



NUTRINEWS

Welcome to the first issue of Kellogg's® NutriNews. In this issue, we look at reinforcing the importance of healthy and well-balanced breakfast, given its multiple benefits in enhancing cognitive performance and nutrient intake; maintaining healthier body weight and its negative correlation with lifestyle related diseases like obesity, metabolic syndrome, type 2 diabetes mellitus and cardio-metabolic risk. It is certainly a cause for concern that today, the importance of consuming a nourishing and balanced breakfast is often being overlooked. 'India Breakfast Habits Study' has revealed gross nutrient inadequacy at breakfast in four metro cities of India with daily nutrient intakes being compromised through key nutrients being missed at breakfast. Of bigger concern is the fact nutrients missed at breakfast are not being compensated for through the consumption of a mid-morning meal or through other meals in the day, thereby highlighting the utmost importance of the first meal of the day!

Good nutrition lies at the heart of our company and through the insightful findings of the study we hope to empower people to make informed choices as we reaffirm the importance of consuming an adequate breakfast with the goodness of grain everyday.

As always, we welcome your valuable feedback and comments.

Happy Reading!

Regards,

Kellogg's® Nutrition.

The Power of Breakfast

Breakfast is regarded as the most important meal of the day. It literally means the eating occasion that "breaks the fast"- the first meal of the day. Breakfast is a key source of nutrients like vitamins, minerals and fibre, which are essential for an overall healthy lifestyle. While there is ambiguity in the way breakfast is defined, there is consistent literature on the health benefits of a nutritionally adequate breakfast.

Moreover, breakfast consumption has been identified as an important factor in nutrition, especially during stages of growth spurts i.e. childhood, adolescence.¹

Benefits of breakfast:

Daily consumption of nutritionally adequate breakfast helps to-

✓ Refuels the body

- It is the most important meal, after an overnight fast of 10-12 hours wherein without food the energy reserves are low²⁻⁵
- Breakfast must provide readily-available energy to allow coping with daily tasks and get the metabolism running²⁻⁵

✓ Boosts mental performance

- Research has shown that skipping breakfast may worsen early morning tasks, leading to

lower rates of intellectual performance, increased errors^{6,7}

- In children, adequate breakfast is associated with improved memory performance, attention, ability in problem solving and better comprehension during reading and listening^{2-5,9,10}

✓ Boosts nutrient intake

- Research demonstrates that nutrients missed at breakfast are not compensated for during other meals¹¹
- Most children who skip breakfast have reduced intakes of key nutrients such as vitamin A, E, C, B6, B12, folate; minerals like iron; calcium; phosphorus; magnesium; potassium; & dietary fibre¹²
- Breakfast eating children and adults get more fiber, calcium, vitamin A, C, riboflavin, zinc, iron in their diets- essential vitamins and minerals that help healthy growth and development²⁻⁵
- Breakfast cereals can give a headstart on the body's daily vitamin and mineral needs²⁻⁵



✓ **Breakfast-eaters tend to have lower BMI and healthier body weight**

- Several studies demonstrate that habitual breakfast eaters are less predisposed to overweight and obesity, compared to those who skip breakfast²⁻⁶
- Research shows that young adults, who often skipped breakfast, in both childhood and adulthood are likely to experience an increase in BMI as adults and have larger waist circumferences⁶
- Consumption of cereal for breakfast is associated with lower BMI in children (holds true irrespective of its sugar content)¹³⁻¹⁴

✓ **Improves metabolism**

- Regular breakfast consumption improves several cardio metabolic parameters like¹⁵⁻¹⁶:
 - Improved insulin sensitivity;
 - Higher glucose tolerance during the following meals;
 - Reduced circulating LDL cholesterol levels;
 - LDL oxidation and
 - Lower blood triglyceride concentrations

✓ **Impacts well-being**

- Recent research has shown that regular consumption of breakfast is associated with lower stress levels, positive mood and calmness leading to better overall physical and mental health¹⁷⁻²²



'India Breakfast Habits Study'

Urban Indians are having a nutritionally inadequate breakfast

Isn't this shocking! Over the years, numerous studies have demonstrated that eating breakfast has many health benefits versus skipping, and that many agree that it is the most important meal of the day. But given today's fast paced life, Indians are increasingly undermining the importance of a well-balanced breakfast.

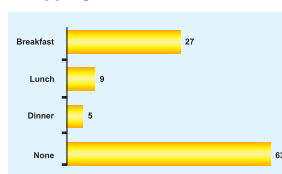
Kellogg's® reveals startling insights into breakfast eating habits of Indians through one of a kind breakfast study which shows alarming figures of a nutritional inadequacy in India. It was conducted in four major cities of India – Mumbai, Delhi, Kolkata and Chennai on a sample size of 3600 subjects, split across the age groups of 8 to 40+ years.

Key findings:²³

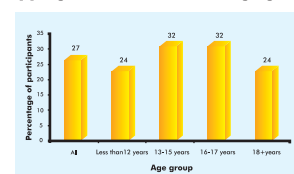
- **1 in 4** Indians claim to skip, **72%** skimp and only **3%** regard breakfast as essential
- 'No time' and 'not hungry' cited as most common reasons. Is hectic pace of life with late dinner to be blamed?
- A whopping 72% of all subjects are skimping or having a nutritionally inadequate breakfast highlighting the lack of awareness of the nutritional aspects of breakfast
- Gender bias in breakfast. Greater breakfast inadequacy among females than males more so in adolescents and adults
- Nutritional adequacy goes down with age. A definite cause of concern since the younger generation looks up to adults as role models
- Amongst all 4 cities, the breakfast nutrient profile is the best in Chennai. Is it because of the existence of well-defined breakfast foods?
- More adolescent girls (18%) than boys (4%) are skipping breakfast. This is probably linked to weight control issues
- Nutritional inadequacy of the average breakfast meal. Breakfast for all subjects is poor for all nutrients studied except calcium
- Nutrients missed at breakfast are not being compensated for through the consumption of a mid-morning meal or through other meals in the day, thereby highlighting utmost importance of the first meal of the day

Breakfast is the most commonly skipped meal

Skipping of meals across 4 cities



Skipping of breakfast across age groups



Key message:

Urban Indians are having a nutritionally inadequate breakfast. Hence, there is an urgent need for sensitizing them towards having a well-balanced breakfast.

Balanced Breakfast

- Breakfast should provide energy and essential nutrients like protein, fibre, vitamins and minerals. It accounts for 20-25 % of daily requirements for energy²⁴
- A balanced breakfast should consist of foods from at least three food groups eg. one serve of grain group, one serve of dairy (milk/ curds) or lean protein group and one serve of fruit group or vegetable group²⁵
- **Some healthy options are listed below²⁴⁻²⁵:**
 - Grains- Breakfast cereals like Kellogg's All Bran®, Kellogg's Heart To Heart Oats®, Kellogg's Corn Flakes®, Kellogg's Chocos®, poha, rava idli, daliya etc.
 - Dairy – Use fat free or low-fat (1%) milk. Try a glass of skim/low-fat milk or milkshake or low-fat yoghurt
 - Fruits - Try using chopped fresh fruit like a banana, mango, chickoo or some dried fruits, in a cereal bowl



Role of practitioners in promoting healthy breakfast habits in children and adolescents.

Breakfast skipping has become a fairly common phenomenon in children and adolescents and increases as children grow. It is a well-known fact that daily consumption of a balanced breakfast can contribute positively to children's diet and help meet daily requirements of key nutrients. Also, the multiple benefits of breakfast consumption in terms of better mental performance, attentiveness and academic achievement, maintaining healthy body weight, etc. is well-documented.²⁶

In short, breakfast is one aspect of a healthy lifestyle that may help contribute to the short- and long-term health and well-being of children and adolescents. **Health practitioners can therefore, take a step ahead and promote healthy breakfast consumption in children and adolescents by addressing barriers to eating breakfast and focusing on individuals who may be more likely to skip breakfast on a regular basis.**²⁶

The Relationship between Breakfast and Mental Performance in Children: A Rapid Review of Recent Research

There is enough scientific evidence available today which clearly demonstrates the positive impact of breakfast on behavior, cognition (particularly, attention & memory) and school performance in children.²⁷

Children may be particularly vulnerable to the nutritional effects of breakfast on brain activity and associated cognitive, behavioral, and academic outcomes as they have a higher brain glucose metabolism compared to adults. Positron Emission Tomography studies indicate that cerebral metabolic rate of glucose utilization is approximately twice as high in children aged 4–10 years compared to adults. This higher rate of glucose utilization gradually declines as children age. To maintain this higher metabolic rate, a continuous supply of energy derived from glucose is needed; hence breakfast consumption for providing adequate energy for the morning may be warranted.²⁷

The beneficial effects of breakfast for on-task behavior in the classroom, mainly in children <13 years was demonstrated by Adolphus K, et al. Obvious effects were seen in children

who were well-nourished, undernourished and/or from deprived or low SES backgrounds. A positive association between habitual breakfast frequency and quality on school grades or achievement test scores was also observed by the authors.

A cross-sectional study done by Lui J, et al (2013) showed that children who had breakfast regularly exhibited significantly higher full scale, verbal, and performance IQ test scores compared to children who had breakfast infrequently.²⁸

Another interesting study conducted by Pivik RT, et al (2012) suggested that neural network activity involved in processing numerical information was functionally enhanced and performance was improved in children who have had breakfast, whereas greater mental effort was required for this mathematical thinking in children who skipped breakfast.²⁹

Key message:

Habitual breakfast consumption is positively associated with learning in children in terms of behavior, cognitive, and school performance.

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