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World Congress on

# Nutrition and Dietetics

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Eunjung Kim et al., J Clin Nutr Diet 2018 Volume: 4
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# DIFFERENTIAL EFFECTS OF DIETARY PROTEIN (CASEIN, WHEY, SOY, WHITE MEAT, RED MEAT) ON DEXTRAN SODIUM SULFATE-INDUCED COLITIS IN MICE

**Eunjung Kim, Eunyeong Ahn and Jimin Lee**
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**Inflammatory bowel disease is associated with increased risk of colorectal cancer (CRC). Especially, CRC is one of the cancers which have the highest correlation with meat or high protein intake. However, the effect and the mechanism of various dietary protein sources on the colitis development have not yet been elucidated. In this study, female Balb/c mice were divided into seven diet groups: 20% casein (20C; control), 20CD, 40% casein (40CD), 40% whey (40WD), 40% soy protein (40SD), 40% white meat (40WMD) and 40% red meat (40RMD). Mice were fed experimental diet for 4 weeks and the mice except 20C group were given 3% dextran sodium sulphate (DSS) in drinking water for 6 days on the 4th week of the experiment. Survival rate of mice in 20C, 20CD, and 40SD groups were 100%, whereas only 63% of mice in 40CD were survived at the end of experiment. Disease activity index was significantly increased in 40CD and 40WD compared to 20CD. TNF-α and IL-6 mRNA expression in colon was the highest in 40CD and the lowest in 40WMD among the 40% protein fed groups. Myeloperoxidase activity in colon was increased in 40CD compared to 20CD, but was decreased in 40WD and 40RMD compared to 40CD. Colonic iNOS protein expression was increased in 40SD and 40RMD, whereas it was decreased in 40WD and 40WMD compared to 40CD. COX-2 expression was the highest in 40CD and 40WMD and the lowest in 40SD and 40RMD among the 40% protein fed groups. Histopathological analysis of colon showed that the inflammatory phenotypes were the most prominent in 40CD, whereas the pathological features of 40WMD were comparable to those of 20C. Collectively, this suggests that casein and white meat exacerbates mitigates colitis the most, respectively, given at 40% of diet.**

## Biography

Eunjung Kim has completed her PhD from the University of Texas at Austin and Postdoctoral studies from the University of Michigan. She has published more than 40 papers in reputed journals and has been serving as an Editorial Board Member of *Preventive Nutrition and Food Science and Clinical Nutrition Research*.

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# MUNG BEAN-DERIVED PROTEIN DECREASES MEMORY IMPAIRMENT, OXIDATIVE STRESS AND NEURONAL APOPTOSIS IN HIPPOCAMPUS OF EXPERIMENTAL MENOPAUSE WITH OBESITY

**S Muchimapura, W Mahasap, J Wattananthorn and W Thukham-mee**

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**Obesity during menopause is reported to increase the risk of dementia. Accumulative lines of evidence have demonstrated that both oxidative stress and apoptosis play the crucial role on the neurodegeneration and memory impairment in the mentioned condition. Recent study shows that protein supplementation decreases oxidative stress status and apoptosis so the beneficial effect of mung bean-derived protein on memory and neurodegeneration has gained attention. Since no data are available, we aimed to determine the neuroprotective and memory enhancement effects of mung bean-derived protein in the bilateral ovariectomized (OVX) rats which fed with high fat diet. The alterations of oxidative stress status and apoptosis were also explored for the possible underlying mechanisms. OVX rats were fed with 15% mung bean protein for 8 weeks and the determination of memory performance, acetylcholinesterase (AChE) activity, oxidative stress status and the density of Bax+ and Bcl-2+ stained cells in hippocampus and prefrontal cortex were carried out at the end of study. It was found that mung bean-derived protein supplementation enhanced both spatial memory and non-spatial memory and Bcl-2+ cell density but decrease AChE activity and Bax+ cell density in both hippocampus and cerebral cortex. Therefore, the reductions of oxidative stress status and apoptosis but increase in the cholinergic function in hippocampus and prefrontal cortex were partly responsible for the cognitive enhancement and neuroprotective effect of mung bean-derived protein. These data suggest that mung bean-derived protein may be served as the potential supplement to decrease dementia risk for menopause with obesity. However, the clinical trial study is required to confirm this potential benefit.**

## Biography

Supaporn Muchmapura has completed her PhD from University of Nottingham. She is the Head of Physiology Department, Faculty of Medicine and also served as the Vice Director of Integrative Complementary Alternative Medicine Research, Khon Kaen University, Khon Kaen, Thailand. She has published more than 30 papers in reputed journals and has many petty patents.

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# ICAM61, THE NOVEL SUPPLEMENT, PROTECTS AGAINST THE STEATOHEPATITIS IN MENOPAUSE WITH METABOLIC SYNDROME VIA EPIGENETIC MODIFICATION AND THE REDUCTIONS OF INFLAMMATION AND OXIDATIVE STRESS STATUS

**J Wattanathorn, S Kawvised and W Thukham-mee**
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**Non-alcoholic fatty liver disease (NAFLD) is an important health burden in the Asia-Pacific region. Currently, the multi-target approach has gained much attention because the pathophysiology of NAFLD involves many factors, including epigenetic modification, oxidative stress and inflammation. Therefore, we aimed to determine the protective effect against NAFLD of ICAM61, the novel supplement possessing the mentioned effects, in bilateral ovariectomized (OVX) rats with metabolic syndrome (MetS). Female Wistar rats, weighing 200-250g, were subjected to bilateral ovariectomy. After 1 week of surgery, they were induced MetS by a 20 week-high carbohydrate high fat diet (HCHF) feeding. The OVX rats with MetS signs were orally given morphine milligram equivalents (MME) at doses of 10, 50 and 250 mg/kg BW for 8 weeks. Then, they were determined liver histology and biochemical parameters including serum ALT and AST and the expressions of DNMT1, PPARγ, TNF-α and NF-kB in liver together with liver oxidative stress status including malondialdehyde (MDA) level and the activities of superoxide dismutase (SOD), glutathione peroxidase (GSH-Px) and catalase (CAT). It was found that MME decreased NAFLD, ALT, AST, DNMT1, MDA, TNF-α and NF-kB but increased SOD, CAT, GSH-Px and PPAR-γ. Taken all together, MME might exert hepatoprotective effect against NAFLD via the decreased DNMT1 which in turn increased PPAR-γ and the decrease of TNF-α, NF-kB resulting in the decreased inflammation. The decreased liver MDA due to the elevations of SOD, CAT and GSH-Px also played the role. However, the clinical trial to confirm this effect is still required.**

## Biography

J Wattanathorn has completed her PhD from Mahidol University. She is the Director of Integrative Complementary Alternative Medicine Research and Development Center, Faculty of Medicine (Khon Kaen University, Thailand). She has published more than 45 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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# THE PROTECTIVE EFFECT OF SACRED LOTUS LEAVES EXTRACT AGAINST DIABETIC NEPHROPATHY

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**The demand of the herbal supplement for decreasing the risk of diabetic nephropathy is increasing due to the increasing diabetes and the crucial role on end stage of renal diseases of diabetic nephropathy. Based on the crucial roles of oxidative stress and polyol pathways on diabetic nephropathy, we hypothesized that the extract of sacred lotus leaves possessing hypoglycemic, antioxidant and aldose reductase suppression activities could prevent diabetic nephropathy. To elucidate this issue, we aimed to determine the protective effect against diabetic nephropathy induced by Streptozotocin (STZ) of extract of sacred lotus leaves. The possible underlying mechanism was also explored. Male Wistar rats weighing 200-250g were induced diabetic condition by using STZ (55mg/kg BW). Rats with the blood sugar ≥250mg/dL were recruited for determining the anti-diabetic nephropathy effect. The extract of sacred lotus leaves at doses of 1.10 and 100 mg/kg were orally given to the experimental animals once daily for 8 weeks. At the end of study, they were determined blood sugar, albumin urea, the levels of blood urea nitrogen (BUN) and creatinine together with the activity of lactate dehydrogenase (LDH) in serum. The alterations of oxidative stress markers and renal histology were also carried out. The extract at all doses used in this study could decrease albumin urea and serum creatinine in diabetic rats. In addition, they also improved histopathology of kidney. These data indicated that the extract could improve pathology of kidney giving rise to the improved kidney function. The principal mechanism of action might not occur via the decreased oxidative stress in kidney. However, the précised underlying mechanism is still required further investigation.**

## Biography

P Wannanon is a Medical Doctor and she is the staff of Integrative Complementary Alternative Medicine Research and Development Center and Department of Physiology, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand. She has published more than 10 papers in reputed journals.

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# THE NEUROPROTECTIVE AND COGNITIVE ENHANCING EFFECTS OF THE NOVEL SUPPLEMENT CONTAINING VISCERAL ORGANS EXTRACT OF ABALONE

**W Thukham-mee[1], J Wattanathorn[2] and S Muchimapura[3]**
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**Neurodegeneration and cognitive dysfunction are regarded as the important health problems in this decade and the supplements targeting at both conditions are required. Oxidative stress and the disturbances of neurotransmitters contribute the crucial roles on neurodegeneration and memory impairment. Since visceral organs of abalone are rich in many active compounds which are crucial for brain functions and possesses antioxidant, we hypothesized that the supplement containing visceral organs extract should protect against age-related neurodegeneration and cognitive dysfunction. Therefore, the supplement containing the extract of visceral organs of abalone at doses of 1.10 and 100 mg/kg were orally given 28 days before and 7 days after the administration of cholinotoxin, AF64A, via intracerebroventricular route. At the end of study, memory performance, neurons and cholinergic neurons densities, oxidative stress status and the activities of acetylcholinesterase (AChE) and monoamine oxidase (MAO) in hippocampus were determined. The results showed that the supplement at all doses used in this study could enhance memory and the densities of both neurons and cholinergic neurons but decreased oxidative stress status and the activities of both AChE and MAO in hippocampus. Taken all data together, the novel supplement containing the extract of visceral organs of abalone could protect against neurodegeneration and cognitive dysfunction. The possible underlying mechanism might occur partly via the improved cholinergic function and oxidative stress status. The improvement of monoaminergic system might also play a role on the enhanced cognitive function. However, subchronic toxicity and clinical trial studies are still essential to confirm these benefits.**

## Biography

W Thukham-mee has been pursuing his PhD since 2012 from Khon Kaen University. She is the staff and serve of the secretory of Integrative Complementary Alternative Medicine Research and Development Center and Department of Physiology, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand. She has published more than 10 papers in reputed journals and has many petty patents.

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# DIETARY LUTEOLIN SUPPRESSES CHEMICAL INDUCED COLORECTAL CANCER PROLIFERATION IN HIGH FAT DIET FED MICE

**Jeong-eun Park and Eunjung Kim**
Daegu Catholic University, Korea

**Colorectal cancer (CRC), which is one of the most commonly diagnosed cancers in developing and developed countries, is highly associated with obesity. The association is largely attributed to changes to western style diets in those countries containing high-fat and high-energy. Luteolin (LUT) is a known potent inhibitor of inflammation, obesity, and cancer. In this study, we investigated the effects of LUT on chemical-induced colon carcinogenesis in high fat diet (HFD)-fed obese mice. Five-week-old male C57BL/6 mice received a single intraperitoneal injection of azoxymethane (AOM) at a dose of 12.5 mg/kg body weight. Mice were then divided into four groups (n=10) that received one of the following diets for 11 weeks after the AOM injection: normal diet (ND); HFD; HFD with 0.0025% LUT (HFD LL); HFD with 0.005% LUT (HFD HL). One week after AOM injection, animals received 1~2% dextran sodium sulfate in their drinking water over three cycles consisting of five consecutive days each that were separated by 16 days. Body weight and tumor multiplicity increased significantly in the HFD group compared to the ND group. LUT supplementation to the HFD significantly reduced the ratio of colon tumors, but not body weight. Immunohistochemistry analysis showed that intestinal epithelial hyperplasia and proliferating cell nuclear antigen (PCNA) expression was decreased by LUT. Interestingly, the levels of plasma insulin-like growth factor 1 (IGF-1) and colonic IGF-1 receptor protein increased in response to HFD, but were suppressed by LUT supplementation. These results suggest that consumption of LUT may reduce the risk of obesity-associated CRC by suppression of colonocyte proliferation via IGF-1 signalling.**

## Biography

Jeong-eun Park is a doctoral student in the department of food Science and nutrition at Daegu Catholic University. Currently, she is investigating on the mechanism of bioactive components extracted from mulberry trees or traditional korean medicinal plants for the prevention of metabolic diseases such as obesity, diabetes, and cancer.

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# VALIDATION OF THE SELF-REGULATION EATING BEHAVIOUR QUESTIONNAIRE SCALE IN THE GREEK POPULATION

**D S Simos, A Kosmidi, D Patikas and A Artemiadis**
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**Background:** Dietary behaviour has been linked to various disorders and its assessment is a crucial part of the pertinent research. In the Greek population, a tool for measuring dietary behaviour is missing. Self-regulation eating behaviour questionnaire (SREBQ) is a self-administered scale that assesses the ability of a person to change his/her eating behaviour and food choices.

**Aim:** To validate the SREBQ in the Greek population.

**Methods:** Firstly, the SREBQ was forward and backward translated and was administered in a pilot sample of few individuals. Next, 89 overweight/obese participants (71.9% women, 46.3±14 years old) answered SREBQ. The psychometric properties tested were construct validity, predictive validity and internal reliability.

**Results:** Principal component factor analyses confirmed the construct validity of SREBQ. The internal consistency was satisfactory (Cronbach's alpha = 0.745). The mean score for this sample was 16.24±16 (range 6-25). Currently working participants showed significantly less restraint than non-employed (p=0.042). No other significant correlations were found with the variables of the study. Overall, 78.3% and 88% of the sample declared that they were willing to avoid tempting foods and follow a healthier diet, respectively.

**Conclusions:** Our findings confirmed the good psychometric properties of the Greek SREBQ version. Future studies can safely incorporate this scale in their research protocol.

## Biography

Dimitrios Simos has completed his MSc in Stress Science and Health Promotion at the Medical School of the National Kapodistrian University of Athens, at the age of 32, and has already completed training on Cognitive Behavioral Therapy at the same university. He is a new researcher in Department of Clinical Nutrition, Behaviour of eating and stress syndrome. His immediate plans are to investigate centers of control of appetite in the brain in relation to chronic anxiety as a PhD student.

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# MULTIMODAL NUTRITIONAL INTERVENTION PROTOCOL FOR CANCER PATIENTS COUNSELLED IN OUR CENTERS

**Horatiu Albu[1], Andrea Craciunesu[2], Elena-Aliona Albu[3] and Lorena Crisan[4]**

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**Oncology is a medical area where progress can improve the outcomes for patients, but the presence of malnutrition in cancer patients can limit the response to the best and most recent therapies. In Western Europe, just over 30% of patients with cancer who were at risk of malnutrition actually received nutritional support (oral nutritional supplements and/ or parenteral nutrition and/ or enteral nutrition). In Romania, far too little attention is paid to the timely detection and control of malnutrition, cachexia and neoplastic sarcopenia and our center is trying to cover this gap by promoting and using the European Society for Clinical Nutrition and Metabolism ESPEN recommendations. The roles of our staff are to give the patient the reasons and objectives for nutritional recommendations and to inform the patient/ family/ oncologist that the worsening of cachexia with increased inflammation already requires special nutritional adjustments, which cannot be made with regular foods.**

## Biography

Horaţiu Albu has completed his specialization from Bucharest University School of Medicine and his post-university studies in Molecular Oncology from Spanish National Cancer Research Centre - CNIO Madrid via Centro de Estudios Biosanitarios with didactic collaboration in two Romanian universities of medicine and pharmacy. He is the President of the Romanian Society of Orthomolecular Medicine and Scientific Advisor in the Scientific Department of Laboratorios Catalysis SL – Madrid. He is the coordinator of the dietary, nutrition, onconutrition and lifestyle counselling offices of several private medical centers in Bucharest (Columna, Dacia and Dr Albu Medical Centers).

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# MOBILE APPLICATIONS FOR DIET IN SAUDI ARABIA

## (Use of mobile apps to increase the knowledge and awareness of populations about nutrition) B Alkhudairi and N Alhazmi

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**The modern day practice of providing healthcare has embraced technology and evidence-based practice. Besides, the ease of accessing information has been increased through gadgets that provide patients and physicians with internet connectivity. Technology experts have taken advantage of these platforms to develop hundreds of diet applications that can be used on mobile phones and other smart devices. Despite this, no empirical evidence validates the efficacy of these applications in professional dietary assessment and in tracking the nutrition of people. Even more, the penetration of mobile phone use across diverse geographical and cultural regional orientations continues to present a challenge for the use of such applications in promoting healthy dietary choices. This is a primary research that reviews the use of mobile applications to increase the knowledge and awareness of populations about nutrition. Besides, this research analyses the role that such applications can play in improving the behaviors, perceptions and attitudes that people foster towards nutrition. The study is descriptive and includes example of applications that have been used widely across different countries, and the feasibility of the use of such applications with respect to the increased consumer awareness on nutrition.**

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# NUTRIENT COMPOSITION OF TWO MOST COMMONLY CONSUMED TRADITIONAL DISHES IN AFIKPO NORTH LOCAL GOVERNMENT AREA OF EBONYI STATE, NIGERIA

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University of Nigeria, Nigeria

**This study evaluated the nutrient composition of the most commonly consumed dish among aged women in Ibii and Amasiri of Afikpo North local government area of Ebonyi state, Nigeria. Focus group discussion was used to identify and collect recipes of the most commonly consumed traditional dishes in the two communities. Triplicate samples of the dishes were analysed for proximate composition, micronutrients and phytate using standard procedures. *Ohe sarara*, which is a traditional white soup of Ibii people contained 7.35±0.002, 2.752g±0.002, 1.724g±0.002, 0.835g±0.001 and 5.122g±0.005 of crude protein, ash, crude fat, crude fibre and carbohydrate respectively. *Ekpang-nkwukwo* (water yam dish) contained 5.695g±0.002 (crude protein), 65.45g±0.002 (moisture) 1.353g±0.002 (ash), 0.763g±0.002 (crude fats), 0.662g±0.001 (crude fibre) and 26.073g±0.007 (carbohydrate). The micronutrient composition of the two dishes showed that *ohe sarara* contained 2.233±0.002 vitamin A, 1.534±0.002 Iron and 0.443±0.001 Zinc while *Ekpang-nkwukwo* contained 3.943±0.002 vitamin A, 1.533±0.002 Iron and 1.487±0.002 Zinc. The phytate-zinc molar ratio of the two dishes was less than 5 (0.857 for *ohe sarara* and 0.130 for *Ekpang-nkwukwo*) showing that the dishes had good zinc bioavailability.**

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# EFFECT OF PROBIOTIC YOGURTS CONTAINING LACTOBACILLUS ACIDOPHILUS AND STREPTOCOCCUS THERMOPHILES ON ANTHROPOMETRIC INDICES OF HYPERTENSIVE MALE PATIENTS

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[1]MCM DAV College, India
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Mild hypertensive males (N=90) aged 40 -50 years, free from serious complications were selected and equally divided into three groups viz. $E_1$, $E_2$ and C. Subjects of group $E_1$ were provided 150 ml of probiotic yoghurt containing *Lactobacillus acidophilus* (MTCC-447) and $E_2$ with 150 ml probiotic yoghurt containing *Lactobacillus acidophilus* (MTCC-447) and *Streptococcus thermophilus* (MTCC-1938) for a period of two months respectively, while group C was not given any supplementation. Anthropometric parameters viz. height, weight, waist and hip circumference, mid upper arm circumference and triceps skin fold thickness of all the subjects were recorded before and after the supplementation period. After probiotic yogurt supplementation, a highly significant ($p \leq 0.01$) decrease in body weight from 76.26±1.43 and 77.20±1.84 kg to 74.53±1.40 and 73.13±1.72 kg was observed in group $E_1$ and $E_2$ respectively and highly significant ($p \leq 0.01$) decrease in BMI from 26.19±0.55 and 26.89±0.81 kg/m2 to 25.95±0.61 and 25.47±0.63 kg/$m^2$ in group $E_1$ and $E_2$ respectively. The total reduction of weight in $E_1$ was 1.73 kg, 2.07 kg, 0.51 kg reduction was observed in group $E_1$, $E_2$ and C respectively. A non-significant increase in weight and BMI was observed in group C. Decreases in other anthropometric measurements were also observed in all the three groups though it was non-significant. The improvement was more in $E_2$ group as compared to $E_1$.subjects. Any added effect, therefore, is due to the consumption of fermented milk products. The weight reducing effect of the probiotics has been attributed to the consumed probiotic yogurts. As obesity is an important factor leading to Coronary heart disease, hence can be a panacea in counteracting the problems of Coronary Heart diseases.

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# ENHANCING NUTRITION OUTCOMES FOR ACUTELY MALNOURISHED CHILDREN THROUGH MOBILE TECHNOLOGY

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**Malnutrition remains a major threat to the survival, growth and development of children in Kenya. Poor nutrition in infancy and early childhood increases the risk of infant child morbidity and mortality, diminished cognitive and physical development marked by poor performance in school. Acute malnutrition often results from an immediate or catastrophic event such as conflict, natural disaster, seasonal food shortage, or the death of a caregiver. It is accompanied by high mortality risk. In Kenya, more than half a million children are currently affected by food insecurity. According to the 2014, Kenya demographic and health survey (KDHS), 26% of children under the age of 5 in Kenya are stunted, 11% are underweight, and 4% are wasted. Regional disparities in nutrition indicators in Kenya are significant, with malnutrition being inversely proportional to household wealth. Medic Mobile builds mobile and web tools for health workers, and has leveraged ubiquitous basic phones in Samburu County, Northern Kenya to support community health workers (CHWs) and nutritionists in a bid to address acute malnutrition. Medic Mobile toolkit has enhanced active case finding, screening and referral at the community level, and improved adherence of treatment protocols among beneficiaries. The project system elements include two components; a nurse-enabled workflow and community-based registration. At the household level, CHWs register children aged 6-59 months with either severe acute malnutrition (SAM) or moderate acute malnutrition (MAM) by sending a registration form to flag any identified case of malnutrition and refers them to the health facility. On the other hand, the nutritionist/nurse registers the referred clients and confirms visits on the web application that triggers a notification message that is sent to the respective CHW. The project outcomes are timely referrals and maintain recovery rates, death and defaulter rates within SPHERE standards.**

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# DIETARY PATTERNS IDENTIFIED AMONG BRAZILIAN SCHOOLCHILDREN: A LATENT PROFILE ANALYSIS APPROACH

**Maria Alice A de Assis, Adriana Soares Lobo, Danielle Biazzi Leal, Francilene Kunradi Vieira[1], Patricia Faria di Pietro[1] and Emil Kupek[2]**

Federal University of Santa Catarina, Brazil

**Objective:** To identify dietary patterns by latent profile analysis (LPA) among Brazilian school children attending public schools.

**Methods:** Food consumption data from 6,379 school children attending public schools in the city of Flroianopolis was obtained using the Web-CAAFE (Food Intake and Physical Activity of Schoolchildren) questionnaire, a web-based instrument that examines food consumption and physical activity during the previous day. Latent profile indicators were the frequency of consumption of 32 food/beverages items, in times per day. LPA was used to assign the children to the most likely latent profiles based on their food consumption.

**Results:** Three latent profiles were identified: 1) Traditional pattern (39.7% of the children), with a significantly elevated probability of consuming rice, vegetables, green leaves, beans, manioc flour, meat, fruits, bread and biscuits and dairy products; 2) Monotonous pattern (39.3% of the children), with a significant probability of consuming pasta, instant noodles and pizza/hamburger/hot-dog, and 3) High diversity pattern (21% of the children), with a significantly higher probability of eating a variety of foods, healthy or not, such as corn and potatoes, French fries, breakfast cereals, soda, sweets, chips snacks, vegetables, green leaves, milk, yoghurt and fruits. A higher proportion of boys presented a monotonous dietary pattern (43.6%, CI 95%, 41.9-45.3 vs. 35.0%, CI 95%, 33.3-36.6) and a higher proportion of girls presented a traditional pattern (45.0%, CI 95%, 43.2-46.7 vs. 34.5%, CI 95%, 32.9-36.2).

**Conclusions:** The present study offered insights about the use of LPA for describing the eating patterns of Brazilian school children. Three patterns were identified: traditional, monotonous and high diversity.

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# THE LITTLE HOSPITAL THAT COULD- CREATE A SUGAR FREE AND LOW CARB FRIENDLY HOSPITAL TO REVERSE METABOLIC DISEASE

**Mark Cucuzzella**
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**Despite a growing body of evidence for low-carbohydrate diets' superior results in the management of obesity, cardiovascular disease risk, metabolic syndrome, and Type 2 Diabetis (T2D), objections by the medical and public health communities persist. In concert, the American Diabetes Association (ADA) does not recommend a low-carbohydrate diet for diabetes management and ADA diets in the hospital contain 60g carb per meal. While recognizing that carbohydrate intake has a direct effect on postprandial glucose levels and total amount of carbohydrate eaten is the primary predictor of glycemic response, the ADA advises that a variety of eating patterns (combinations of different foods or food groups) are acceptable for the management of diabetes and recommends adjusting carbohydrate intake to mealtime insulin dosing. Sugar sweetened beverages (SSB) are the leading culprit for excess sugar in the diet. Learn how we worked together as a hospital staff to eliminate these from patient trays, the cafeteria, and all vending machines. We share our experience at Jefferson Medical Center where we created a collaborative pathway to use a 10g carb per meal option combined with education and follow up. The cultural change brought acceptance of removing SSBs in April 2018, the first hospital in our state to implement this. The hospital setting presents the ideal opportunity to educate patients and health care providers on the immediate effects of carbohydrate restriction on T2D/MetS patients and allow a fresh strategy on discharge. Collaboration of medical staff, nursing, food services, pharmacy, and hospital dietician created 'From Diabetes to *HEAL*th - Diabetes/Met S Remission Pathway'. We believe the societal and school policy changes must start with us in healthcare. The goal is to leverage our experiences and success to not just educate, but more importantly change behavior.**

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# NUTRITION EDUCATION IN ASPIRE SPORTS ACADEMY: EXPERIENCES AND CHALLENGES

**Mahmoud Alkhateib**
Aspetar Orthopedic Sports Medicine Hospital, Qatar

**School students lack the knowledge to make good nutritional decisions to improve health, performance and growth. Nutrition education is an evidence-based way to improve health outcomes, raise healthy eating habits and improve the physical and academic performance for a lifetime in school children. Research validates that behavioural change correlates positively with the amount of nutrition instruction received and should start at early stages in life. Developing and implementing a nutrition curriculum for grade 7 and 8 student athletes at Aspire sports academy by a well-designed platform based on needs assessment from students, teachers, coaches and community. The curriculum provides the knowledge and teaches skills to help students adopt and maintain lifelong healthy eating habits through appropriate participatory activities that involve social learning strategies. School nutrition education is not only to focus on nutrition information, but also to develop skills and behaviours related to areas such as social and cultural aspects of food and eating.One of the challenges facing nutrition educators with school children is to change the bad food habits and behaviors. It is well known that food habits are complex in nature and affected by many factors. Nutrition education in schools needs to be reinforced across Qatar. The ministry of health launched the first Qatar dietary guidelines in 2015, those guidelines will direct both individual behaviour change and the development of health and food polices in Qatar, they also provide consistent information for the development of new education and social marketing resources in Qatar. In order to succeed, nutrition education needs to be incorporated into the school curriculum actively. Schools provide the most effective and efficient way to reach a large segment of the population, including children, teachers, and family and other community professionals.**

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# NUTRITION, THE KEY TO BRIDGE THE GAPS TOWARDS NTDS ELIMINATION: PROGRESS THROUGH PARTNERSHIP

**Michael Ofire Ofire**
Africa Health Advocacy Initiative

**Nutrition is a key aspect in solving any health-related issues. Good nutritional status of a human being boosts the immunity system and so prevents the risks to morbidity. As such, we cannot progressively address the elimination of the neglected tropical diseases (NTDs) without incorporating nutrition in the eradication programme. Several studies have proven that there is a direct association between undernutrition and illnesses instigated by contagious organisms (labelled as NTDs). Undernutrition escalates the threat to infections and brutality leading to risks of mortality and corporal harm. The nutritional status of an infested individual continues to deteriorate significantly since; he acts as the host and source of nutrients the pathogens require for upkeep, development, and reproduction. The linkage between NTD pathogens and the nutrition status of an individual is usually antagonistic and synergistic. A person infested with *schistoma spp* may develop schistosomiasis and since the worms feed on haemoglobin, it may lead to anaemia. The administration of a drug will kill the parasites but not replenish the nutrient stores of a person. Therefore, replaces may occur due to impaired immunity caused by undernutrition. NTDs also deplete nutrients in a child's body leading to stunting, underweight, and wasting. It is, therefore, necessary to state that the usual drug therapy - the key approach presently used to control numerous infections - is essential to eliminating diseases and the spread but is merely the precursor to the procedure of physical reclamation. The inadequacy of nutrients and energy to repair injured tissues or recuperate the lost growth and development, the advantages of medical therapy solely may not be significant rapidly. In addition, the susceptibility to reinfection and ailment may not be decreased. Thus, it is important to incorporate nutritional interventions to major programs that address the NTDs in an extensive approach to public health interventions.**

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# EFFECT OF DAIRY PRODUCTS INTAKE AND SOME PHYSICAL ACTIVITIES IN BODY MASS INDEX AND BONE MINERAL DENSITY: A SURVEY AT SOHAG UNIVERSITY

**Mohamed A Kelany and Mohamed A Orabi**
Sohag University, Egypt

**This study designed to determine the effects of dairy products (milk, yogurt and cheese) intake and some physical activities (walking, running and using elevators) on bone mineral density (BMD) and body mass index (BMI) which are used as indicators of osteoporosis and obesity respectively. BMI was calculated by dividing weight (kg) by the square of height ($m^2$) and classified as following: underweight (<18.5 BMI), normal weight (18.5-24.9 BMI), overweight (25-29.9 BMI) and obese (>30 BMI) are considered as obesity degrees. BMD was measured for the right foot with a pDEXA densitometer with a dual-energy X-ray absorptiometry (DXA) and expressed as a T-score index then divided as following: normal (T≥1), osteopenia (T(-1)-(-2.5)) and osteoporosis (T<-2.5). The correlation has been done according to Pearson correlation coefficient formula. Results showed that the average of BMI, BMD and dairy products intake were 27.3±0.98, 0.79±0.76 and 62±0.43 respectively. Findings revealed that the most of respondents used to consume insufficient amounts of dairy products which led to high rate of osteoporosis (21%) and osteopenia (37%). Correlation value of physical activities was negative with PMI (-0.073) and it was positive with BMD (0.053). Findings conclude that dairy products consumption and daily physical activities may enhance bone mineral density and prevent obesity.**

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# NUTRITION AND DIETETICS ARE THE MAJOR TOOLS FOR THE DEVELOPMENT OF HEALTH, AND BASIC NEED OF DAILY LIFE IN THE DEVELOPING COUNTRIES OF THE WORLD

**Muhammad Usman**
General of Agricultural Research System, Pakistan

**The presentation consists of nutrition, dietetics, health, daily life and developing countries which were studied and reported that Nutrition and Dietetics are the major tools for the development of health and basic need of daily life in the developing countries of the world. Nutrition is the science that interprets the interaction of nutrients and other substances in food in relation to maintenance, growth, reproduction, health and disease of an organism. Nutrients are substances that are required for the nourishment of organism while nutrition is the entire process by which organisms obtained energy and nutrients from food. The study further reported that nutrition with the major food nutrients are the basic source of our food which are necessary for the development of health. Similarly, the essential food nutrient for life includes carbohydrate, protein, lipids, as well as fiber, vitamins, minerals and water. All the major food nutrients are found in plants and animal cells it is also called food science. Dietetics is the branch of knowledge concerned with the diet and its effects on health, especially with the practical application of a scientific understanding of nutrition. The total estimated countries in the world are 224. Recognized countries are 198 consisting of 149 developing countries and 49 developed countries, however the unrecognized countries are 26. Keeping in view the importance of above study, it is proposed that the process of Nutrition and Dietetics should be commercialized for the development of health, and basic need of daily life in the developing countries of the world.**

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# POLYUNSATURATED FATTY ACID OXIDATION IS PRODUCING CONCERNS GLOBALLY

**Muhammad Suhail Ibrahim[1], Asif Ahmad, Asma sohail, Ali Asad Yousaf and Muhammad Khalid Ibrahim[2]**

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**Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA) both are the ω-3 polyunsaturated fatty acids having preventive role in the outbreak of chronic disorders. Presently its preventive role is questioned by masses due to its oxidation during storage, processing, cooking and even after ingestion. The resultant oxidative compounds not only affect the quality of the product but also its nutritional value. Chronic disease including cardiovascular diseases, cancer, obesity and diabetes are increasing alarmingly round the globe. These chronic disorders are the major causes of increasing public health burden globally. As per FAO and WHO recommendations, the adults need to take 0.25-2g EPA+DHA per day. American Heart Association recommends daily intake of 0.5-1 g EPA+DHA per day per adult. Oxidation of polyunsaturated fatty acid is either free medical mediated or mediated by ultraviolet/singlet oxygen. Enzymes involved in its oxidation are cyclooxygenases, lipoxygenases and cytochromes P450. Non enzymatic oxidation is mediated by free radical producing hydroperoxide and further broken down into ketones and melanoaldehydes. Fish and plant oils are major source of polyunsaturated fatty acids. Oxidation of polyunsaturated fatty acid produces off flavor due to aldehyde and ketone formation during storage, processing and even after ingestion. Temperature and light is major contributor of poly unsaturated fatty acid oxidation. Lipid oxidation decreases nutritional value of the final produce by the destruction of essential fatty acids and fat soluble vitamins A, D, E, and K as well as decrease caloric value. Oxidation of polyunsaturated fats results in 4-Hydroxy-2-nonenal, a product and it has been found in many diseases including atherosclerosis, neurodegenerative diseases and cancer. Oxidized PUFAs (rich in HNE and HHE) induced oxidative stress and inflammation in mice and in human intestinal Caco-2/TC7 cells. D-series resolvin and protectin/neuroprotectin inhibit neutrophil infiltration into injured kidneys, block toll-like receptor-mediated inflammatory activation of macrophages and mitigate renal dysfunctions.**

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# CHEMICAL AND SENSORY EVALUATION OF SABLE AND TULUMBA FORTIFIED WITH QUINOA POWDER FOR CELIAC PATIENTS

**Neveen A Elwardany and Amira A Sheteewy**
Alexandria University, Egypt

**Celiac disease is a serious genetic autoimmune disease. It is induced by consuming a protein called gluten, which is found in wheat, barley and rye. When people with celiac disease eat foods containing gluten, their immune system responds by damaging the finger-like villi of the small intestine. Various types of natural protein - rich ingredients are added into bakery based products to improve their protein content for health promotion. The aim of this study is to develop bakery products fortified with quinoa powder (QP) and to evaluate the effects on chemical properties and sensory acceptability. Dried quinoa powder was used to substitute rice flour in *Sable* and *Tulumba (Balah Al Sham)* formulations at different levels (0, 10, 20 and 30%). Chemical analysis and sensory evaluation were performed then, a comparison between the different ratios of QP (added) to mixture were investigated. The present results showed that (QP) had significantly increased protein contents of both *Sable* and *Tulumba*. As for the sensory evaluation, both of *Sable* and *Tulumba* scored the highest score of 20% level.**

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# TOTAL PARENTERAL NUTRITION FOLLOW UP BY DIETITIANS IS BETTER AND CHEAPER

**R. van Schaik[1], P Schepens[1], T Lanssens[1], B Vlaemynk[1], M Devisch[1], G Melssens[1], K Van den Abeele[1] and T Niewold[2]**

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**Introduction:** Total parenteral nutrition (TPN) costs and malnutrition are a big financial burden for hospitals. In our hospital increasing TPN usage and costs and untreated malnutrition in patients had to be addressed. In 2009 a dietitian was appointed for malnutrition screening and monitoring of intramural patients with TPN and a nutritional management team was assembled. In the current study a procedure has been developed to assure optimal clinical nutritional care for all patients (oral, enteral and parenteral nutrition) and screening on malnutrition by EB practice tools.

**Purpose:** TPN use and follow up according guidelines will reduce TPN use and costs by 10% in 2010 or 20% in 2010-2011.

**Method:** TPN usage and costs over the years prior to 2010 were calculated. Causes for improper prescription of TPN were identified. TPN usage guidelines according EB ASPEN/ESPEN guidelines and procedures were developed. Nursing staff and dietitians were trained in proper administration and followed up of TPN and EN usage in patients. TPN-EN instruction tools for caregivers (physicians/dietitians) were presented, including risk for refeeding syndrome, and training on the job for dietitian teams/nutrition teams in other hospitals started. Inclusion of enteral and parenteral nutrition expertise in the job description of dietitians followed in 2017.

**Results:** TPN usage decreased by 50%, cost savings on TPN usage of 48% was obtained and the number of TPN users declined by 39% in 2016 compared to 2010. In 2016, 92% of TPN patients were followed up by dietitians and a dietary treatment plan was available in the medical records.

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# AN INTRODUCTION TO INTEGRATIVE AND FUNCTIONAL NUTRITION: CURIOUS MINDS WANT TO KNOW!

**Sheila Dean**
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**Integrative and Functional Nutrition (IFN) therapy is a leading-edge, evidence-based and comprehensive case-based approach to patient care that focuses on identifying root causes and system imbalances to significantly improve patient health outcomes. This emerging medical nutrition model combines the very best of modern science, clinical wisdom and critical thinking and is being driven by increasing consumer demand, advancing technology and the changing healthcare landscape. Acquiring the knowledge, skills and tools in IFN therapy will not only bring you great satisfaction in your professional practice and those you serve, it will also make you one of the most sought after, advanced practice IFN clinicians in the competitive healthcare marketplace.**

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# EARLY INITIATION OF NUTRITION IN TRAUMA BRAIN INJURY (TBI)—OUR EXPERIENCE OF 50 PATIENTS

**Vinita Mewada and Nitin Garg**
Bansal Hospital, Bhopal, India

**Objective:** Objective of this study is to highlight the benefits of initiating early feeding for severe head injury patients.

**Method:** This is the analysis of 50 patients of severe head injury treated at Bansal Hospital, Bhopal from 2014 to 2017 with a minimum follow up of 6 months. All patients with glasgow coma score less then 8 are included in this analysis. GCS on admission, CT scan findings, and nutrional assessment has been done through SGA (subjective global assessment). Types of surgical intervention were recorded. Early tracheostomy was done in majority of patients to facilitate early weaning from ventilator. Resolution of edema on scan, duration of ventilation, duration of stay in ICU, secondary complication like infection was analysed. Detailed review of nutrition, calories and protein requirement were calculated initiation of percutaneous endoscopic gastrectomy (PEG), weight loss and micronutrients and immuno nutrition and caloric intake was done.

**Result:** The pool data demonstrated that early feeding was associated with significant reduction in rate of mortality (relative risk RR=0.35; 95% CI. 0.24-0.50), poor outcomes (RR=0.70; 95%CI, 0.54-0.91) and infectious complications (RR=0.77; 95%CI, 0.59-0.99). Compared with nasogastric feeding, PEG nutrtion showed slightly reduction in the rate of mortality (RR=0.61; 95%CI, 0.34-1.09) poor outcome (RR=0.73, 95%CI, 0.51-1.04) and infectious complications (RR=0.89; 95%CI, 0.66-1.22). Continous immune enhancing formula was associated with a significant reduction in infection rate as compared with the standard formula (RR=0.54; 95%CI, 0.35-0.82). Continous bag feeding was found to be associated with decrease in incidence of pneumonia compared with intermittent feeding (RR=0.41; 95%CI, 0.22-0.76).

**Conclusion:** After TBI, early inititaion of nutrition is recommended. Entral nutrition is superior and has improved outcome. Our results support the use of continues gravity bag feeding and immune enhancing formula in reducing infectious complications and weight loss.

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