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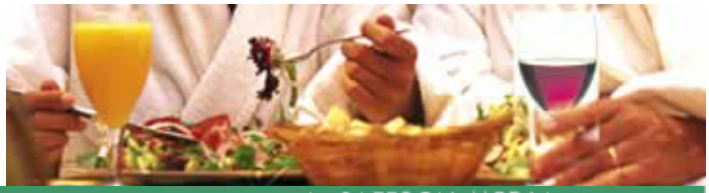

TOP NEWS

Nutrition in packaged foods – Choice of breakfast cereals and impact

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Food processing has been part of mankind's innovations from pre-historic eras. The transition of processed foods across centuries and cultures focussed largely on delivering convenience to the consumer. Tertiary processed foods offering convenience, cost-effective choices and great taste has become part of our lives; in almost all socio-economic groups and in most parts of the world.

According to a review by Netscribes (2013), on the ready-to-eat food market in India; the concept of ready-to-eat foods launched in 1987 in India, but failed to reach the momentum it needed then. Presently, ready-to-eat foods are a mainstay in the Indian retail industry.

Indian ready-to-eat foods, are more popular in their export markets than in the domestic market. Ready-to-eat foods are categorised into shelf-stable foods and frozen foods. Most ready-to-eat food is either cited to have "no preservatives" or are fortified or enriched with nutrients designed to deliver a specific benefit.

However, the issue is not so much the foods or the nutrients but the extent of processing on health. Processed foods have been often been established to have caused the increase in overweight and obesities in populations; especially in that of children and people from lower socio-economic groups. Processed foods are an essential part of nutrition transition studies in demographics. Nutrition communication plays a significant role in the selection of ready-to-eat foods by children.

Table 1: The most popularly selected ready-to-eat foods by children

Food Group	Foods
Cereals	Breakfast cereals, baked foods, energy bars
Beverages	Soda, fruit juices and shakes
Snacks	Chips and other potato and corn-based fried foods
Dairy	Ice cream

Table 2: TV advertisement and RTE breakfast cereal facts

Ready-to-eat breakfast cereals

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Breakfast has been identified emphatically as an integral part of a child's nutritional needs. Research has established that eating poor or no breakfast is associated with poor cognitive performance in children.

The dietary inadequacies caused due to poor breakfast consumption cannot be compensated for in other meals over the day. The most easy to consume and popular breakfast choice in urban children is ready-to-eat breakfast cereals. The first breakfast cereal was invented in the United States back in 1863 by J C Jackson; over a course of the decades the ready-to-eat breakfast cereal progressed to form "toasted corn flakes" in 1891 by Kelloggs. Children from the age of two years are the target audience for advertisements by breakfast cereal companies.

Studies have found that regular consumption of RTE breakfast cereals by children result in better micronutrient intake. However, the nutrition design of breakfast cereals often selected by children is skewed in its nutrient profile. Breakfast cereals contribute significantly to added sweeteners in the children's diets. Children also tended to consume more than the recommended serving defined (of up to 30 gram) per helping.

A study from Yale University, presented in 2009 at the conference on "obesity" showed that 40.8% of breakfast cereals were marketed directly to children with the use of collateral of a familiar toy or cartoon character. With large advertisement budgets and in store promotions; some of the popular cereals designed for children have been found to have up to 44% sugar. Cereals designed for children with colours and shapes, which are attractive to the age group have been found to have 85% more sugar, 65% less fibre and 60% more sodium than what is designed for adults.

Another study by Yale University, found more substantiating facts comparing the nutritional benefits of RTE breakfast cereals designed for general adult consumption and in specific for children. Results indicated that over 161 cereals were designed to be marketed for children. In comparison to the cereals meant for general consumption, the cereals for children were denser in energy, sugar, lower in fibre and 66% of the products did not meet the nutritional standards needed for children. Although the cereals are rich in micronutrients; the excessive sugars are not a good nutrient input for children.

One critical component we need to keep in mind is that children need to also select milk, fruits and nuts as part of their breakfast when they are eating RTE breakfast cereals. Although it is debatable if parents are mindful about the added sugars in the product; most RTE breakfast cereals are fortified with iron, calcium, vitamin D and vitamin A; delivering up to 25% RDA of micronutrients. A study on children's knowledge of breakfast cereals indicated that 86% had heard of "corn flakes" and 94% had heard of frosted flakes. A study was explored to see the taste preference of low sugar RTE cereal options on children. The blinded study showed that children found a cereal they loved in a series of low sugar cereals, which they were exposed to. Low sugar cereals can be augmented in taste by addition of (1 tsp) table sugar, nuts, cut fresh fruit and dry fruit. The interesting part of children's consumption of ready-to-eat cereals; is there increase in milk consumption due to this food choice.

However, in a nation undergoing a nutrition transition and battling malnutrition, any breakfast is better than no breakfast. Poor nutrition indicates a dilution in metabolic regulators essential for growth and health. The breakfast study from the Iowa University has shown that young children who never "catch up" on their nutrients missed at breakfast have poor RDA achievement of vitamins A, E, C and minerals iron and zinc to about 70%. RTE breakfast cereals have been a great source of dietary and iron and B vitamins, notwithstanding the brand.
Today's demands on academic improvement in children are a key differentiator to establish good health and wellness. The relationship between breakfast composition and cognitive performance was examined in children in many studies; the impact of breakfast on cognitive performance was established with statistically significant improvements. However, the choice of breakfast cereal on cognition is an interesting factor to analyse. Two experiments compared the effects of two common breakfast foods and no breakfast on the cognition of children. The study was based on a within-participant design, once a week for 3 weeks. Children consumed one of two breakfasts or no breakfast and then completed a battery of cognitive tests. The two breakfasts analysed were instant oatmeal and RTE breakfast cereal, which were similar in energy, but differed in macronutrient composition, processing characteristics, effects on digestion and metabolism, and glycaemic score. Results with children 9 to 11 year olds replicated previous findings establishing breakfast intake enhanced cognitive performance, especially on tasks requiring processing of a complex visual display. Further the analysis showed that the impact on gender on the experiment; with boys

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and girls having showed enhanced spatial memory and girls showed further improved short-term memory after consuming oatmeal. Children 6 to 8 years also showed improved spatial memory and auditory attention in both genders and the impact of gender was seen in short-term memory; with girls outperforming boys. Due to compositional differences in protein and fibre content, glycaemic scores, and rate of digestion, oatmeal may provide a slower and more sustained energy source and consequently result in cognitive enhancement compared to low-fibre high glycaemic ready-to-eat cereal. These results have important practical implications, indicating a closer look at which cereals are more suitable to make RTE breakfast cereals for children.

Cereal companies of global repute have agreed to be part of the mission against childhood obesity. However, they cannot do so till they change the nutrition profile of their products. With every 3 teaspoons of breakfast cereal having 1 teaspoon of sugar, popular cereals for children have a long way to go to genuinely commit to the mission. Their commitment to reducing heavy advertisement of these products on children's TV channels will also be a tremendous support to help reduce intake of high sugar, low fibre breakfast cereals.

Breakfast porridge mixes have proven to be a good vehicle for fortification and have been successful in intervention programmes in developing nations. It is an excellent prospect to work with a multitude of cereals and work on promoting instant porridge and breakfast shake mixes with added fibres, nuts and natural fruit sugars for children. The concept is akin to RTE breakfast cereals if the product reconstitution can be kept just as simple as adding milk to the mix and stirring it. RTE porridge mixes can also be developed with chunks of dry fruits, nuts and fruit powders to add to the texture and taste of the product. With the ever growing food industry; it is just a matter of time before informed decisions on nutrition, fortification and customer preferences can spearhead a whole new product portfolio in the range of RTE breakfast cereals.

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