Introduction: Body Mass Index z-score (BMI z-score) is widely promoted by WHO as indicator of child obesity in many developing countries, but to what extent its measurement correlates with child fatness in underprivileged settings was less investigated.

Objectives: This study aimed to assess the accuracy of BMI z-score compared to % body fat measured using reference method in detecting excess of body fat among Senegalese public school children.

Method / Design: The study was conducted on a sample of 155 children (75 boys, 80 girls), 8-11 years old randomly selected in elementary public schools of Dakar, Senegal. Weight and height were measured, BMI z-score height-for-age z-score calculated using WHO AnthroPlus. Body composition (fat free mass, fat mass, %BF) was measured by deuterium dilution. Sensitivity and specificity of BMI z-score were assessed by testing its ability to correctly detecting overweight/obesity (BMI z-score>+1) according to Freedman age and BMI z-score were assessed by testing its ability to correctly detecting overweight/obesity (BMI z-score> +1) according to Freedman age and sex-specific %BF cut-off. Receiver Operating Characteristic (ROC) and areas under the curves (AUCs) were used to assess the diagnostic performance of BMI z-score to measure body fat excess in children.

Results: The prevalence of overweight/obesity was 8.4% using %BF and 4.5% using BMI z-score (P=0.745). Thinness affected 30.1%, while 2.3% were stunted. Fat free mass was higher (23.8±3.4 kg vs. 21.2±3.4; P<0.001), and body fat lower (4.1±3.2 kg vs. 5.4±3.2; P<0.05) in boys compared to girls. BMI z-score was strongly correlated to %BF (r=0.625; p<0.001). The specificity of BMI z-score to diagnose child overweight/obesity was high (100%), but the sensitivity was relatively low (53%). As indicated by AUC, BMI performed well in detecting excess body fat (AUC=0.913) and showed better performance in boys compared to girls. BMI z-score was strongly correlated to %BF and 4.5% using BMI z-score (P=0.745). Thinness affected 30.1%, while 2.3% were stunted. Fat free mass was higher (23.8±3.4 kg vs. 21.2±3.4; P<0.001), and body fat lower (4.1±3.2 kg vs. 5.4±3.2; P<0.05) in boys compared to girls. BMI z-score was strongly correlated to %BF (r=0.625; P<0.001). The specificity of BMI z-score to diagnose child overweight/obesity was high (100%), but the sensitivity was relatively low (53%). As indicated by AUC, BMI performed well in detecting excess body fat (AUC=0.913) and showed better performance in boys (0.978) than in girls (0.861).

Conclusions: BMI z-score is a reliable indicator of child adiposity, but its low sensitivity may underestimate the extent of obesity among Senegalese school-aged children, particularly in girls.

Keywords: (maximum 5): Keywords: BMI, adiposity, school-aged children, Senegal

149/819. Cereal based products designed for people with metabolic disorders.

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Introduction: Current global trends in food formulation are oriented towards biologically active food components with health benefits. Food design and the development of these products are challenge for research sector and food industry.
Objectives: The aim of this work was to create functional cereal
based products for people with metabolic disorders, i.e. coeliac disease
and hyperlipoproteinaemia, and to potentially increase the range of
functional products on the market.

Method / Design: The systematic approach to a problem of
studying and creating functional food has been conducted. Selected
functional components of plant origin with confirmed biological
activity on tested animals were characterized and used for the new
product formulations. Safe and sensory acceptable products were tested
on patients with defined metabolic disorder. Technological process
optimization was also performed.

Results: The following functional ingredients were used for the
products development: wholegrain buckwheat flour (50%) for whole
grain buckwheat bread; herbal blend (2%) in cookies with herbal
blend for metabolism enhancement, soy bran (30%) for fat-reduced
cookies; wholegrain buckwheat flour (20%) for buckwheat-enriched
wholegrain wheat pasta; berry pomace (30%) for gluten-free cookies
with blueberry pomace.

Conclusions: Cookies, bread and pasta containing functional
ingredients are formulated, characterized and they are sensory accep-
table. It has to be acknowledged that this work is a part of the Project
(TR–31029) supported by the Ministry of Science and Technological
Development, Republic of Serbia.

Keywords: (maximum 5): Bakery product; Gluten-free pro-
duct; hyperlipoproteinaemia; Buckwheat; Berry pomace

149/821. Characterization and health bene-
fits of buckwheat-enriched wheat bread

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Introduction: Functional added value products are created to
achieve health benefits in humans. Wholegrain buckwheat flour contains rutin and other phenolic compounds known as potent anti-
oxidants. These compounds also possess special medicinal properties
such as antihypertensive and antihypercholesterolemic effects.

Objectives: The aim of this work was 1. to produce the buck-
wheat-enriched wheat bread with the highest level of substitution, 2.
to compare its quality with the wheat bread, and 3. to test its antihy-
perlipidemic efficiency.

Method / Design: Buckwheat-enriched wheat bread was produ-
ced by substitution of wheat flour with wholegrain buckwheat flour at
the level of 50% in a wheat bread formulation. Two types of bread were
characterized by nutritional quality, antioxidant profile, and sensory
properties. Antihyperlipidemic efficiency of the buckwheat-enriched
wheat bread was tested in normal weight patients on statin therapy
over one-month dietetic intervention.

Results: The nutritional quality and antioxidant capacity of buckwheat-enriched wheat bread was significantly improved in compar-
ison with the wheat bread (2.22 times higher total dietary fibre and 4.29 times higher total phenolics content).

Consumers gave advantage (71.88%) to the buckwheat-enriched
wheat bread. Significant decrease in total cholesterol and LDL-choles-
terol, as well as the ratio of LDL/HDL cholesterol was obtained by its
consumption in statin treated patients.

Conclusions: The buckwheat-enriched wheat bread is added
value product with antihyperlipidemic efficiency in normal weight patients on statin therapy.

It has to be acknowledged that this work is a part of the Project
(TR–31029) supported by the Ministry of Education, Science and
Technological Development, Republic of Serbia.

Keywords: (maximum 5): Buckwheat-enriched wheat bread;
Wheat bread; Quality; Sensory properties; Antihyperlipidemic effect

149/824. Nutritional knowledge differences
between Austrian school types - baseline
results from the EDDY Project

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Introduction: Fostering nutritional knowledge through nutritio-
nal training increases the health competence of children and adoles-
cents. Currently there is limited data available in Austria. Therefore it
is necessary to find and evaluate concepts for school-based interven-
tions and their impact on children’s health competence.

Objectives: The EDDY project is a two-year randomized contro-
elled intervention study in 11 to 14 year old Viennese pupils. The aim
is to increase the participant’s health competence with age-appropriate
training in nutrition and sports. One objective is to measure the
effect of the nutritional education on the basis of a basic nutritional
knowledge quiz.

Method / Design: The sample includes 147 Viennese pupils from
four comparable schools – two middle schools (Neue Mittelschule)
and two high schools (Gymnasium). Based on a quiz, the nutritional
knowledge will be surveyed before and after the nutritional education
as well as at the 6 and 12 months follow-up. The quiz consists of 12
questions.

Results: Baseline results show a significant difference (p < 0.001)
in nutritional knowledge between the two school types. Out of 12 right
answers the average nutritional knowledge score of high school pupils
was 7,47 (± 1,41 SD) and of middle school pupils was 5,55 (± 2,04 SD).