ASSESSMENT OF NUTRITIONAL HABITS ON A GROUP OF PUPILS FROM A COUNTRYSIDE ELEMENTARY SCHOOL IN ROMANIA

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ASSESSMENT OF NUTRITIONAL HABITS ON A GROUP OF PUPILS FROM A COUNTRYSIDE ELEMENTARY SCHOOL IN ROMANIA (Abstract): Food is a major contributor to healthy children and youth. The study of this factor must be complex, considering the dietary habits of the population. **Material and methods**: 65 pupils from rural area were surveyed weekly about eating chicken, fish, fruits, bread and cereal by-products. A special attention was given to daily consumption of fruits (to those who recognize this contribution). **Results and discussion**: chicken appears in menus mostly 2-3 times a week (40.0%) or 4-7 times (27.7%). Fish is particularly present in menus one time (47.6%) or 2-3 times (26.2%). Fruits are provided in 75.4% cases 4-7 times a week. The dominant consumption of bread is of 4-7 times (90.8%) and of cereal by-products is of 2-3 times (58.5%) or even of 4-7 times (27.7%) a week. Self body weight is considered to be appropriate by 63.1% teenagers and in 23.1% cases they considered their body weight is too high. **Conclusions**: The implementation of national dietary programs can change the nutritional habits of children if they are based on a real assessment, achieved only with the help of surveys conducted by questionnaire method. **Keywords**: CONSUMPTION FREQUENCY QUESTIONNAIRE, INTAKE OF CHICKEN, FISH, FRUITS, BREAD, CEREAL BY-PRODUCTS.

Food is an external factor that plays an essential role in maintaining the health of children and youth. Currently, there are many issues related to diet, due to the current difficult economic situation in most families, especially in those from rural areas. Economic problems are difficult in rural areas where the income is assured only by household items. Products obtained must assure the family needs and also designated for sale, to obtain funds used to ensure future crops. In this context the study of rural youth nutrition is very important (1, 2).

The study is particularly important, as today there are more questions about national dietary programs, intended to change the nutritional habits of the population. For example it is ongoing a program that gives fruit to the pupils in the school. We must know the exact situation because providing fruits to a population that already consumes fruits is a useless action.

**MATERIAL AND METHODS**
The investigation was conducted on a
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group of 65 pupils who live in rural areas and learn at the School grades I-VIII of Băcești countryside area, Vaslui County. Sex distribution of cases is relatively balanced, as assessed 36 boys (55.4%) and 29 girls (44.6%). To these young people was applied frequency questionnaire of food consumption. (3.4) is a weekly frequency questionnaire contributions (the fruit is estimated daily consumption) questionnaire was completed by pupils in the study group. We insist on weekly consumption of chicken, fish and seafood, fruits, bread and cereal by-products.

Statistical processing of results was done with Pearson Chi-Square test.

RESULTS AND DISCUSSION

The study was conducted on a sample of 65 pupils in eighth grade, aged between 13 and 14 years. We insisted on the frequency of eating chicken, fish, fruits, bread and cereal by-products in their menus.

1. Chicken meat is specific to rural area as baby grows quickly, so the presence of this meat in meals is not a problem. We must insist on this point because buying food in rural areas may be disrupted by lack of money. Population eats mostly products obtained in their household. Dominant contribution is 2-3 times per week (40.0%), followed by 4-7 times (27.7%). 18.5% of all pupils consume chicken meat only one time a week, while other 13.8% pupils do not consume at all (Fig. 1).

The situation is serious in 30% of families where the chicken is missing or is a very rare presence. Hygiene specialist and GP should know these issues to try to remedy the situation.

It is important to make assessments also on gender. At males, there are 22.0% pupils who do not eat chicken, while at females only 2.7%. Dominant contribution is 2-3 times both in boys (33.4%) and girls (48.8%). Pearson Chi-Square shows statistically significant differences ($\chi^2 = 5.126$, df = 3, p = 0.163) that directs to a traditional chicken diet.

These aspects are very important because any attempt to change the diet is likely to fail, if we start from the reality represented by a given population anchoring in tradition. Advices from television like "drink to your health daily..." have little chance of success.
2. Fish consumption is not a great option for our questioned pupils. It is not consumed especially in rural areas, where is not purchased. Throughout the group, the dominant contribution is one time (47.6%) or 2-3 times (26.2%). There are only 3.1% of families consuming fish 4-7 times, and 23.1% of families who do not eat at all (Fig. 2).

![Fig. 2. The frequency of fish in the meals of studied pupils](image)

At present menus the boys eat fish 2-3 times in 44.7% cases and 51.7% girls. In these situations there are no statistically significant differences ($\chi^2 = 6.816, \text{df} = 3, p = 0.078$).

3. Fruits are consumed fresh to give to the body an adequate intake of vitamin C. You should pay particular attention to the results due to the insistence of national programs to achieve this. A population consuming fruits in large quantities does not require supplementation by such programs. People who do not need supplements can consume, but they should be carefully provided.

We have found that 75.4% from all consumers eat fruits 4-7 times per week and other 23.07% consume fruits only 2-3 times (Fig. 3).

![Fig. 3. The frequency of fruits in the meals of studied pupils](image)
Basically surveyed pupils consume sufficient fruits; the intake was mostly 4-7 times a week. To this group is not necessary to make a further contribution. Food corrections are necessary, but not to fruits. To give fruits to these children is a futile gesture that has no educational value. Being tired of fruits that are offered, pupils become irritated, without a positive result.

In fact, you expect to get positive results from a large population which is consuming fruits. National programs should be oriented to feature food consumption of the population and not the opinion of one or another who does not know the reality and does not want to know.

On gender, the study is less important because boys are eating 4-7 times a week appear in 72.3% cases and in 76.3% cases for girls. The statistically significant differences obtained between genders ($\chi^2 = 1.042$, df= 3, p = 0.594) are logical and expected.

Fruits consumption is normal in rural areas where in every yard there are at least 2-3 trees. Keeping them for winter is not a problem as apples, pears, quinces are less perishable. Providing to these children fruits is a serious tactical mistake.

We must study here daily frequency of fruit consumed where 40 young people (61.5%) stated the presence of fresh fruit in daily menus (tab. 1).

**TABLE 1**

<table>
<thead>
<tr>
<th>Daily consumption</th>
<th>One time</th>
<th>Two times</th>
<th>Three times</th>
<th>Four times</th>
<th>Many times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Female</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Total number</td>
<td>3</td>
<td>8</td>
<td>11</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Percentage (%)</td>
<td>7.6</td>
<td>20.1</td>
<td>27.6</td>
<td>7.1</td>
<td>37.6</td>
</tr>
</tbody>
</table>

A fruit presence in the menu 1-2 times a day is not a problem. 7.6% pupils observe a contribution of one time and 20.1% observe an input of 2 times. If you eat fruits every day, one or two fruits are sufficient to provide the necessary nutrients. From an intake to 3 times per day and higher start too high values. We remark that 7.1% pupils are eating fruits 4 times a day and 37.6% who eat them several times a day. Practically 40% of surveyed pupils are eating fruits daily.

Fruits are needed by the body only in recommended quantities of rational consumption norms. They are low in protein and fat, have significant amounts of low molecular weight carbohydrates, but are important sources of vitamins and minerals. Their caloric intake is less than 100 kcal per 100 g, so it is very small (5, 6).

Providing these products in an excessive amount does not have a beneficial effect on consumers’ health. Mass media programs provide only partial information on the role of vegetables and fruit in the diet without disadvantages offered and insisting on excessive consumption. Professionals must properly inform consumers about the importance of each product, with its nutritional value. Any such exaggeration is related to fruits has a negative impact over population. We do not need national programs offering fruits to a population which already consume them in large quantities.

Money allocated could be spent more effectively if it is done an accurate and extensive food survey.
4. Bread and cereal by-products. A balanced diet must include animal and vegetable products. Bread and cereal by-products are an important source of vegetable proteins and carbohydrates, giving the body an increased calorie intake. On the entire group, the dominant bread consumption is of 4-7 times (90.8%). There are 1.5% responses of absent or one time consumption. Otherwise bread is consumed very frequently. It is a traditional consumption for our population, especially for the wheat one which is widely grown in Moldavia (Fig. 4).

Of course it is also important the distribution of responses according to the pupils’ gender. The consumption of 4-7 times appears in 91.6% cases at males, and in 89.7% cases at females, the calculated differences being statistically insignificant ($\chi^2 = 2.101, df = 3, p = 0.552$). On the study group the consumption of bread doesn’t raise special problems, being well represented.

![Fig. 4. Presence of bread in the questioned pupils’ menus](image)

The consumption of cereal by-products is a new issue, with no relation to tradition. The elders didn’t usually consume rice, pasta or croup. These products have evolved simultaneously with the industrialization of nourishment. The dominant consumption of cereal by-products is of 2-3 times (58.5%) or even of 4-7 times (27.7%). There are also 10.8% responses of one time and even 3.1% negative responses. The small or absent consumption is not a major problem because this is food that provides mostly a quantitative intake, and not a qualitative one. The balanced intake of 2-3 times a week appears both at boys and girls, Pearson Chi-Square showing no statistically significant differences ($\chi^2 = 1.086, df = 3, p = 0.780$). Even with these new products introduced in the menus the nourishment appears similar.

5. Assessment of body weight

To approach this aspect we will first discuss children’s view regarding the role of nourishment in maintaining their health. Proper nourishment helps maintaining health – it is an assertion sustained by 81.5% pupils. There draw attention a percentage of 14.5% of negative responses of some pupils who can’t make the connection between balanced nourishment and ensuring a normal growth and development of the body.

Body weight is closely connected to the quantity and quality of food given to teen-
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Their opinion about their own body weight is very important because it can change some food habits. Children who think they are too fat can start worrying about this aspect and try to lose weight (Fig. 5).

![Fig. 5. Pupils’ opinion about their own body weight](image)

On the entire group, appear only 63.1% responses of just right weight, which is quite low for 13-14 years old pupils. Too much weight is stated in 23.1% cases which should be objectified by weighing.

On gender, too much weight is stated by 22.7% boys and 24.1% girls, and too less by 8.3% boys and 20.7% girls. The calculated differences are statistically insignificant ($\chi^2 = 2.281$, df =2, $p>0.05$) and reveals a similar perception of self body weight.

The study is very important because it provides an overview of eating habits of pupils in this group and allows a close observation of the mistakes that appear. The noticed mistakes are not those stated on TV, related to an insufficient fruit intake. Food changing programs must be carefully made, after a thorough study about the actual eating habits of the target population. On a population so rooted in traditions as the one in the study group, any attempt of forcing consumption in a certain direction has little chance of success.

**CONCLUSIONS**

Chicken is present especially 2-3 times (40.0%) in the menus, followed by 4-7 times in consumer cases (27.7%) and also there are cases of absence (13.8%).

Fish is a food with a great nutritional value, but is not widely used in our country. In most of the cases (47.6%) it is on the table only one time a week or 2-3 times (26.2%) a week.

Fruits appear to be consumed in this group by 75.4% of pupils for 4-7 times a week, and by 23.07%, 2-3 times a week. Particularly should be noted the existence of non-response to zero and only 1.5% of responses for one time.

The dominant consumption of bread is of 4-7 times (90.8%) and of cereal by-products is of 2-3 times (58.5%) or even of 4-7 times (27.7%) a week.

Self body weight is considered to be appropriate by 63.1% teenagers. There are 23.1% cases in which body weight is considered too high, but these teenagers should be weighted to get the objectivity of the statement.

Any national dietary program geared towards changing nutritional habits of a population group should be based on the actual assessment of targeted populations. Otherwise the results are less encouraging.
REFERENCES


POLYSPECIES BIOFILM FORMATION ON IMPLANT SURFACES WITH DIFFERENT SURFACE CHARACTERISTICS

Rough implant, while being beneficial for initial bone formation and osseointegration, have been generally considered to enhance initial adhesion and the subsequent colonization of oral bacteria. The aim of this study was to investigate the microbial adherence and colonization of a polyspecies biofilm on 7 differently processed titanium surfaces. Six-species biofilms were formed anaerobically on 5-mm-diameter sterilized, saliva-preconditioned titanium discs. Material surfaces used were either machined, stained, acid-etched or sandblasted/acid-etched. Samples of the latter two materials were also provided in a chemically modified form, with increased wettability characteristics. Surface roughness and contact angles of all materials were determined. The discs were then incubated anaerobically for up to 16.5 h. Initial microbial adherence was evaluated after 20 min incubation and further colonization after 2, 4, 8, and 16.5 h using non-selective and selective culture techniques. Results at different time points were compared using ANOVA and Scheffé post hoc analysis. The mean differences in microorganisms colonizing after the first 20 min were in a very narrow range (4.5 to 4.8 log CFU). At up to 16.5 h, the modified sandblasted/acid-etched surface exhibited the highest values for colonization (6.9±0.2 log CFU, p<0.05) but increasing growth was observed on all test surfaces over time. Discrepancies among bacterial strains on the differently crafted titanium surfaces were very similar to those described for total log CFU. Fusobacterium nucleatum was below the detection limit on all surfaces after 4 h. Within the limitations of this in vitro study, surface roughness had a moderate influence on biofilm formation, while wettability did not seem to influence biofilm formation under the experimental conditions described. The modified sandblasted/acid-etched surface showed the highest trend for bacterial colonization. From a clinical point of view related to hygienic requirements, the choice of implant surface characteristics may be salient to the long-term health of any implant placed [Schmidlin PR, Müller P, Attin T, Wieland M, Hofer D, Guggenheim B. Polyspecies biofilm formation on implant surfaces with different surface characteristics. (J Appl Oral Sci 2013; 21(1): 48-55).]

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