for a causal role of breakfast skipping in obesity is currently lacking, regular breakfast eaters do have a better dietary quality. This along with the improved post-prandial glucose response, insulin sensitivity and satiety experienced after the consumption of a fibre-rich breakfast would explain the healthier body weight seen among the breakfast-eaters.[22]

d. Breakfast improves metabolism

Breakfast intake improves several parameters associated with obesity, cardiovascular disease, Diabetes and promotes overall metabolic health. Regular breakfast consumption has many benefits:

- Reduced risk for developing abdominal obesity, obesity, metabolic syndrome, hypertension and type II diabetes.[16, 17]
- Lower levels of LDL cholesterol and higher levels of HDL cholesterol.[18]
- Decreased risk for stroke.[19]
- Improved insulin sensitivity and higher glucose tolerance throughout the day after consuming breakfast foods high in whole grains and cereal fibre.[20]
- According to the results from The National Health and Nutrition Examination Survey (NHANES): 1999-2006 consumption of breakfast, especially one that included an RTEC, was associated with an improved cardiometabolic risk profile in U.S. young adults.[25]
- According to a recent study, regular breakfast consumption was associated with higher cardiorespiratory fitness in adolescents, and with a healthier cardiorespiratory fitness in adolescents and with a healthier cardiovascular profile especially one in males, Also it may probably help to negate the effect of excess adiposity on TC and LDL-C, especially in male adolescents.[26]
- Consumption of breakfast cereals in general and those which are sources of soluble fibre is linked with reduced risk of diabetes; better cardiovascular lipid profiles (especially lower TC and LDL-C).[27]

e. Breakfast consumption promotes physical and mental well-being

- Children and adolescents who consume breakfast daily were found to be more physically active and therefore having less screen time. They also had less likelihood of adverse behaviors such as cigarette smoking and alcohol drinking.[2, 3]
- Eating breakfast together as a family has shown to confer several health benefits for the adolescents in terms of their dietary intake and weight status.[28]

Hence, taking as little as five minutes to relax and prepare for the day with a bowl of cereal, milk and fruit really ensures a positive start.

Balanced Breakfast

USDA recommends that a "balanced breakfast" should be one that is nutrient dense (that is high in nutrients and low in calories).[21] A balanced breakfast can be a mix of carbohydrates, fibre, protein, vitamins and minerals. These can be found in many foods and one can pick different breakfast food groups namely cereals, fruit/vegetable and dairy. One serving from each of these food groups can provide a good start to the day.

Some examples of 'balanced breakfast' are as follows:

A serving of Kellogg's ready-to-eat cereals made with whole grain; a glass of toned milk and sliced banana/ apple/ strawberries.

A bowl of vegetable poha (sprinkled with lime juice); a glass of toned milk and cubed papaya.

Whole grain bread sandwich with vegetables such as tomato, cucumber, beetroot and shredded carrots; apples/ pear/ guava slices and a glass of toned milk.

2 Idlis with sambhar; a bowl of curds and a serving of banana/ mango/ custard apple.

A serving of oats porridge with dates, raisins, apples and almonds.

USDA also specifies the nutrients that breakfast should provide. [21]

The USDA in its recommendations for breakfasts for the SBP (school breakfast program) for children from kindergarten to grade 12 states that the breakfast meal should conform to the following nutrient norms

- Should contain a minimum of one serve of fruit, one serve of grains (wholegrains) and one serve of milk that is fat free or low fat.
- The minimum and maximum calorie levels have been laid down for each age/grade group, for example 400-550 kcal for 6-8 Grade.
- Zero grams of trans fat
- Less than 10% of total calories from saturated fat.
- Less than or equal to 540-640 mg of sodium depending on the age of the child.

Breakfast cereals fit the recommendation made by nutrition experts for healthy eating because they are:

1. **Mostly low in fat:** Fitting well with healthy eating recommendations.
2. **Provide carbohydrate:** Helps provide an energy boost for both body and brain.
3. **Often high in fibre:** Helping to maintain a healthy intestinal tract and reducing the risk of various lifestyle disorders like cardiovascular disease, type 2 diabetes, colon and breast cancer etc.
4. **Fortified with vitamins and minerals:** Providing these key nutrients that are important for various body functions.
5. **Consumed with milk:** Helping to ensure adequate intake of protein, calcium and other nutrients that milk provides.

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