Nutrition Education: Development of a Guide for Children

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Abstract: A qualitative description of the food situation for 2196 Algerian healthy school children aged 6 to 12 years (Constantine, Jijel, Touggourt) by a qualitative meta-analysis. Our aim was to compare the observed and recommended diet (2001) to correct some food errors (quantity, quality, behaviour) with recommendations for nutrition education as a guide for children to prevent no communicable diseases related to diet. Results obtained are: the decline of daily caloric intake, an unbalanced distribution of macro and micronutrients, a high intake of starch products, an average consumption of vegetables, fruit and fish rich in antioxidants biomolecules, breakfast is neglected, the morning snack and snack time food are formed by foods of high energy density, the snacking food type Junk Food practiced the whole time watching television and a decrease in the practice of regular physical activity.

Key words: Nutrition education • Children of 6 to 12 years • Quantity • Quality and behavioural Food • Algeria • Guide

INTRODUCTION

The increase in chronic non communicable diseases related to diet seems to initiate an epidemiological and nutritional transition, exacerbated by demographic changes that combine energy-dense diet to a life of increasingly sedentary-fed refined products too fat, too salty and too sweet [1], it is urgent to establish an appropriate prevention.

Currently, nutrition education is difficult to apply because the child's diet depends not only family but also society. Our work aimed to compare between observed and advised diet in quantity, quality and behavioural for safe Algerian children at school in 6 to 12 years to correct errors with recommendations for nutrition education as a guide.

MATERIALS AND METHODS

Our study was a qualitative description of the food situation for 2196 Algerian healthy children attending school 6 to 12 years (Constantine, Jijel and Touggourt). In our study we used a qualitative meta-analysis (summary of study results on the same issue); only seven (7) studies of 67 ones that talk about the nutritional status food of Algerian children aged 6 to 12. Then a comparison between the observed powers (the result of the meta-analysis) and the recommended diet [2] to correct some aspects as food quantity, quality and behavioural recommendations for nutrition education as a guide for children. We are used Microsoft Excel 2003. The distributions were presented as percentages, averages and standard deviations.

RESULTS

Quantitative Aspect of Food: The results obtained are, reduction of daily energy intake of children in relation to recommended daily allowance.

Figures 1, 2 show the decrease in daily energy intake of children in relation to recommended dietary allowances according to sex.

Figures 3, 4 show the share of energy meals that are lower for breakfast (a tendency to obesity) and lunch but high for afternoon snack dinner with the practice of snacking.

Snacking, representing a significant share of 2.06 per cent among children aged 7 to 9 years and 1.29 per cent among children 10 to 12 years for the body compensates for its daily energy expenditure.
Fig. 1: Comparison between average daily energy intake and recommended among girls aged 6 to 12 ans

Fig. 2: Comparison between average daily energy intake and recommended among boys aged 6 to 12 years

Fig. 3: Comparison between energy real and recommended shares for children aged 7 to 9 years

Fig. 4: Comparison between energy real and recommended shares for children aged 10 to 12 years

Table 1: Distribution of recommended macronutrients

<table>
<thead>
<tr>
<th>Macronutrient</th>
<th>Recommended Percentage</th>
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<tbody>
<tr>
<td>Proteins</td>
<td>11 - 15 p. cent</td>
</tr>
<tr>
<td>Lipids</td>
<td>30 - 35 p. cent</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>50 - 55 p. cent</td>
</tr>
<tr>
<td>1/4 animal protein (5.5 - 7.5 p. cent)</td>
<td>1/3 saturated fatty acids (8 à 10 p. cent)</td>
</tr>
<tr>
<td>1/4 plant protein (5.5 - 7.5 p. cent)</td>
<td>2/3 unsaturated (20 - 25 p. cent)</td>
</tr>
<tr>
<td></td>
<td>1/3 monounsaturated fatty acids (10- 15 p. cent),</td>
</tr>
<tr>
<td></td>
<td>1/3 polyunsaturated fatty acids (5 à 10 p. cent)</td>
</tr>
<tr>
<td></td>
<td>1/5 simple sugar (10 p. cent)</td>
</tr>
</tbody>
</table>

Table 2: Distribution of observed macronutrients

<table>
<thead>
<tr>
<th>Macronutrient</th>
<th>Observed Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proteins</td>
<td>16.34 p. cent (15.34 - 17.56)</td>
</tr>
<tr>
<td>Lipids</td>
<td>22.49 p. cent (20.32 - 24.96)</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>60.92 p. cent (57.78 - 63.87)</td>
</tr>
<tr>
<td>43 p. cent animal protein (7.02 p. cent)</td>
<td>9 p. cent saturated fatty acids</td>
</tr>
<tr>
<td>57 p. cent plant protein (9.31 p. cent)</td>
<td>11.67 p. cent unsaturated (8 p. cent monounsaturated fatty acids,</td>
</tr>
<tr>
<td></td>
<td>3.67 p. cent polyunsaturated fatty acids</td>
</tr>
<tr>
<td></td>
<td>15.49 p. cent simple sugar</td>
</tr>
<tr>
<td></td>
<td>45.43 p. cent sugar complex (strach)</td>
</tr>
</tbody>
</table>

**Qualitative Aspect of Food:** An imbalanced distribution of macro and micronutrients

**Macronutrient Intakes:** According to Tables 1, 2, the food of children is characterized by a total protein intake in excess consists of too many food containing proteins of plant origin in relation to animal protein.
Micronutrient Intakes: According to Figure 05, all children suffer from severe deficiency in calcium during growth. According to Figure 06, phosphorus inputs are covered extensively for children aged 6 to 9 but a slight deficiency has occurred for children 10 to 12 years. According to the Table 3, reports of Ca/P children are out of balance for all ages. According to Figure 07 iron intake is largely covered for children 6 to 9 years, but children aged 10 to 12 mild deficiency is notable in early adolescence especially for girls.

Behavioural Aspect of Food: Practice of physical activity According to Figure 08, 86 p. percent of children have no regular physical activity promote obesity and diabetes. Reduction in the practice of regular physical activity.

Getting Breakfast: Meals are taken on a regular basis, we noted that about 6.68 per one hundred skip breakfast (tendency to obesity) (Fig. 09). Breakfast is skipped.

Composition of the Morning Snack and: The food component the morning snack and afternoon snack (Figures 10, 11) are composed by candy, cookies and chocolate, which is a very important energy supplement accompanied by an almost total absence of fruits rich in antioxidants biomolecules (Vit A C and β carotene) against free radicals promote cancer.

The composition of the morning snack and afternoon snack for energy-dense foods.
Fig. 9: Average frequency per week of taking breakfast in children 6 to 12 years

Fig. 10: Average frequency of consumption of food making up the morning snack among children 6 to 12 years

Fig. 11: Average frequency of consumption of afternoon snack foods among children 6 to 12 years

Fig. 12: Average frequency per week for taking snack among children 6 to 12 years

Fig. 13: Frequency of consumption of foods like junk food among children 6 to 12 years

**Taken in Snacking:** According to Figure 12, snacking is widespread among children they nibble all the time watching TV (loss of attention to internal cues of satiety).

Our results have highlighted the importance of protein energy malnutrition in Algeria. In general, by sex and age group, the average daily intake of all children boys or girls are below the recommended daily caloric intake [2], this can be explained by diet which does not suffice to meet the nutritional needs of children. That under nutrition caused the standard of living: the development of poverty, which results in a decrease of purchasing power and the average socioeconomic status if they say no bottom of the Algerian population that relies primarily on its power Grains (bread) and milk. These results are similar to results found by the national survey on the goals of the late decade health mother and child [3] and the National Statistics Office and Ministry of Health [4].
Qualitative Aspect of Food: The sweet part in hedonic food especially when combined with fat, it may well induce a passive overconsumption [5]. A high intake of protein during infancy induces adipocyte proliferation early [6].

Frequency of Consumption of Foods Such Junk Food: The snack food of choice of food types are Junk Food with high energy density (high in carbohydrates and lipids) (Figure 13).

DISCUSSION

Quantitative Aspect of Food: All calcium intakes are very low capacity to recommended dietary reports [1], because of depletion of infant food sources of calcium are dairy products like milk, cheese, yogurt this is due either because of the socio economic situation of households is that children do not consume milk.

Behavioral Aspect of Food

Practice of Physical Activity: Many studies suggest the existence of an association between increased prevalence of childhood obesity and the trend towards greater settling [7].

Getting Breakfast: Food must represent 25 per morning percent of daily energy intake. Its failure causes an imbalance in significant daily energy intake.

Composition of the Morning Snack and Afternoon Snack: As for the food consumed. The composition of the meals, according to the Directorate of School Education in France (2004), should serve a diversified by focusing on water, fruit, pure fruit juices, milk and dairy products and avoiding energy-dense products rich in sugars and fat. What we observe in our children population is exactly the opposite.

Taken in Snacking: Outside of main meals, children eat snack foods [8] Suggested that snacking means the catch in the state of "no psychological hunger" or "satiety", that is to say, taken arising from boredom, stress or just because a little added pleasure is not neglected. A study among young Japanese reported that snacking is a factor in development of obesity [9].

CONCLUSION

Our goal is to maintain health and prevent the onset of chronic diseases and syndromes by correcting wrong attitudes practiced by children in their regular diet with a guide to healthy and balanced diet.

Recommendations:

- The total daily energy intake is based mainly on macronutrient whose distribution is as follows:
- Carbohydrates represent 50-55 per percent of total energy intake with one fifth of the total carbohydrate in the form of simple sugars and four fifths are complex sugars.
- Proteins represent 11-15 per percent of total energy intake which half of the total protein is animal and half is of plant origin.
- Lipids represent 30-35 per percent of total energy intake with third saturated fatty acids and two thirds are unsaturated fatty acids.
- Dairy products (milk, yogurt, a small Swiss cheese) the best source of calcium done both their richness in calcium and vitamin D plays an essential role in bone mineralization by increasing the intestinal absorption of calcium as they provide the protein necessary for bone health. Vegetables, fruits, grains, water beverage suppléments calcium intakes.
- The coverage of iron requirements is ensured by proper intake of meat and fish that are rich in heme iron better assimilated and well absorbed (15 to 35 per cent) than non-heme iron (2-20 percent) found in vegetables such as spinach, dairy products, eggs, chocolate... Some elements can trap iron as fiber plants such as tea tannin, conversely, vitamin C in plants, the presence of meat the increases.
- Follow the regular rhythms of eating meals scheduled four main meals:
- Morning: breakfast which is a 25 p. percent of total energy.
- At noon: lunch which represents a 35 per percent of the daily diet.
- Afternoon to 16 pm: a snack that is 10 per percent of the daily diet.
- Evening: dinner representing 30 per percent of the daily diet.
- If breakfast missed or incomplete, a morning snack at 10 am to 5 p. percent of the daily diet.
Do not skip the four main meal because it encourages snacking.

Avoid repetitive food taken outside the main meals (snacks), especially watching TV or playing video games.

Limit consumption of foods such as Junk Food cakes, pizza, chocolate, soda, peanuts and chips, except occasionally.

Promoting regular physical activity at least equivalent to half an hour of brisk walking per day.

During leisure time promote active play and sports and entertainment not regularly active (video games, television).

REFERENCES