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Dietary supplements: State of knowledge and consumption among students in a North African University

Amina Bayazid, K Metchim and **A Mechtaoui**
Djillali Liabes University, Algeria

Introduction: Dietary supplements are widely well known in our societies and have a flourishing worldwide market. However, these products are not entirely harmless.

Methodology: The people's craze for dietary supplements and the absence of a specific regulatory framework for these molecules in Algeria were the motives for carrying out a cross-sectional survey based on a questionnaire, among the last grade students in: pharmacy, medicine and dentistry, in the faculty of medicine of the Djillali Liabes University; in order to study their consumption of dietary supplements and to evaluate their knowledge about these products.

Findings: Out of a total of 535 students solicited for this survey, 54.7% of them were consumers of dietary supplements. The results revealed that these young adults tended to consume different categories of dietary supplements, including: vitamins 56.8%, plants and their extracts 16.5% and minerals 8.6%, most often irregularly. The reasons for the consumption of these supplements were mainly: improving well-being 31.7%, filling deficits 30.3% or improving body appearance and performances 20.3%. It was also found that these dietary supplements were mostly dispensed in pharmacies through a prescription or on a medical advice (in nearly 60% of the cases). More than half of the students don't make a difference between dietary supplements and medicines and ignore their true definition. The majority of students surveyed ignore the risks associated with the misuse of these products (interactions with medications and contraindications). Nearly 16% of the students reported that they had side effects after taking dietary supplements (gastroenterological troubles 46.8% and allergies 29.8% etc). The Chi-Square Test demonstrated that there is no correlation between dietary supplement intake and the following factors: gender, physical activity, smoking status, healthy diet and health status.

Conclusion: For a secure use of dietary supplements, awareness programs must be organized among consumers and public health actors in order to guarantee a high level of safety. A stricter regulatory framework should also be established.

Biography

Amina Bayazid is a Lecturer in the Department of Pharmacy at Djillali Liabes University. After completing her degree in pharmacy at Ahmed Ben Bella University, she has done specialization in "Medical Hydro-Bromatology".Her research interests include: Nutritional epidemiology, knowledge assessment on the subject of Nutrition. Her current work focuses on the consumption of dietary supplements: Profile of consumers, Consumption patterns, Assessment of knowledge of the consumers, Risks of misuse, Side effects, regulatory framework etc. Moreover, she worked on Food Allergies and celiac disease. She has been an active member of the "Algerian Society of Nutrition" since 2013. She is also a Member in the Research laboratory in pharmaceutical development.

bayazid.amina@hotmail.com

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Modifications in body composition, dietary registration, physical activity and analytical variables in patients with thyroid dysfunction before and after normalization

Erika Cabello Yépez and **Carlos Sanchèz Juan**
University of Valencia, Spain

Thyroid diseases represent, after diabetes mellitus type 2, the reason for endocrinological consultation most frequently attended by family doctors. According to a meta-analysis published by Garmendia et al, it is estimated that the average prevalence of thyroid disease in Europe is approximately 11%. The impact of thyroid dysfunction on body composition is not well known, such hormones play a crucial role in the control of energy homeostasis so they can influence body composition. Several authors state that in hypothyroid patients after achieving euthyroidism no significant changes in body composition are observed. In subsequent research, we talk about the decrease in body weight, fat-free mass and muscle mass, without significant changes in fat mass. In reviewed studies on hyperthyroidism and changes in body composition it is found that changes in body composition were not detected, unlike other authors who talk about the priority increase in lean mass before fat mass. Subsequent studies showed that upon reaching euthyroidism patients increased body weight, BMI, fat mass, and lean mass. The objective of this study is to evaluate changes in weight and body composition of recently diagnosed hyperthyroid and hypothyroid patients and the change in them after reaching euthyroidism. Changes in body composition will be evaluated by bioimpedance, anthropometry, frequency of consumption questionnaire, 24-hour reminder, and IPAQ questionnaire. We studied 30 hyperthyroid patients, 30 hypothyroid and 30 euthyroid. Intestinal peptide changes after reaching euthyroidism will be evaluated by analytical analysis. The purpose of this research is to find information about the changes in the parameters mentioned above in both hyperthyroid and hiportiroid patients, which is not yet clear, or there are not enough updated data of them.

Biography

Erika Cabello has completed her graduation in Nutrition and Dietetics and a Master's degree in Personalized and Community Nutrition. She is currently pursuing her second year of Doctorate in Medicine at the University of Valencia with the line of research of Endocrinology and Nutrition at the General University Hospital of Valencia, Spain.

erickacabelloy@gmail.com

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The effects of a combined exercise programme on blood glucose, incretin hormone and leptin in type 2 diabetes

Alsubaie NS, Alharbi BM, Sahota TS, and **Taylor MJ**
De Montfort University, United Kingdom

An excessive number of calories consumed daily, in addition to a sedentary lifestyle, are the main causes of increasing type 2 diabetes (T2D) prevalence worldwide (LEE, H.K. et al., 2010). Diabetes is usually accompanied by hypertension, lipid disorders and obesity. The aim of this study to show that combination exercise is effective. It will compare T2D and non-diabetes (ND) volunteers doing combination exercise consisting of resistance and cycling. The interventions are minor and fairly short consisting of 12 episodes of exercise over 6 weeks, yet this was enough to produce measurable change and improvement. This included the re-categorization of two T2D volunteers to being ND, using normal metrics. A literature search was conducted by using electronic databases (Science direct, google scholar, Medline, Embase, Sport medicine, PubMed, CINAHL, Cochrane library, and Scopus) from April 2015 until January 2019. Key words used are T2D, incretin and exercise.

Method: Each exercise session will consist of a combined exercise protocol of 30 min of resistance exercise followed by 20 min moderate cycling twice a week for 6 weeks. Volunteer should stretch-up for 11 steps of stretching, then the volunteer must cycle for five minutes to warm up. Blood samples collected at base line after S1, S2, S4, S6, S8, S10 and S12. Blood samples centrifuge and refrigerate to be analysed by The Evidence Investigator™ Biochip Array technology (Randox, UK) is a Multiplexing ELISA technology which described previously in section 3.10. It is also analysed by a commercially available enzyme-linked immunosorbent assay (ELISA) with <0.01 cross reactivity with GLP-1 kit as explained in section 3.9.2.

Results: After just six weeks, there was a reduction in the HbA1c level for the T2D volunteers which is significant (P= 0.000). Moreover, in ND the reduction was also significant (P= 0.000). In the T2D group who are using (Metformin and SGT2-I group), their result shows elevation in GLP-1 in the assessment of both acute and chronic effect of the programme. GLP-1 in this group was (3.9±1.5) and increased to (8.4±1.2), (P= 0.345) after S1 and then increased more to (11.0±0.8), (P=0.196) after 6 weeks of exercise. This was of interest because of the inference that incretins and exercise were linked. The crucial factor is the metformin. Leptin levels increased after 1st exercise session from 7.95±1.8 to 9.15±2.4 ng/ml (P=0.707), the observed increase could be a result of the acute effect of combination of exercise. This increases during the whole exercise sessions and then decreased after S12 to 7.25±1.81 ng/ml (P=0.522) (figure 67). Leptin resistance is also linked to insulin resistance and rheumatoid arthritis, from 1st exercise session to 10th exercise session its level stays slightly high which might be due to leptin resistance. (Yu et al., 2017). On the other hand, the present study showed that the level of leptin slightly decreased in session one from 8.24±3.3 to 7.01±2.4 ng/ml (P=0.536), then increased after 12th sessions to 7.21±3.2 ng/ml (P=0.693) in ND but still lower than the baseline. Recent randomised control study by Nuri et al, found that there was no significant effect of exercise on leptin level (Nuri et al., 2016).

Conclusion: In T2D and ND combination exercise has a beneficial effect on HbA1c, the improvement was higher in T2D. The anthropometric variables (weight, waist, BMI and lung capacity) improved significantly as well in T2D and ND. Exercise is also important to improve GLP-1 secretion. Despite the range of studies on incretin undertaken here, still there is a need to compare the effect of exercise and different types of pharmacological therapy on GLP1. This study compared the effect of exercise on T2D plus medication in volunteers. It has been found that within T2D group only Metformin and SGT2-I group was improved. Both SGLT2 inhibitors and metformin have been found to

affect body weight and this may explain the improvement of GLP-1 level, suggesting an area for future investigation. The role of leptin in regulating energy balance has made it an important research variable and in the present study its level was observed where the levels decreased after acute effects, then decreased more after the last exercise sessions in T2D. Moreover, leptin decreased in ND after acute effect and the 12th exercise sessions.

Biography

Dr. Nawal Alsubaie is a Clinical pharmacist in Prince Sultan Medical Military City. He Has completed his Msc in clinical pharmacy from UCL and PhD from DMU. He worked as clinical pharmacist in diabetes clinic and was the Deputy of pharmaceutical services for the last years.

nawsub@hotmail.com

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Changes in body composition after 26 weeks of treatment for weight loss with liraglutide 3.0 mg in subjects with obesity

M. Dearos[1], B. Voltas[1], T. Sáez[1] and **C. Sánchez[2]**

[1] University of Valencia, Spain

[2] University General Hospital Consortium of Valencia, Spain

Obesity is defined as a multifactorial disease that causes a chronic metabolic disorder and is characterized by excess body fat. In recent decades the prevalence of obesity has increased significantly, being a risk factor for the development of cardiovascular disease and is associated with the presence of other comorbidities. For these reasons, optimizing the treatment of these patients is a priority. Among the different pharmacological solutions, liraglutide has shown its benefit in the treatment of obesity.

Our objective is to analyze weight loss and change in body composition in patients with obesity (BMI> = 30) after 26 weeks of treatment with 3.0 mg of liraglutide daily.

Methodology and Theoretical Orientation: A descriptive analysis was performed, including 20 patients with obesity. Weight loss and changes in body composition are analyzed after 26 weeks of treatment with liraglutide 3.0 mg daily.

Results: The weight loss analyzed in general was 8.61 kg (8.57% of initial weight) at 26 weeks (P <0.01). There is a loss of 6.06 kg of fat mass ((P <0.01) and a loss of 3.68 kg of fat-free mass (P <0.05), of which there is a loss of 1.65 kg in skeletal muscle mass (P <0.01).

Characteristics of the sample	
Sample number (N)	20
Sex (M/F)	6/14
Weight (kg)	105,4 kg
IMC (kg/m2)	38,5

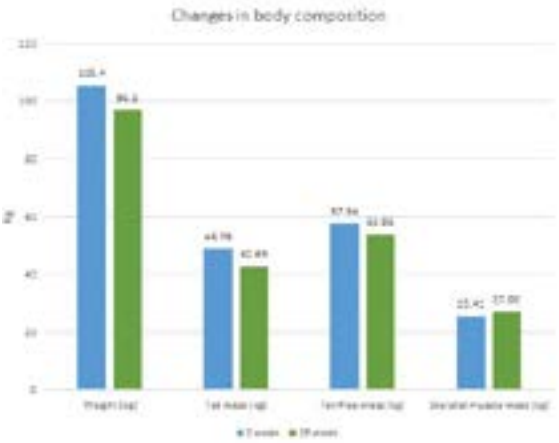
Table 1. Characteristics of the sample

Variable	0 week	26 week	Variation
Weight (kg)	105,42 ± 21,94	96,80 ± 22,83	-8,61 ± 5,80
Fat mass (kg)	48,76 ± 12,15	42,69 ± 13,13	-6,06 ± 3,3
Fat-free mass (kg)	57,54 ± 13,78	53,86 ± 13,68	-3,68 ± 6,69
Skeletal muscle mass (kg)	27,06 ± 7,58	25,41± 7,51	-1,65 ± 1,72

Table 2. Variables on 0 and 26th weeks

Conclusion and Significance: On 26th week of liraglutide 3.0 mg treatment, there is a statistically significant weight and fat mass loss. On the other hand, there is also some fat-free mass and skeletal muscle mass loss. Therefore, would be advisable to preserve these values.

Finally, this study shows relevant results in order to optimize weight loss programs in obesity cases.



Biography

Monica Dearos Sanchis is a graduate in human nutrition and dietetics at the University of Valencia (Spain). He has a master's degree in personalized nutrition and is currently doing his doctorate in the line of endocrinology and nutrition at the General Hospital of Valencia. He also works in a private clinic in the field of obesity.

mdsanchis@hotmail.com

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Orexigenic and anorexigenic hormones in adolescents with obesity in the dynamics of treatment

Olga A Vyshnevskaya, Tatiana N, Malinovskaya and **Elena V Bolshova**

V P Komisarenko Institute of Endocrinology and Metabolism of the National Academy of Medical Sciences of Ukraine, Ukraine

Introduction: About 20 thousand of new cases of obesity (Ob) are first registered in children and adolescents in Ukraine annually (morbidity 2.72/1000, prevalence 13.50/1000 of the corresponding population on 01.01.2016). Adolescent Ob shows catastrophic rise (prevalence 8.9/1000 in 2001 vs 28.3/1000 in 2015). The role of Ghrelin (Ghr) is completely unclear in the etiopathogenesis of obesity in adolescents.

Methodology: A total of 39 obese children with hypothalamic dysfunction (HD) (14 boys, 15.1±1.4 y.) and 14 healthy controls (mean age 14.6±1.2 y.) were included into the study. Among patients with HD-16 patients (41.03 %) had visceral abdominal obesity (VAOb), 23 patients (58.97 %) had gluteofemoral obesity (GFOb). Serum Leptin, Ghrelin, Insulin level, HOMA-IR were studied. Such studies are conducted in Ukraine for the first time.

Results: Overweight was revealed in 15 (38.5 %) patients, ObI- in 8 (20.5 %) people, ObII – in 10 (25.6 %) persons, ObIII-in 6 people (15.4 %). The signs of insulin resistance (HOMA-IR > 2.77; IRI>20 μIU/mL) were noted in 60% patients. Level of leptin in children with obesity VAOb was 47.2±5.54 ng/ml (BMI 35.2±5.07 kg/m2) and was significantly higher (26.5±7.13 ng/ml, $p<0.05$) than in children in the group with GFOb, in combination with similar metabolic disorders, BMI at the same time was 28.7±2.4 kg/m2). Serum Ghr level was found significantly lower in obese adolescents compared to that of control group and was dependent on the degree of Ob. The level of Ghr was the lowest (582.58±59.37 ng/mL) in patients with ObIII. The level of Ghr was significantly lower ($p<0.05$) in patients with VAOb than with GFOb (656.63±113.16 vs. 1212.13±114.6 ng/ml, respectively). The levels of hyperinsulinemia and insulin resistance were increased with an increase of the obesity degree. In six months of treatment level of Ghr was the same to Ghr level in adolescents with normal weight (1224.25±75.05 ng/ml). Thus, Ghr is the specific marker of control of efficiency of treatment.

Summary: Obesity in adolescents is accompanied by a high level of leptin and a low serum Ghr level in the blood plasma. A high degree of obesity is accompanied by a greater higher Leptin level and decrease in the Ghr level. A significantly higher Leptin level and lower Ghr level was registered in abdominal Ob comparing to gluteofemoral type of obesity. Further studies the relationship of Leptin and Ghr level, insulin resistance and hyperinsulinemia in obese adolescents are required.

Biography

Olga A Vyshnevskaya was a medical doctor since 1993 at Medical University named after Pirogov and after graduation at Medical University she is working in "V P Komisarenko Institute of Endocrinology and Metabolism of the National Academy of Medical Sciences of Ukraine" in the department of pediatric endocrinology.

o.vyshnevskaya@gmail.com

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Association between omentin and chemerin levels and their changes within one year in non-morbid overweight and obese adults

Vija Silina[1], **Mesfin K Tessma**[2], **Jelena Danilenko**[1], **Julija Snaidere**[1], **Silva Senkane**[1] and **Guntis Bahs**[1]
[1]Riga Stradins University, Latvia
[2]Karolinska Institutet, Sweden

Background: About half of EU adult population is overweight, including 16% being obese (21% in Latvia). Early recognition and monitoring of individuals that are at high risk of developing diabetes and cardiovascular diseases is essential. Positive correlation of serum chemerin and negative correlation of omentin with weight, lipids and insulin resistance indicators has been described; however, information on inter-relation between changes in these parameters is scarce, especially in non-morbid overweight and obese adults.

Objective: To determine the association between chemerin and omentin levels at baseline and their changes in clinically healthy overweight and obese individuals within a year

Materials & Methods: We used data from our randomised controlled study with 123 clinically healthy individuals with a BMI above 25 m^2/kg in the age group of 30 to 45: (47% men, age 36,8±4,2 years, BMI 32,0±4,3 kg/m^2; total cholesterol 5,4±0,9 mmol/L; HDL-cholesterol 1,4±0,3 mmol/L; fasting glucosae 5,2±0,5 mmol/L; HOMA-IR 3,1±1,7; 46% metabolically unhealthy according to metabolic syndrome definition; 32% smokers; 38% diagnosed with liver steatosis on CT scan). All participants received a consultation for lifestyle changes to support weight loss. All group showed slight weight and waist circumference decrease after 1 year. Biochemical parameters (lipids, fasting glucose and insulin) and cytokines (omentin, chemerin) were assessed at baseline and after 1 year using Spearman's correlation test.

Results: We found a weak positive correlation between chemerin and omentin (rs=0.295; p=0.001) at baseline, contradicting our expectations. Multiple linear regression adjusted by age and gender retained significant relationship between omentin and chemerin (B=0.088; 95% CI 0.033, 0.143; p=0.002). After one year there was a weak positive correlation of omentin changes with chemerin changes (rs=0.186; p=0.042). However, multiple linear regression adjusted by age and gender showed no association between omentin and chemerin changes.

Conclusion: A positive rather than negative relationship between chemerin and omentin in non-morbid overweight and obese adults imply that other factors besides anthropometric and metabolic indicators might be affecting omentin and chemerin levels in this group.

Biography

Vija Silina is a lecturer of the Department Family Medicine of Riga Stradins university since 2011 teaching both students and residents. Her current research includes preventing obesity related non-communicable diseases. She is working in the private practice as a family physician.

vija.silina@gmail.com

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Diet quality self-assessment and total adiposity markers in college students

Lídia Pitaluga Pereira, Lorena Barbosa Fonseca, Patrícia Simone Nogueira, Ana Paula Alves de Souza, Bruna Klein Guimarães de Souza, Paulo Rogério Melo Rodrigues, Ana Paula Muraro and **Márcia Gonçalves Ferreira**
UFMT, BRAZIL

Statement: Diet quality self-assessment can be a potential indicator to promoting a healthy lifestyle, similarly to the self-rated health indicator.

Objective: To verify the association between diet quality self-assessment and markers of total adiposity among university students.

Methodology and Theoretical Orientation: Cross-sectional study conducted with freshman in the first semester of 21 full-time courses at a public university in the Central-West region of Brazil, who were enrolled in 2018, male and female college students (16 to 25 years old). Diet quality self-assessment was measured using the question "How do you rate the quality of your diet?", and the answers were categorized into "good", "fair", and "poor". The total adiposity was evaluated by the weight status defined by the Body Mass Index according to the World Health Organization recommendations for each age group and the percentage of body fatwas obtained by electrical bioimpedance and categorized as high (yes/no). Multinomial logistic regression was used to analyze the magnitude of the associations, adjusting for sex, age and economic class.

Findings: A total of 571 university students were evaluated of which 47.8% considered their diet as regular, 32.6% as good and 19.6% as poor. Diet quality self-assessment as poor was higher for females (22.6% vs 16.5%, p=0.03) and for students who belonged to higher economic class compared to those of lower economic class (26.7% vs 18.2% p=0.04). In the multiple analysis diet quality self-assessment as poor was associated with overweight ($p<0.01$), but not with percentage of body fat.

Conclusion and Significance: Diet quality self-assessment poor shows association with overweight.

Biography

Lídia Pitaluga is graduated in Nutrition by the Federal University of Mato Grosso (2006), Master in Biosciences by the Federal University of Mato Grosso (2014). Doctoral student in Collective Health, Federal University of Mato Grosso, Brazil. She has experience in Nutritional Epidemiology, working mainly in the following subjects: information systems, diabetes mellitus, dyslipidemia, obesity, lifestyle.

lid_pit@hotmail.com

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Impact of maternal nutrition in pregnancy and birth weight

Ademola Amosu
Babcock University, Nigeria

Statement of the Problem: Birth weight (BW) is the single most predictive factor of mortality in the first few months of life, and a baby's birth weight is an important indicator of his health. The World Health Organization (WHO) defined low birth weight (LBW) as that below 2,500gm. It is a major public health problem in most African countries, and in most developing countries, being associated with a high incidence of neonatal mortality in these regions. In India 85% of neonatal mortality is associated with LBW, 87% in Guatemala and 56% in North Acrot. It is estimated worldwide that 25 million LBW infants were born in 1990, making up to 18% of all live births, 90% of which occurs in developing countries. LBW babies are at the greatest risk in early childhood.

Methodology: This was a cross-sectional and descriptive study of pregnant mothers who delivered in four randomly selected health facilities in urban Abeokuta, Nigeria. The study examined the influence of maternal nutritional status on newborn birth weight and particularly low birth weight (LBW). 512 pregnant mothers booked for antenatal care and were attending antenatal clinics were recruited for the study as they became available. Complete physical examination, clinical profile along with weight, biochemical and hematological measurements were carried out. Data were analyzed using descriptive statistics and chi-square test.

Findings: The mean weight gain of the pregnant mothers in this study was 7.78±1.01 kg. Weight gain in pregnancy, maternal hemoglobin, mean corpuscular hemoglobin concentration, serum cholesterol and serum albumin were all found to be significant for LBW ($p<0.001$).

Conclusion: Maternal nutritional status impacted significantly on newborn birth weight as poorly nourished mothers were observed to produce a higher percentage of LBW babies when compared to those who were better nourished.

drockalive54@gmail.com

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To assess the food concepts, lifestyle and dietary patterns among the adults with diabetes mellitus: A cross-sectional study

Faran Khan, Zahra Khan and **Marriam Ahmed**
University of Veterinary and Animal Sciences, Pakistan

Statement of the Problem: Diabetes mellitus needs special implementation and maintenance of dietary habits, lifestyle practices, and food concepts for it's management. Diabetes mellitus affects approximately 422 million people around the globe. Diabetes prevalence has been rising more rapidly in middle and low-income countries. It is estimated that 1.5 million deaths were directly caused by diabetes and 2.2 million deaths caused by high blood glucose This study was designed to asses the relationship of food concepts, lifestyle practices and dietary patterns among adults with diabetes mellitus.

Methodology & Theoretical Orientation: The people with diabetes mellitus were selected from the OPD's (Outpatient department) and diabetic wards from different private and government hospitals of Lahore. The questionnaire was developed to assess lifestyle applies, eating patterns and food perceptions among adults with diabetes. The questionnaire contains mixed questions of both open and closed ended.

Findings: Study showed that 55.8% adults have family history of diabetes mellitus. Approximately 41.8% people were physically inactive and have a sedentary lifestyle. And 47.8% people were not dining out at all. Participants having no or less education have more uncontrolled HbA1C as compared to educated participants. 6% uneducated participants and 1.8% educated participants had uncontrolled HbA1C level.

Conclusion & Significance: The food concepts of diabetic patients vary from each other people having less knowledge regarding food concepts. There is lack of physical activity among individuals and Consumption of major meals was adequate. Uneducated people were having uncontrolled HbA1c level as compared to educated participants.

faran.hocane@gmail.com

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Production of γ-aminobutyric acid in whey protein juice during fermentation by *Lactobacillus plantarum*

Fatemeh Zarei, Leila Nateghi, Mohamad Reza Eshaghi, Maryam Ebrahimi Taj Abadi, Nazila Ghorban Hosseini and **Maryam Zarei**
Islamic Azad University, Iran

Background: Today, demand for functional food has increased. GABA, as a bioactive agent, has many potential applications in the functional food industry. The general objective of this study was to evaluate the potential of probiotic bacteria and *Lactobacillus plantarum* in the whey drink containing strawberry and banana concentrates and to evaluate the sensory properties of this beverage during storage.

Materials & Methods: *Lactobacillus plantarum* was injected with 108 to whey protein juice containing concentrate of banana and strawberry adding 250 mM glutamic acid. Viability, pH, GABA production and sensory evaluation of the treatments were evaluated for 30 days at 4 and 25° C.

Findings: *Lactobacillus plantarum* has the potential for producing GABA in all treatment beverages. The highest amount of GABA production (195.5 ppm), the probiotic bacterial viability (8.01 log10 cfu/ml) and pH (3.81) after 30 days of storage in whey drink containing banana concentrate kept at 25° C. It turned out sensory evaluation results showed that the overall acceptance scores of all treatments were not significantly different ($p>0.05$).

Conclusion & Significance: *L. plantarum* can have a viable function and produce GABA in a whey drink containing concentrate of banana and strawberries, without undesirable effects on the sensory properties of the beverage. Probiotic-based GABA-in beverages can be taken as a positive step in the development of functional products and the promotion of consumer health.

zarei.fatemeh@gmail.com

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Evaluating the effects of low molecular weight sodium alginate as an immunostimulator, also as a novel prebiotic combined with Bactocell® (a probiotic) on humoral and mucosal immune responses of Asian seabass *(Lates calcalifer)* juveniles

[1]**Ghasem Ashouri**, [1]**Nasrollah**, [1]**Mahboobi Soofiani**, [1]**Amir Mani** and [2]**Seyed Hossein Hoseinifar**

[1]Isfahan University of Technology, Iran

[2]University of Agricultural Sciences and Natural Resources, Iran

During the past decade, aquaculture has been considered as one of the fastest-growing industries of food production. The elevation of aquatic animal production has been obtained by increasing the production per unit of area which per se results from intensification. However, the elevation of stocking density in aquaculture practices increases the stress level in the cultured organism and the risk of diseases. Following the 2006 EU ban on antimicrobial growth promoters, to reduce use of antibiotics chemical compounds in agri-business products have arisen. Therefore, application of bioactive substances, such as probiotics and prebiotics as an alternative to antibiotics has been considered as environmentally friendly tool for aquaculture. Interest in the use of prebiotics and probiotics in aquaculture increased considerably over the past several years due to the beneficial effects reported for these diet additives in humans and terrestrial animals, including enhanced production efficiency, increased nutrient utilization, .and improved disease resistance. Using immune stimulants as bio-friendly and environmentally safe agents is an alternative approach to combat diseases in aquaculture. Therefore, present study performed to evaluate the potential effect of individual or combined administration of dietary low molecular weight sodium alginate (LMWSA) and Bactocell® on haematological, humoral and skin mucosal immune responses of *L. calcarifer* juveniles.

Methodology and Theoretical Orientation: In this study six weeks of feeding trial was conducted to examine the effect of dietary administration of low molecular weight sodium alginate (LMWSA) and *Pediococcus acidilactici* MA 18/5M (PA) on growth performance, digestive enzymes, and intestinal histology of *Lates calcarifer* juveniles. Fish (12.0 ± 0.2 g) were fed experimental diets as follows: Control (diet 1, basal diet), 5 g kg-1 LMWSA (diet 2), 10 g kg-1 LMWSA (diet 3), 0.9 × 107 CFU g-1 PA (diet 4), 5 g kg-1 LMWSA + 0.9 × 107 CFU g-1 PA (Diet 5), and 10 g kg-1 LMWSA + 0.9 × 107 CFU g-1 PA (Diet 6). At the end of the trial, blood samples from the caudal vein and skin mucus were collected for evaluation of immunological parameters.

Findings: Results indicated a significant ($P < 0.05$) increase in innate immune parameters including serum lysozyme, bactericidal, hemolytic and respiratory burst activities as well as mucosal immune responses including lysozyme and bactericidal activities when diet was supplemented with immunostimulants. Moreover, the combined effects of LMWSA with Bactocell® resulted in more pronounced immunological responses compared to the control and singular administration. Red and white blood cell counts significantly increased with either singular or combined administration of LMWSA and Bactocell® compared with the control group ($P < 0.05$).

Conclusion and Significance: These results indicated that combined administration of LMWSA and Bactocell® can be considered as a beneficial feed additive and immunostimulant in *L. calcarifer* juveniles.

g.ashouri@na.iut.ac.ir

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Knowledge and practice concerning swallowing disorders in hemiplegic patients among nurses of Bobo-Dioulasso urban primary health care centers in Burkina Faso

Diendéré J[1], Appolinaire Sawadogo[2], Athanase Millogo[2], Alassane Ilboudo[2], Christian Napon[2], Méda Nicolas[3], Jean Kaboré[2], Ziemlé-Clément Méda[2], Jean Testa[3], Pierre-Marie Preux[4], Jean-Yves Salle[4] and **Jean-Claude Desport[4]**

[1]Health Sciences Research Institute, Burkina Faso

[2]Souro Sanou Hospital, Burkina Faso

[3]Centre Muraz, Burkina Faso

[4]UMR 1094 Tropical Neuroepidemiology, France

Introduction: The quality of management of swallowing disorders (SD) from admission onwards influences the patients' nutritional status and their prognosis. Neurological diseases are the main causes of SD, affecting one in three patients with hemiplegia (Hp). In Burkina Faso (BF), primary health care center (PHCC) nurses are the first to manage these patients, but there are no data related to their management of SD. The study aimed to assess knowledge and practices regarding SD in Hp among PHCC nurses in Bobo–Dioulasso.

Methodology: This cross-sectional study was performed August 1–September 15 2014. Subjects underwent a standardized survey to determine their knowledge and practices concerning SD in Hp.

Findings: Of 125 nurses surveyed (83.3% of the targeted workers), 82.4% had experience of caring for Hp. The role of the central nervous system in cases of Hp and SD was recognized by 56.8% of nurses; 42.3% knew that SD can cause aspiration, and 36.0% were aware of rescue techniques to use when aspiration occurs; 39.2% correctly assessed the impact on nutritional status of SD. Knowledge in this area was better among respondents who recently completed training school. 65.6% and 1.6% respectively knew about the impact of posture and the texture of food on the ability to swallow. Among the 103 nurses with experience of treating Hp, 68.0% considered clinical interview the best way to detect SD, and 30.1% did not give the patient advice in this area. In multivariate analysis, detection of SD was associated with good knowledge of the value of voice disorders (OR=3.5, 95% CI=1.4-8.1; p=0.005).

Conclusion: Few nurses had been warned of the connection between Hp and SD, which are classic issues and potential complications. Practices varied, but most were not in accord with what are recognized as good strategies for SD screening and management.

jeoffray.diendere@gmail.com

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An audit project on the prescription and monitoring of Orlistat (Xenical) in London general practice

Kalid Abdi Karim
King's College London, UK

Aims & Objectives: An audit to assess the adherence of General Practitioners (GPs) to national guidelines for the prescription and monitoring of Orlistat (Xenical)

Methods: All patients currently taking Orlistat for weight-loss at one general practice in London were included in this study. We determined whether or not, as per national guidelines, BMI was calculated before prescribing Orlistat; whether or not patients had their weight measured 12 weeks after they were prescribed Orlistat; if medication was discontinued if less than 5% weight-loss was seen after 3 months. We used audit and feedback to reinforce change. One change made was an alert added to the online system once a prescription of Orlistat was made to remind the doctor to measure the weight/BMI within 10-16weeks. A presentation was given to all GPs on the correct method of prescription and follow-up and a letter sent to all patients on Orlistat who did not meet the criteria or have failed a trial of 3 months detailing why their prescription should end.

Results: We found that in 2016, 14 out of a total of 15 patients were prescribed Orlistat for weight loss purposes. 92% of patients had their BMI checked before commencing Orlistat. 50% of patients had their weight measured 10-16 weeks after treatment commenced. Orlistat was continued in 86% of patients who did not lose 5%< body weight. Following the audit in 2016, 12 out of 15 patients on Orlistat had their treatment discontinued due to not fulfilling criteria. A re-audit in 2018 revealed 11 patients currently taking Orlistat. 100% of patients were weighed and had their BMI checked before prescribing whilst 78% had their weight measured between 10-16 weeks after commencing Orlistat. The percentage of patients taking Orlistat if <5% weight-loss was seen dropped to 47%.

Conclusions: There is a need to optimize the prescription and monitoring of Orlistat in general practice. Replicating audits such as this in surgeries across the UK will not only avoid exposing patients to unnecessary side effects but also result in considerable savings for GP practices if medication is properly reviewed as per the guidelines. This practice saved over £1,440 /year.

kalidkarim1@hotmail.co.uk

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Cesarean section in extremely obese parturients

Michael Stark
New European Surgical Academy, Germany

Obesity is associated with increased risk of adverse pregnancy outcomes. At the time where Cesarean section is the most frequent operation worldwide. Once in a while it is indicated for obese parturient and needless to say that obesity is associated with other maternal as well as fetal metabolic risks. There is a direct correlation between surgical steps and their influence on post-surgical pain. Therefore, every single step in each operation should be based on studies comparing different methods considering the outcome. Different surgeons perform operations with the same indication in different ways. The lack of standardization does not enable comparison and certainly not meta-analysis. This was the reason why we started to evaluate the outcome of single steps and their combinations on the post-operative pain as well as on the mobility and well-being of the parturient. Among our parturients were 19 women with BMI 38-41. The modified Joel-Cohen method proved not just to reduce febrile morbidity, but to have direct influence on post-operative pain. A direct correlation was found between the outcome of operations where the uterus was closed with one or two layers, closing peritoneum or leaving it open as well as the different suture material and the needles size. Amazingly it was shown that the higher the BMI, the less blood loss from the abdominal wall when using this technique and less stitches were needed to close the skin. There was no difference concerning febrile morbidity, mobility after the surgery or the use of analgesics compared to women with normal BMI. Without exception, scores of studies showed that following these steps the post-operative pain and the need for analgesics are significantly reduced.

mstark@nesacademy.org

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Central obesity is an independent risk factor of poor glycaemic control at Dr. George Mukhari Academic Hospital

Motetelo Alfred Mogale[1], **F Mosheshe**[2], **Olunkule Towobola**[2] and **Tsakani Stanford Mashele**[2]
[1]Department of Biochemistry, Sefako Makgatho Health Sciences University, South Africa
[2]Department of Internal Medicine, Sefako Makgatho Health Sciences University, South Africa

Background: Results of previous studies on the effect of anthropometric measures of obesity, some economic status variables and the presence of metabolic syndrome on glycaemic control are not consistent and appear to differ among health institutions. We investigated the status of glycemic control and some of its determinants among adult black patients with T2D at Dr George Mukhari Academic Hospital (DGMAH).

Method: A random sample of 176 adult black South African patients with T2DM attending the diabetic clinic at DGMAH was investigated in the current study. Fasting blood glucose, glycated Hemoglobin (HbA1c), lipid profile components levels as well as anthropometric measures of obesity were measured using standard measuring procedures for these variables. The presence of metabolic syndrome was assessed according to the International Diabetic Federation criteria. Information related to patient's socioeconomic status was collected by means of a structured questionnaire. Associations between these factors and poor glycemic control were assessed by means of binary and multivariate logistic analysis.

Results: Glycemic control was found to be very poor at DGMAH. only 16.6% of the study subjects achieved SEMDSA (2012) recommended target HbA1c value of less than 7.0%. Whereas binary logistic analysis revealed that the married status, matriculation, increase waist circumference and duration of diabetes > 5 years may lead to poor glycaemic control, multivariate logistic regression analysis indicated that only increased waist circumference was independently associated with poor glycaemic control at DGMAH.

Conclusions: Central obesity appears to be an independent risk factor for poor glycemic control among T2DM patients DGMAH.

alfred.mogale@smu.ac.za

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Effects of probiotics and synbiotic on lipid profiles in adults at risk of type 2 diabetes: A double-blind randomized controlled clinical trial

Nazila Kassaian[1], Awat Feizi[1], Ashraf Aminorroaya[1], Maryam Tajabadi Ebrahimi[2], Atsa Norouzi[1] and **Masoud Amini[1]**

[1]Isfahan University of Medical Sciences, Iran

[2]Islamic Azad University, Iran

Background: The use of probiotics and/or prebiotics as the effective means of regulating gut microbiota may have a beneficial effect on metabolic disorders.

Aims: This study was designed to assess the ability of probiotics and symbiotic to modify lipid profiles in subjects with prediabetes who are at risk of diabetes and cardiovascular diseases.

Methods: In a randomized double-blind placebo-controlled clinical trial, 120 pre-diabetic adults aged 35-70 years from the first degree family of type 2 diabetic patients were recruited and randomly equally assigned to consume 6 g/d either probiotics, or symbiotic or placebo supplements for 6 months. Food record, physical activity, anthropometric measures and lipid profiles were assessed repeatedly at baseline, and 3 and 6 month supplementation.

Results: Probiotics and symbiotic were effective in reduction of serum triglycerides after 6 months of intervention (SMD=-10.6 and -9.4 respectively). Compared with the placebo, symbiotic resulted in a significant reduction in serum triglyceride levels (mean±SD: -9.4±6.6 mg/dl vs. +13.2±6.8 mg/dl, p=0.02). Serum total-, LDL-, and HDL-cholesterol were unaffected by probiotic or symbiotic.

Conclusion: The results of this study demonstrated that supplementation with probiotic and especially symbiotic could decrease the concentration of triglyceride in pre-diabetic adults. This finding could warrant future studies to determine the therapeutic and preventive effects of these supplements in individuals at risk of diabetes and cardiovascular diseases.

nkassaian@gmail.com

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Stability of novel probiotics in fruit juices

Paramaporn Kerdsup[1], Malai Taweechotipatr[1] and **Kittipong Asatarakul[2]**

[1]Srinakharinwirot University, Thailand

[2]Chulalongkorn University, Thailand

Statement of the Problem: New probiotic products are globally growing and most companies attempt to own their specific strain. There were many probiotic strains isolated from several sources in Thailand. The use of these isolated strains to develop new alternative fruit-base product was a challenge pushing the novel probiotic to the commercial level.

Aim: This research aims to investigate the viability in fruit juices of three novel probiotic strains, *Lactobacillus paracasei* MSMC39-1, *Lactobacillus casei* MSMC39-3, and *Lactobacillus salivarius* MSMC120-2, which were isolated in Thailand. From the existing research, MSMC39-1 and MSMC39-3 were able to modulate immune system by decrease the TNF-α production and MSMC120-2 showed the ability to induce IL-12 which involving antitumor activity.

Methodology & Theoretical Orientation: The free probiotic cells (8 log CFU/ml) were inoculated into orange and guava juices and stored at 4^0C for 35 days. Encapsulation technique with alginate and chitosan was used to find the possibility to enhance cell survival. The viability of the target strain was assessed through MRS agar plate count method.

Findings: Free *L. casei* MSMC39-3 cells showed the best stability in orange and guava juices. Encapsulation technique could be used to increase viability of the cells significantly (p 0.05). The encapsulated *L. salivarius* MSMC120-2 showed the highest rate of survival in both fruit juice. The encapsulation had no effect on chemical and physical properties of the juices such as pH, total soluble solid and total phenolic of the juices (p>0.0) during storage.

Conclusion & Significance: Orange and guava juice could be used as carrier for alginate and chitosan encapsulated *L. salivarius* MSMC120-2. The storage time was up to 21 days at 4^0C with no change in the juice chemical and physical properties. This could be the new alternative fruit-base product containing antitumor probiotic that suit Asian people.

paramapornk@g.swu.ac.th

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Advanced glycation end products

Raquel Lima
Institute Kurz, Germany

Statement: Advanced glycation end-products (AGEs) are a complex group of molecules that have been found almost everywhere among tissues and organs of the human body and they come not only from an endogenous formation, but also from exogenous dietary exposure. Their concentration increases with age and a persistent exposure to elevated levels of endogenous and exogenous AGEs are thought to contribute to the pathogenesis and progression of a variety of chronic conditions, including type 1 diabetes, type 2 diabetes, neurodegenerative conditions, allergy, nonalcoholic steatohepatitis, asthma, inflammatory bowel disease, renal disease, and certain cancers. The human body has evolved a number of detoxification systems to reduce the burden associated with AGEs and their dicarbonyl precursors. Besides, limiting the dietary intake of foods that have undergone browning by the application of intense heat, particularly food and beverages containing high levels of protein or carbohydrate derived from simple sugars, would significantly reduce AGEs consumption. By considering the diverse pathways leading to AGEs formation, there are also molecular strategies for the inhibition of their formation like the following: antioxidants, metal ion chelators and compounds able to quench reactive carbonyl species (RCS) which act as AGEs. Another strategy to lessen the accumulation and to provide protection against the *in vivo* formation of AGEs is to use nutraceuticals that contain active ingredients derived from foods (e.g., vitamins, amino acids, antioxidants). Combination therapies that simultaneously target multiple pathways may be more successful than those that modify a single pathway.

r.lima@institut_kurz.de
raquel@nutralima.com

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Malnutrition and micronutrient deficiencies in Pakistan-a reappraisal of the challenges and opportunities

Saeed Akhtar
Bahauddin Zakariya University, Pakistan

Malnutrition paradoxically distresses a substantial population fraction in Pakistan. Reportedly, one third of the children under five-year age have been suffering from nutritional deficiencies. Present review aims to centralize the magnitude of the prevalence of malnutrition and micronutrients deficiencies (MND), associated health and economic losses, determinants for massive nutritional issues and plausible solutions such as micronutrients fortification and supplementation being viable and pragmatic approaches to subdue stunting, wasting, underweight, low birth weight, decreased cognitive performance, frequent infections, anemia, goiter, pregnancy and common health compilations. Data pertaining to the prevalence of MND and malnutrition in Pakistan were electronically searched from databases with relevant key words. A total of 96 full text papers were downloaded and 86 were selected on the basis of their relevance to evaluate the level of prevalence of MND and malnutrition amongst all population tiers especially children <5 years. The results showed that MND and malnutrition extensively prevailed in Pakistani communities with children under the age of five years and pregnant women being more vulnerable population fractions. In the face of many cost-effective approaches including salt iodization, iron and zinc fortification of wheat flour, vitamin A fortification of fats and oils and supplementation of vitamin A drops among infants, no significant reduction in MND has yet been achieved in Pakistan. Global efforts to initiate integrated plans, compelling advocacy, resolute moves and political commitment are needed to underpin the existing nutritional ecology and landscape in Pakistan.

saeedakhtar@bzu.edu.pk

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Value-added of defected banana chips into syrup using pectinase

Teerarat Itthisoponkul
Srinakharinwirot University, Thailand

Banana has earned great importance in human nutrition due to rich content of essential nutrients, utilization and processing of banana is continuously increasing. Disposal of defected banana chips during the processing is leading to environmental problems and high cost of investment. Thus, there is an interesting way to convert defected banana chips into value-added product. The objective of this work is to produce syrup from defected vacuum dried banana. Effect of pectinase concentration (0.05-0.3%) and dried banana pulp to water ratio (1:1, 1:2, 1:3) on yield and properties of extracted banana juice were investigated. It was observed that pectinase was more effective in increasing the yield of juice extraction, while time of extraction did not significantly increase the yield of juice. When pectinase was used the maximum yield of 74% was obtained compared to 43% in the control. The suitable conditions for banana syrup were: 0.05% v/w pectinase concentration, ratio of vacuum dried banana pulp to water is 1:2, incubation temperature at ambient condition for 60 min, and then concentrated the banana juice under vacuum condition to obtain at least 65 oBrix of syrup. Banana syrup are mainly composed of fructose (35%) and glucose (24%), while the vitamins and minerals such as calcium, sodium, vitamin A, vitamin B as iron were found as minor components. The total phenolic content of banana syrup was presented, and it may contribute towards the antioxidant activity of this syrup. Conditions from laboratory work were applied to process banana syrup in large scale plant. Results showed that chemical composition of banana syrup obtained from large scale production is comparable with sample produced in lab scale. The disqualified banana chips which were discarded from dried banana processing could be developed as value-added banana syrup in large scale production.

teerarat@g.swu.ac.th