

## SL1



### **Nutrition Policy in Japan to Leave No One Behind and The Role of Registered Dietitians/Dietitians**

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Japan has been building a society where "no one is left behind," by promoting the nutritional life-course approaches that support from infants to the elderly, the sick/wounded, and disaster victims. Throughout the history of the country's nutrition policy, "Diets," "Specialists," and "Evidence" have always been the core elements. Registered dietitians/dietitians have been promoting nutrition improvement activities in various fields.

Japan stipulates a placement of registered dietitians/dietitians and designates wide range of facilities to place them, such as hospitals, schools, and elder-care facilities. This rule started in 1947 when the Health Center Law (Currently: Community Health Act) required health centers to hire dietitians. To tackle NCDs which came up as the main health problem in the rapid economic growth period, Japan revised a part of the Dietitians Act to establish the Registered Dietitian System and began the training of registered dietitians in 1962 for more advanced dietary management. Although the law had not defined specific duties of registered dietitians at that time, the revision of the Dietitians Act in 2000 clarified the role of a registered dietitian as a person who manages the nutrition of people with complex nutritional problems, such as the sick/wounded and the elderly.

Japan has faced a variety of nutritional challenges in the past, including undernutrition, overnutrition, and the double burden of malnutrition, and has been able to address appropriately these challenges by training registered dietitians/dietitians throughout the country and placing them in various fields throughout the country.

This presentation will outline the history of Japan's nutrition policies and the role of registered dietitians/dietitians.

Keywords: nutrition policy, the Dietitians Act, double burden of malnutrition

## KS1



### Japan Nutrition

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Before Japan's modernization through the Meiji Restoration about 150 years ago, people suffered from a frugal diet, poor development and growth, and diverse nutritional deficiencies. Low nutrition combined with excessive salt intake resulted in a high incidence of hypertension, stroke and stomach cancer, a high mortality rate from infectious diseases due to weak resistance.

Around the end of World War II, the country was burnt to the ground and there was severe hunger with no food and no money. In 1945, the year the war ended, dietitians were created, and in 1952 the "Nutrition Improvement Law" was enacted and full-scale nutritional improvement began as a national policy. A distinctive feature of Japan's nutritional improvement is that, improvement plans were drawn up based on scientific evidence, and dietitians who serve as practical leaders, were placed as professionals in group feeding facilities such as infant hospitals, kindergartens, schools, hospitals, welfare and other facilities. In other words, based on the principle of Universal Health Coverage (UHC), a system of improved nutrition was created for the entire life course of the population, creating a society where no one is left behind and everyone has access to healthy diets and nutrition.

This is because it inherited a traditional food culture that respects nature and integrates with the environment, while importing food from abroad and being influenced by cuisine. These distinctive improvements in Japanese nutrition are collectively known as "Japan Nutrition".

In developing Asian countries, many countries receive food and economic aid from abroad. However, these alone will not solve the problem. Each country needs to develop its own self-sustaining nutrition improvement system, because if foreign assistance is interrupted, the policy to eradicate malnutrition will disappear. We would like to transmit "Japan Nutrition" to other countries in Asia.

Keywords: Nutrition Improvement Law, dietitian, Asia, Universal Health Coverage

### KS2



#### **BOSAI and Disaster Nutrition Assistance ~Disaster Food, Nutritional Standards and Disaster Dietitian Originating from Japan~**

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In recent years, natural disasters such as earthquakes and hurricanes, and COVID-19 pandemics have occurred all over the world. Within a decade, Japan has experienced major natural disasters such as the Great East Japan Earthquake in 2011. Natural disasters not only result in casualties but also cause various food and nutrition problems. This Keynote Speech introduces Japan's advanced disaster preparedness initiatives.

#### **Disaster food**

In terms of disaster food, Japan has a certification system that is unique in the world. Japan Disaster Food Society started a certification system of "Japan Disaster Food" in 2015. Processed foods that are useful after a disaster and that can be actively used in daily life are certified. Now, more than 200 items are already certified. In 2022, cooperation for the certification system of Japanese Space Food, which is similar to the certification of Japan Disaster Food, began.

#### **Nutritional standards**

The Ministry of Health, Labour, and Welfare set the nutritional standard for evacuee of emergency shelter aimed to secure the required the necessary quantities of nutrients. It indicated reference values for energy, protein, and vitamins B<sub>1</sub>, B<sub>2</sub>, and C. Those nutrients that will become deficient at an early stage because people have few internal reserves stored within their bodies have been identified, and they are considered a top priority in a nutritional plan after natural disaster.

#### **Disaster dietitian**

To provide nutritional assistance at the disaster-affected areas, the Japan Dietetic Association established the Japan Dietetic Association-Disaster Assistance Team (JDA-DAT) in 2012. This team is consisted dietitians who are taken a special training to work at disaster area. In addition, JDA-DAT also established the special food providing systems named the "Special Nutritional Food Station" for vulnerable evacuees with dysphagia, food allergy and others. Such systematic and large-scale dietary support after a disaster is rare, even worldwide.

Keywords: Disaster food, nutritional standard, nutrition assistance, health, vulnerable

## EL1



### Autophagy and Nutrition

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The source of human activity is solar energy, and after converting that electrical energy into chemical energy as food (sugar), it is broken-down in the cells to synthesize ATP, the energy currency. An adult synthesizes about 85 kg of ATP per day. Humans have survived by overcoming hunger by securing and producing food, and adequate intake of nutrients is essential for the foundation of life. Nutrients are substances that are absorbed from the outside world and include the three major nutrients of protein, fat, and carbohydrates, as well as inorganic substances and vitamins. Nutritional science, which examines diet scientifically, is therefore a study responsible for the maintenance of health. In fact, in today's aging society, the academic development of nutritional science is indispensable for extending healthy life-spans. In humans, approximately 3% of total protein is turned-over every day. In fact, an adult synthesizes about 200 g of protein per day, but daily protein-intake is at most 70 g, and the 130 g needed for synthesis is recycled from protein breakdown products. Accordingly, we can see how proteolysis is important for the maintenance of life. Proteins, which are the main components of living organisms and functional elements that support life phenomena, are constantly recycled to adapt the intracellular environment and maintain health by keeping it fresh. Protein degradation also operates actively to secure needed nutrients. Autophagy (auto=self, phagy=eat) is a large-scale proteolytic pathway within the cell, and its engulfment function is primarily in response to starvation although selective autophagy also operates with diverse mode. In fact, when cells are starved of nutrients, they acutely sense the situation and mobilize autophagy to randomly digest their own components to secure nutrients essential for survival. In today's talk, I will focus on the nutritional aspects of protein metabolism, particularly the catabolism by autophagy.

Keywords: ATP, nutrition, protein, autophagy, proteolysis

### EL2



#### **Gut Microbiota and Nutrition**

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Human aging does not always occur at the same speed individually, and an aging index different from the chronological age is required to determine the degree of aging progress. “Biological age” estimated from the decline in physical function and reflecting the decline in the function of various organs with aging, has been reported. Among them, the epigenetic age index (DNAmAge) based on DNA methylation is drawing attention and research is underway. Rejuvenation studies have already been reported in which DNA mAge is reduced by diet-centric lifestyle interventions. Furthermore, as an index of biological age, an index focusing on proteome and serum cytokines has also been proposed. The existence of chronic inflammation has been clarified as the central pathological condition of aging, and an inflammatory biological clock centered on cytokines has also been proposed. In addition, metagenomic analysis of the gut microbiota and analyzing methods for their metabolites have been improved and established, and relationships with diet and nutrition have been demonstrated. Important results have been reported showing that controlling aging of the gut may lead to prevention of lifestyle-related diseases and extension of healthy longevity. It has been suggested that there may be a central dogma such as gut microbiota dysbiosis/changes in metabolites, chronic inflammation, epigenetics, lifestyle-related diseases/aging. In this seminar, I would like to introduce the latest research information focused on gut microbiota, and think about a healthy longevity strategy for 100 years of life from the viewpoint of nutrition and gut microbiota.

Keywords: microbiota, biological age, healthy longevity

COI: YN received scholarship funds from Taiyo Kagaku Co., Ltd. and from EA Pharma. Co. Ltd.; a collaboration research fund from Taiyo Kagaku Co., Ltd.; and received lecture fees by Mylan EPD Co., Takeda Pharma. Co. Ltd., Mochida Pharma. Co. Ltd., EA Pharma. Co. Ltd., Otsuka Pharma. Co. Ltd., and Miyarisan Pharma. Co. Ltd. The present research was partly supported by these funds. Neither the funding agency nor any outside organization has participated in the study design or have any competing interests. These companies have approved the final version of the manuscript.

## EL3



### **Elucidating Eating Behavior for Developing Mechanism-based Effective Interventions**

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Life-style diseases occupies 4 out of top 10 disease burden for the world. They are also increasing in Asian countries, in developed countries and the wealthy classes in developing countries. One of the reasons for this trend is that we do not have interventions that effectively control the life-style (especially eating behavior), which is a major cause of the life-style diseases. To fundamentally address the issue, we need to understand how eating behavior is regulated.

Eating behavior is a motivated behavior to satisfy the needs (demand) by eating (supply). It is regulated through multiple factors, including input sensing (neural and endocrine/metabolic signal sensing), information processing/integration (homeostatic, hedonic, anticipatory), and motor action. With humans having multiple options for what, where, when, (and with whom) to eat, we predict the outcome of each option based on the past experience, and decide the action that most likely satisfy the current needs.

Eating behavior is altered in the diseased state, because needs are different and the part(s) of the regulatory system do not function normally. In other words, patients and healthy people feel different even when they eat the same foods. Dietitians can instruct patients what they should eat, but if they feel that their needs are unmet (the purpose of eating is unfulfilled), they cannot continue the instructed diet. Therefore, to make dietary instruction more effective, we need to fix what is dysfunctional in patients, and use combination strategies that act on the regulatory system through multiple inputs to bring satisfaction.

In this talk, I will also present unpublished data on our effort to develop mechanism-based functional foods. I will also point out the legal and systematic problem that needs to be addressed to overcome the life-style diseases for realizing a sustainable healthy society by seamless intervention through health, pre-diseased state, and disease.

Keywords: Homeostasis, Neural sensing, Prediction, Combination strategy, Seamless intervention

## EL4



### **Food Waste and Nutrition: Qualitative Adjustment in the SDGs Era in the Food Supply Chain**

Tomio Kobayashi

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The problem of food loss and waste (hereafter FLW) is a very distressing issue. It is extremely difficult to prepare three meals every day without running out of food perfectly and eating similar foods every day can lead to boredom or nutritional imbalance. Add to our preference, and the food systems become complex and excessive when trying to build a supply system that meets these needs, and socially and culturally we have no choice but to tolerate FLW. The purpose of my presentation is to show the multipurpose of reducing FLW not only as an approach that compares the amount of FLW generated but also as a challenge that is inherently negative in nature and emotionally charged to human beings in order to solve such difficult problems. As the methodology, based on the amount of FLW generated and control policies in each country, the essential implications of the reduction of FLW will be discussed, focusing on take-back of leftover food (Doggy Bags) and welfare use of excess food (Food Banks). The results show that FLW reduction policies are not only effective in reducing FLW but also have the potential to be health maintenance and social safety net. If FLW reduction policies are reduced to only an environmental issue, their effectiveness may be halved. In conclusion, it is necessary to develop the FLW reduction measures into a larger movement that plays a role in social infrastructure development by incorporating a nutritional approach and collaborating with different fields of society. This report is a part of the research results funded by Grant-in-Aid for Scientific Research 21K05804.

Keywords: Food loss and waste, Multipurpose of reducing FLW, Nutrition, Doggy Bags, Food Banks

## SSY1-1



### **The AFDA Official Journal of the Dietitian, by the Dietitian, for the Dietitian**

Shigeru Yamamoto

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Looking at journal articles on clinical nutrition, most of the authors are MDs and with few RDs. In Japan, about 20 years ago, a system was established in which it is not a MD but a registered dietitian (RD) who can teach clinical nutrition in the RDA training program. However, even with such major reforms of the law, it is not easy for RDs to conduct research and publish their results in journal articles. In fact, articles published by RDs, teachers and researchers in dietetic programs are biased toward food science, biochemistry, and epidemiology, and there is only a little about dietetics. To improve the situation, I think it is necessary to recognize that research in the field of dietetics is extremely difficult. For example, it's an established theory that you can lose weight if you eat less, but how to eat less is really difficult. That is, even if the theory is understood, it cannot be applied. Research on the central role that a dietitian should play may fall into this area. I think that it is not easy to establish a basis for the application of dietitians because it spans not only food science and medicine but also psychology, sociology, economics, etc., making the problem very complicated and difficult to study. A symbolic example is that even though there are many papers on obesity, real-life obesity has not improved. However, unless dietitians are successful in overcoming such difficulties, dietitian will not be a profession that is trusted and respected by society. With that in mind, We founded the Journal of Asian Dietetics three years ago. It would be greatly appreciated if dietitians could use this journal to improve the research ability.

Keywords: journal article, dietitian, workplace research

## SSY1-2



### **Research and Publication in the Dietetics Profession – How To Optimize Our Competency**

Winnie Chee

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Research is the basis for successful practice in any profession and in the dietetics profession and research is the foundation for decisions and recommendations we make in clinical practice, food service, education, and public health. Research is relevant to dietitians in order to discover new knowledge that can be translated into patient care recommendations and public health policies, find solutions to delivery of dietetics care services to improve patient/population outcomes and ensure evidence-based practice. However, few dietitians in Asia are involved in research or publishing research extensively due to several factors including lack of interest, not seeing the relevance into their daily practice, administrative barriers at work or lack of research skills. In actual fact, dietitians are very well position to participate in research including areas such as quality management, clinical audits to improve practice, scientific research such as clinical trials collaboration and studying patient behaviour & experiences. It is also important for dietitians to communicate our research findings through publication such as in AFDA Journal in order that the research results would benefit Asian dietitians in the region. Publication in AFDA journal would increase visibility of dietitians in the region and promote collaboration as well as translation of research findings into practice.

Keywords: Research, Publication , Asian dietitians, Competency

## SSY1-3



### **The Study on the Awareness and Effectiveness of the AJD among Filipino Dietitians**

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The Study on the Awareness and effectiveness of the AJD among Filipino Dietitians The Asian Journal of Dietetics was published in 2019 and have released 4 volumes. The journal was intended to feature research papers from the different national dietetic association members of AFDA to enhance their knowledge and skills in nutrition and dietetics, develop a culture of research and sharing of best practices. The author would like to assess the awareness and effectiveness of the AJD to ascertain its purpose and to look into areas of improvement in the publication and dissemination of the journal. The descriptive design was used which is an appropriate choice to describe characteristics and/or behavior of a sample population .Participants were 30 in number, coming from the National Capital Region, who were given a survey question consisting of 10 items through email.

The results showed that 50% of dietitians are aware of the AJD and 50% were not aware of the AJD. A total of 80% of the source of information came from the ND UPDATES, the social media page of the Nutritionist Dietitians' Association of the Philippines and the remaining 20% came from emails sent by colleagues. About 1% of the respondents have contributed to the Journal while 6% have cited the AJD in their post-graduate thesis.

Conclusion: The 50% awareness of Filipino dietitians can be further improved through social media, organization of a research forum with AJD editors and creating a group of AJD mentors. The AJD can be further utilized as a reference material.

## SY1-1



### **Practice and Research on Medical Nutrition Therapy for People with Diabetes through Collaboration between Dietitians and Other Professions**

Hirohito Sone

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Diabetes mellitus, especially type 2 diabetes, is a serious health problem not only in Asia but elsewhere in the world, and medical nutrition therapy is one of its most important treatments. A large body of evidence, including meta-analyses, has demonstrated the effectiveness of inter-professional collaboration in medical nutrition therapy for patients with diabetes, and especially interventions by structured education provided by registered dietitian nutritionists (RDNs) have a favorable impact on various outcomes, including glycemic control.

However, despite the fact that the pathophysiological basis of type 2 diabetes mellitus, such as body mass index, insulin resistance and insulin secretion capacity, and lifestyles, including food environments and eating habits, differ greatly between Asians and Westerners, the evidence on diabetic diets is mostly from Western countries, with only a relatively limited number of studies in Asia. Therefore, more clinical evidence for Asian patients with type 2 diabetes is clearly needed for the care of our own patients.

Our team of inter-professional experts has established many clinical evidences for use in the dietary guidance for East Asian patients from large-scale cohorts and registries of Japanese people with type 2 diabetes such as Japan Diabetes Complications Study (JDCCS), Japan Diabetes Data Management Study (JDDM) and Japan Diabetes Complications and its Prevention Study (JDCCP).

Just as collaboration between inter-professional specialists is essential in clinical practice, collaboration between RDNs and other professions is also essential and very effective in clinical research, and by utilizing the expertise of each, we can establish clinical evidence that is more useful for daily patient care.

**Keywords:** diabetes mellitus, clinical evidence, Japan Diabetes Complications Study (JDCCS), Japan Diabetes Data Management Study (JDDM), Japan Diabetes Complications and its Prevention Study (JDCCP)

## SY1-2



### **The Role of Certified Specialist of Registered Dietitian for Diabetes (CSRDD) in the Prevention and Treatment of Diabetes in Japan**

Kenichiro Shide

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With high economic growth and rapid changes in lifestyle habits in Japan, the increased prevalence and aging of diabetic patients are becoming significant issues. In order to improve the treatment environment for diabetes and promote team medical care, more than 18,000 health professionals, including registered dietitians, have become Certified Diabetes Educator of Japan (CDEJ). However, because the goal for CDEJs is to support effective diabetes self-management, CDEJs are only expected to have basic nutritional knowledge and experience. Given the aging population and increased number of diabetic patients with multiple comorbidities, we are also in need of registered dietitians with thorough knowledge and clinical experience in managing diabetes, who can optimize care for these complicated cases. For this reason, the certification program for Certified Specialist of Registered Dietitian for Diabetes (CSRDD) was established in Japan in 2015, though the number of CSRDDs is still very limited. In this symposium, I would like to introduce a case where a CSRDD provided nutritional treatment for elderly diabetic patients.

Although it is my personal future outlook, as a CSRDDs, I also feel the necessity of clinical research so that we can propose a way of "diet", rather than just looking at the treatment side. It is important for us to take initiative in such research, cooperating with AASD (Asian Association for the Study of Diabetes) and other countries to fight diabetes.

**Keywords:** Certified Specialist of Registered Dietitian for Diabetes, Certified Diabetes Educator of Japan, Treatment of Diabetes, Elderly Diabetic Patients

## SY1-3



### **Expectations for Vietnamese Dietitians in the Management of Diabetes: A View of Medical Doctor and Nutritionist**

Duc Son Nguyen Trung Le

*Nutrition and Food Security, Pham Ngoc Thach Medical University, Viet Nam*

With knowledge on nutrition intervention in type 2 diabetes (T2DM) during my study in Vietnam, Japan and the United State, and experience as T2DM specialist in clinical practice, I like to share my expectations on Vietnamese dietitian in the prevention and management of T2DM.

Previous studies indicated that the average BMI of Vietnamese diabetes is about 23 which is significantly different from about 26 in Taiwanese and about 30 in Americans. It is possible that high insulin resistance due to obesity is one of a main cause in American diabetes while, rapid increase in postprandial hyperglycemia due to a high-carbohydrate diet could be a cause in Vietnamese T2DM. The pharmaceutical treatment regime is similarly applied among the three countries whereas, the dietary intervention is significantly different. This relates to food culture. The good dietitians must understand not only medical and nutrition science but food culture.

In Vietnam, dietitian staff has been established in approximately 10 years but they have not been professionally trained. Fortunately, most recently, the officially academic training course for dietitian is firstly implemented in Hanoi University and expanding in other medical universities.

With the increase of T2DM in Vietnam, the dietitian staff must be more empowered to provide better contribution in the management of the disease. However, in reality, their roles are not fully supported and recognized in hospital due to lacking of appropriate regulations and guidance from government. In order to improve the contribution of dietitian, government should consider and have action on (1) clearly define and recognize the role and responsibilities of a dietitian by issuing relevant laws and regulations; (2) recognize their job by issuing license of dietitian as registered dietitian after academic graduation and (3) promulgate clear national guidance to consistently implement clinical dietetic system in hospitals in nationwide.

Keywords: Vietnamese, type 2 diabetes, Dietitian, nutrition intervention

## SY2-1



### The Outline of Nutrient Profiling System

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In recent years, Nutrient Profiling or Nutrient Profiling System (NPS) has been attracting attention and research in Europe, the United States, and WHO as a scientific evaluation method to classify and score foods based on the composition of nutrients in the diet and processed foods for the purpose of disease prevention and health promotion. NPS is based on two assumptions: First, a person's health is affected by the healthiness of his or her diet. Second, the healthiness of a diet is influenced by the healthiness of the foods that comprise that diet. It is also said that the concept of "the sum of the individual healthier foods makes the diet healthier as a whole." In light of the health challenges of the people of a country or region, nutrients whose excess intake is problematic and those that should be actively consumed are selected and classified and evaluated based on calculations from this quantity.

The scope of application of the NPS expected is to include qualifying health and nutrition claims, limiting advertising and promotion to children, nutrition education, nutrition advice, product labeling, buyer food choice, and promoting nutritional reformulation of products. Social implementation has begun in the UK, France, and other EU countries, as well as in Australia and New Zealand.

On the other hand, NPS research and concepts are a new academic field that began to flourish in the early 2000s. There are many areas still being verified, such as the usefulness of NPS calculation systems and the provision of health and nutrition information. In Japan, NPS has rarely been discussed among nutrition specialists and researchers. In this symposium, leading researchers from Japan and abroad will present the challenges of nutrition in Japan and the potential of NPS as a new approach to health.

Keywords: Nutrient profiling, Food choice, labeling

COI: Endowed chair (Ajinomoto)

## SY2-2



### **Characterizing the Diets Consumed by Japanese Based on Various Dietary Variables: Are Japanese Diets Really Healthy?**

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Japan is not only one of the world's top countries in terms of longevity, but is also considered to have eating habits that differ greatly from those of Western countries. For this reason, there is a great deal of interest from around the world in the food and eating habits of the Japanese people. However, there are surprisingly few studies that have scientifically and quantitatively measured, evaluated, and compared Japanese eating habits with those of Western people, and how healthy their food and eating habits are, without common sense and preconceptions. For example, according to a dietary pattern analysis based on the National Health and Nutrition Survey, the “plant food and fish” pattern score decreased while the “bread and dairy” and “animal food and oil” pattern scores increased during the period 2003-2015, suggesting the continuous Westernization of the Japanese diet. Further, a comparison of the Japanese and American diets showed that the overall diet quality assessed using total scores of Healthy Eating Index-2015 and Nutrient-Rich Food Index 9.3 was similar between Japanese and American adults, although the component scores differed considerably between the two populations. It appears that although it is widely perceived that the diet consumed by the Japanese population is healthy, recent evidence suggests that the overall diet quality in Japanese adults is far from optimal and that there are different nutritional concerns between Japan and Western countries.

Keywords: Diet, Japan, Diet quality, Dietary assessment

## SY2-3



### Application of Nutrient Profiling for Assessing Maternal Dietary Quality in Japan

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Maternal dietary quality is a key to pregnancy outcomes and child health. In Japan, the perinatal mortality rate is very low, however, the proportion of low birthweight and underweight pregnant women is high. Additionally, the recent increase in the prevalence of developmental disorders and childhood-obesity might be potentially related to suboptimal *in utero* nutrition. To evaluate the overall diet quality of Japanese pregnant women, we applied Nutrient-Rich Food Index 9.3 (NRF9.3), which can be used to assess the nutrient density of diet as well as individual food item. We also assessed maternal diet inflammatory potential, which may be associated with low birthweight and childhood adiposity, using energy-adjusted dietary inflammatory index (E-DII). We calculated NRF9.3 and E-DII scores based on the three-day dietary records obtained from 108 participants of a birth cohort in an urban area during the mid-gestation period. The participants were stratified into three groups according to each index score and analyzed for associations with nutrient and food group intake. We found a strong inverse correlation between NRF9.3 and E-DII scores ( $r = -0.793$ ). A comparison among the three groups of NRF9.3 or E-DII scores indicated that dietary fiber, vitamin C, vitamin A, and magnesium mainly contributed to the variability of both indices. Intake of vegetables and fruits was positively associated with high NRF9.3 scores and negatively associated with high E-DII scores, after adjustment for maternal age, pre-pregnancy body mass index, and educational level ( $p$  for Trend < 0.0001). A high-quality diet assessed by the NRF 9.3 index corresponded to low inflammatory capacity and high vegetable and fruit intake. The use of nutrient profiling information on foods, in conjunction with the assessment of diet quality, to improve maternal dietary quality is a future challenge.

Keywords: Nutrient-Rich Food Index 9.3, Developmental Origin of Health and Disease, Maternal dietary quality, Pregnancy

## SY2-4



### Implementation of the Health Star Rating System and Its Social Applications

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Nutrient profiling provides a valuable approach to objectively assessing the healthiness of foods and discriminating between them. Because of the varied applications of nutrient profiling, a high number of nutrient profiling models have been developed including many national and multi-national schemes, each constructed to service specific population health aims. The government sponsored scheme in Australia and New Zealand is known as the Health Star Rating (HSR) and was primarily developed as a national front-of-pack labelling (FoPL) system to encourage healthier eating choices. The efficacy of any scheme is reliant on both the quality of the underlying model to impact the specific aim – i.e. its logic and algorithms, and its implementation – i.e. its acceptance and uptake. This presentation will outline the example of the Health Star Rating, its technical basis, its initial implementation, and the subsequent five-year review to address issues and improve efficacy. Additionally, the HSR model has been used well beyond its original scope as a national FoP labelling scheme - to support other initiatives, driven by civil society, to improve the food environment. The presentation will share a range of examples of how The George Institute's 'FoodSwitch' enterprise has used the HSR within its mobile applications to increase behaviour change with consumers and has applied the data to influence local and global industry practice.

Keywords: nutrient profiling, Health Star Rating, FoodSwitch, Front of pack label

## SY3-1



### COVID-19 Infection and Nutritional Status

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Coronavirus disease 2019 (COVID-19) is an emerging disease that reached pandemic status by rapidly spreading worldwide. Recent studies indicate that nutritional status crucially affects disease outcomes. In a French study, the risk for invasive mechanical ventilation in patients with COVID-19 infection admitted to the intensive treatment unit was more than 7-fold higher for those with body mass index (BMI) > 35 compared with BMI < 25. Among individuals with COVID-19 who were < 60 years of age in New York City, those with a BMI between 30 to 34 and > 35 were 1.8 times and 3.6 times more likely to be admitted to critical care, respectively, than individuals with a BMI < 30. In Wuhan, China, the prevalence of malnutrition in elderly patients with COVID-19 was significantly high. These studies indicate that overnutrition and malnutrition crucially affect the COVID-19 disease outcome. Vitamin D has been shown to play a role in infectious diseases. In 2020, the association between vitamin D and COVID-19 infection has firstly reported in a cross-sectional study by Hastie et al. (Diabetes and Metabolic Syndrome: Clinical Res and Rev, 14: 561, 2020). After the publication of this study, the role of vitamin D in COVID-19 infection has been reported in a cross-sectional study, intervention study, and meta-analysis study. In this symposium, I will talk about the role of nutritional status in COVID-19 infection.

Keywords: COVID-19, Obesity, Malnutrition, Vitamine D

## SY3-2



### **Covid-19 Pandemic and Nutritional Management: What Can We Learn?**

Jung-Su Chang

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Good nutritional support is crucial for the immune system to fight against coronavirus disease 2019 (COVID-19). However, in the context of a pandemic with a highly transmissible coronavirus, its impacts on global food security, healthy lifestyle and eating behavior as well as implementation of nutrition practice may be difficult and affect the outcome of nutritional management. Restricted movement due to the COVID-19 lockdown has significantly affected peoples' dietary and lifestyle behaviors. People tend to search for immune-boosting nutrients/herbs and have replaced outdoor activities with sedentary indoor behaviors. Obesity worsens outcomes from COVID-19. However, increased sedentary behaviors and unhealthy lifestyles may also increase risk of obesity, especially among youth. COVID-19 patients are at high risk of malnutrition, however, adherence to nutritional guidelines may be difficult in the context of capacity constraints during the COVID-19 pandemic. Inadequate nutritional knowledge is a key barrier to nutritional guideline adherence, and this may be related to specialties of physician and dietitians. Adherence to Covid-19 nutrition guidelines is associated with better nutritional management behaviors of hospitalized COVID-19 patients. The COVID-19 also affects the professional practices of dietitians and telemedicine delivered dietetic consultation may serve as cost-effective alternative tool. However, additional digital nutrition education tools and training are needed for virtual nutrition education.

Keywords: COVID-19, nutritional management, virtual nutrition education

**SY3-3**



**Virgin Coconut Oil Is Effective In Lowering C-reactive Protein Levels among Suspect and Probable Cases of COVID-19**

Imelda Angeles Agdeppa

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Understanding the complex pathogenesis of COVID-19 continues to evolve. With observation and quarantine as the prevailing standard of care, this study evaluated the effects of virgin coconut oil (VCO) in the biochemical markers of suspect and probable cases of COVID-19. A 28-day randomized, double-blind, controlled intervention was conducted among 63 adults in two COVID-19 isolation facilities in Santa Rosa City, Laguna, Philippines. The participants were randomly assigned to receive either a standardized meal (control) or a standardized meal mixed with a predefined dosage of VCO based on their weight. Changes in clinical markers were measured at three time points (day 0, 14, and 28), food intake, food waste, and COVID-19 symptoms are monitored daily, along with their VCO intake. The VCO dosage ranges from 0.6ml/kgBW to 1.2ml/kgBW. On the 14th day of the study, the intervention group showed a significant decline in their C-reactive protein level, with the mean CRP level normalized to  $\leq 5$  mg/dL, symptoms also resolved in the Intervention Group 4 days earlier than in the Control Group. This study shows that Virgin Coconut Oil, when mixed with meals, is an effective adjunct therapy for COVID-19 by fostering faster resolution of symptoms and normalization of C-reactive protein levels among suspect and probable cases of COVID-19.

Keywords: COVID-19, Virgin Coconut Oil, C-reactive protein, Lauric Acid, Monolaurin

## SY3-4



### **Report on Nutritional Support for COVID-19 Patients at Saiseikai Suita Hospital**

Yuta Nagaike

*Department of Nutrition, Saiseikai Suita Hospital, Japan*

In Japan, the first case of COVID-19 infection was reported from a traveler in Wuhan, China in January 2020. Then starting with an outbreak of infection on the Diamond Princess, a cruise ship from Hong Kong to Japan, positive cases spread throughout the country. Since then, it has reached the present while repeating 6 epidemics and convergence cycles.

Saiseikai Suita Hospital is located in Suita City, Osaka Prefecture, and is a private acute care hospital with 440 beds. We started accepting hospitalization for mild or moderate COVID-19 patients on April 1, 2020. Now, there are 15 beds exclusively for COVID-19 patients.

A registered dietitian is assigned to the ward to observe the daily nutritional status of patients and adjust their diets. Also, we discuss nutritional management with physicians, nurses, pharmacists, and others as needed.

The nutritional management of COVID-19 patients is mainly handled by a registered dietitian in the respiratory medicine ward. However, there are often cases that are difficult to manage due to the lack of established standards for COVID-19 nutritional management and the difficulty of face-to-face contact for infection control. In this symposium, I would like to report on the approach to COVID-19 patients at our hospital and the nutritional management that the dietitian in charge of respiratory medicine provides to COVID-19 patients.

Keywords: COVID-19, Nutritional Support, Hospital

## SY4-1



### **Sodium Reduction Measures and Activity in Korea**

Kyung-Joo Kim

*The Korean Dietetic Association, Korea*

Since 2010 (when sodium intake was 4,278 mg), the Korean government has carried out measures to reduce sodium intake in Korea through national management and a systematic response to changes in the health of the nation and in eating habits (sodium intake: 4,278 mg). The sodium intake of the nation has decreased with these measures and in 2018, the sodium intake was 3,274mg. However, it remains higher than the daily intake of sodium (i.e., 2,000 mg) recommended by the World Health Organization. The Korean basic meal consists of a main dish and some side dishes, juices such as kimchi juice, the staple food rice, and seasonings such as miso, soy sauce, and gochujang (i.e., a red pepper paste). As a result, Korean individuals primarily ingest salt from juice, Korean hot pot (i.e., a type of soup), noodles, side dishes, and kimchi. The low-salt policies are classified for food service, dining out, home-cooked meals, and the processed food field.

The low salt policy gets the cooperation of each field from food service, people concerned with food service, consumers, a food company, the media, the local government and is pushed forward. In addition, the Korean government performs program development, education contents development and plans a low salt campaign, a low salt practice activity, the common knowledge to the nation in the "sodium reduction headquarters" center.

## SY4-2



### **Salt Reduction Activities in Shizuoka Prefecture for Community and Occupational Health Promotion**

Mieko Nakamura

*Community Health and Preventive Medicine, Hamamatsu University School of Medicine, Japan*

Shizuoka Prefecture is located on the Pacific Ocean side of central Japan. Shizuoka Prefecture is generally regarded as one of the "healthy prefectures" because of its long healthy life expectancies. However, cerebrovascular disease mortality in Shizuoka Prefecture was higher than the average of that in Japan. Excess death in Shizuoka Prefecture was derived mainly from cerebrovascular disease and death from senility. Cerebrovascular disease is a significant cause of severe disability, even if it is not fatal. In addition, the National Health and Nutrition Survey of Japan revealed that the salt intake in Shizuoka Prefecture was higher than the average of that in Japan. According to such background, the government's health division of Shizuoka Prefecture has initiated the "Salt Reduction 55 Program," which aimed a 5% reduction in salt intake in five years based on the salt intake in 2016. The program was to be evaluated in the 2021 survey. However, it was canceled due to the COVID-19 pandemic. In the "Salt Reduction 55 Program," a salt intake check sheet titled "Fujinokuni Salt Intake Check" was developed using salt excretion estimated in 24-hour urine collection and food intake by food frequency questionnaire (Akahori et al., Jap J Nutr Diet, 2018). The salt intake check sheet, which includes 19 dietary behaviors and frequencies of foods and dishes that contribute to salt intake, allows for the self-assessment of salt intake in three levels; like a traffic light, green means an estimated salt intake of 6.8 g, yellow as 8.7 g, and red as 12.2 g. The check sheet is also a good supporting tool to encourage behavior changes, as any changes are directly reflected in the total score. More than 70,000 check sheets were distributed in 2016 and have been widely used in regional and occupational communities.

Keywords: Salt reduction, Salt intake check sheet, 24-hour urine collection, Cerebrovascular disease

## SY4-3



### **Niigata Prefecture's Nutrition Policy "Niigata Gen-en (salt reduction) Renaissance Movement" and Subsequent Efforts**

Miyo Kojima

*Health and Welfare Department, Health Promotion Support Division, Niigata Prefectural Government, Japan*

**【Objective】** The Niigata prefecture's salt intake and age-adjusted cerebrovascular mortality rate have remained above the national average. Against this background, the prefecture launched the "Niigata Gen-en (salt reduction) Renaissance Movement" in 2009 and has been involved in it for 10 years. We aimed to implement effective nutritional measures through this campaign by implementing the PDCA cycle for nutrition and dietary habits.

**【Methods】** We identified high-priority health issues and underlying factors related to nutrition and diet and determined the necessary measures to achieve the goals by addressing these factors. In addition, an evaluation framework was developed to visualize how each measure contributes to achieving the goals. This framework consisted of process evaluation, impact evaluation, and outcome evaluation to clarify each measure's qualitative and quantitative effects.

**【Results】** The process evaluation confirmed that the number of measures implemented by local governments and related organizations increased. The impact evaluation showed changes in the prefectural residents' awareness of salt reduction and improvements in dietary behaviors related to high salt intake. The outcome evaluation confirmed reductions in salt intake, systolic blood pressure, and the number of deaths from cerebrovascular disease and ischemic heart disease.

**【Conclusion】** We implemented measures based on the PDCA cycle and developed an evaluation framework to confirm the achievement of goals. We evaluated how the measures contributed to achieving goals objectively through this framework. Currently, in order to resolve issues remaining after the completion of the campaign, the next measures are being launched and developed through the PDCA cycle.

Keywords: salt intake, analysis of factors, nutrition measures, PDCA cycle, administrative dietitian

## SY4-4



### **Salt Reduction Activities by Japanese Registered Dietitians and Dietitians: Past Efforts and Results and Future Development**

Katsushi Yoshita

*Graduate School of Human Life and Ecology, Osaka Metropolitan University, Japan*

In the 1950s, the daily salt intake per adult in Japan was 23.1–29 g for men and 19.9–25 g for women, based on the results of a survey conducted in the Tohoku region. In the 1950s and 1970s, cerebrovascular disease was the number one cause of death among Japanese people.

However, in the 1975 National Nutrition Survey, which first reported salt intake at the national level, the national average was 13.9 g per adult per day. In the 2019 National Health and Nutrition Survey, the national average was 10.1 g per adult per day, which was a decrease of 3.8 g in the last 44 years. Furthermore, regional differences in salt intake are gradually decreasing. In 1980, the region with the highest intake (15.8 g) was Tohoku, whereas the region with the lowest intake (10.5 g) was Kinki I (Kyoto, Osaka, Hyogo). The difference was  $\geq 5$  g. However, in 2018, the intake in Tohoku continued to be the highest at 11.1 g, and the intake in Hokkaido and Shikoku was lowest at 9.5 g. The difference had narrowed to 1.6 g.

The prevalence of hypertension in Japanese people has correspondingly declined, at least in the last 50 years. Various factors are behind this phenomenon. However, but it is thought that the role of nutrition improvement activities centered on salt reduction played by registered dietitians and dietitians is significant. Therefore, I would like to review the concrete efforts and results that have been presented to date and to consider current efforts and future developments to further reduce sodium chloride ingestion in the future.

Keywords: Salt , Salt Reduction Activities, Japanese Registered Dietitians and Dietitians

## SY5-1



### **A Novel “Software as a Medical Device” for Nutrition Therapy in Diabetes Management**

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In diabetes treatment, medical nutrition therapy plays an important role in reducing body weight and lowering blood glucose. In Japan, there are presently not enough registered dietitians for the rapidly increasing number of diabetes patients, which leaves them limited time to evaluate their patients' nutrition to provide sound advice. They either assess diet records or estimate by careful interview. There is therefore an unmet need for a more efficient method. Approximately 60% of compliant patients feel overburdened by the recommendations; among those not always following their regimen, the proportion reaches above 80%. Thus, many diabetes patients face challenges in following recommendations under the present protocol. Surveying both patients and healthcare professionals, we were able to identify three core needs for an electronic medical device that better encourages patient adoption of diet modifications in the conditions experienced today: (1) software that provides detailed nutrition assessment and requires less time of the healthcare professional; (2) treatment plans more finely tailored to the patient's medical condition and lifestyle; and (3) detailed and actionable feedback on a daily basis. We have developed “Asken Medical System” to meet these needs. The system will facilitate communication of recommendations on dietary issues to diabetic patients on a continuous basis. The system represents an innovative advance in nutrition guidance that can lead to reduced physical, emotional, and financial burden for patients as well as to better long-term prognosis.

Keywords: program, mobile phone, artificial intelligence

COI: A research fund was provided for this study by asken Inc. in 2021 and 2022.  
Joint patent pending for “Asken Medical System.”

## SY5-2



### **Use of Information Communication and Technology, Artificial Intelligence by Nutritionists of 21st Century - An Indian Perspective**

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The era of 21st Century for Nutritionists in India has highlighted innovation with Technology and Artificial Intelligence for a very precise, accurate nutrition diagnosis, followed by customised nutrition care in clinical settings. All Registered Dietitians in urban clinical settings of India accredited by NABH follow paperless working with defined protocols of documentation. This may not be the universal observation across the country as there is still a lot of heterogeneity in India. There is disparity in qualification, training, job description of dietitians and accreditation of different clinical settings with high patient to dietitian ratios in government hospitals. The use of technology has helped capture patient data and integrating it with health variables in country through primary health care centre in rural areas for vulnerable groups. On the other hand, use of Technology has been very effectively used for evidence-based knowledge dissemination by the Nutritionists. The expanding reach of mobile internet to low income populations offers a compelling opportunity to reach, educate and generate demand for mHealth interventions which demonstrate value for patient care in a variety of scenarios in India. The growth in Smart phone applications more so in pandemic times is proving to be a massive game changer in almost every aspect of Nutrition and Diet Applications for Diet and Health apps to provide the benefit of flexibility in food choices and virtual counselling. The use of Technology and Artificial Intelligence in precision nutrition is an upcoming area for the Nutritionists. The future areas of use of Artificial Intelligence and ICT in India include Regional foods and Sustainability, Artificial Social Intelligence (ASI) with interdisciplinary domain-specific requirements necessary for an Artificial Theory of Mind.

**Keywords:** Artificial Intelligence, Clinical settings, Precision Nutrition, mHealth, Information Communication and Technology

## SY6-1



### Japanese School Lunch System

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School lunches in Japan are believed to have begun in 1889 in Tsuruoka-cho (currently Tsuruoka City), Yamagata Prefecture for children of poor families attending private elementary schools. School Lunch Program Act established in 1954, clarifying the legal basis for school lunch. In 2008, School Lunch Program Act was significantly revised, in addition, to the traditional goal of promoting and enhancing school lunch, "promotion of dietary education in schools" was newly stipulated. School Lunch Program Act indicates the amount of nutrition that is considered desirable to be ingested by school lunch, and the standards for hygiene management in implementing school lunch. Based on school lunch Program Act, the national and local governments are supposed to make efforts to popularize school lunch. In addition to School Lunch Program Act, the significance of school lunch is shown in the Dietary Education Basic Act and the Courses of Study.

School lunches contribute to the maintenance and promotion of the health of children and students by providing a rich nutritionally balanced diet, and also have great educational significance in promoting dietary education, and are important for contributing to the healthy development of children's mind and body. I will introduce the school lunch system that continuing through the present day as part of school education.

Keywords: School lunch, Dietary education, Nutrition

## SY6-2



### **Current Status and Issues of School Lunch in Japan**

Tomoko Nakada

*Japan Dietetic Association, Japan*

For school lunches in Japan, nutrition teachers (registered dietitians or dietitians) provide school lunch management and food and nutrition education.

Firstly, school lunch management includes nutrition management for students, meals management, and promotion of the use of local products in school lunches.

Secondly, in terms of food and nutrition education, we provide guidance in school subjects and during lunchtime, as well as individual counseling and guidance. In subjects and lunchtime guidance, school lunch is used as a living textbook in classroom activities, home economics, science, health and physical education, and other subjects, and is taught together with classroom teachers and teachers in charge of the subjects so that students can achieve the goals of the Study. In addition, in order to lead each student to good health, we systematically provide individual consultation and guidance for students with obesity, thinness, picky eating, and food allergies.

We, nutrition teachers, were originally registered dietitians and dietitians, became possible to do such work since the nutrition teacher system was established. After learning the knowledge and skills of dietitians, registered dietitians, and teachers, and getting the job, I have studied at workshops held by the Ministry of Education, Culture, Sports, Science and Technology, prefectural and municipal governments, the Japan Dietetic Association, and other organizations.

Registered dietitians and dietitians are happy to use their qualifications to contribute to people's lives, health, and happiness. This presentation will introduce the current situation and challenges of school lunches in Japan from the work of nutrition teachers.

Keywords: School Lunch, nutrition teacher, nutrition education, meals management, nutrition management

## SY6-3



### **Japanese School Lunches: A Perspective from Vietnamese Dietitians**

Giang Huong Nguyen

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The present situation of Vietnamese school lunches may be similar to the initial period in Japan, with simple meals to provide energy. There are no dietitians at public schools and meals are prepared based on the experiences of kitchen staffs. Dishes are monotonous and 1 or 2 week cycle menus are used. For that reason, many foods are wasted. Therefore, I want to learn about Japanese school lunches and consider some aspects of it for emulation in our country.

I had the opportunity to have internships at Japanese primary school kitchens for 2 years and learned lots of interesting information. The most significant feature of Japanese school lunch program is not only its concern with the management and nutritional aspects of the food but also its integration of school meal into children's educational, social, and cultural experience. Central to the school lunch is the role of the licensed school dietitian/nutrition teacher. They are not only providing school lunch management but also providing food and nutrition education. They create about 200 menus per year which must satisfy the dietary reference intakes, students' tastes, and local food culture. The differences in menus keep children from getting bored and most of them eat all the food provided. The links of school lunches with cultural traditions are also presented, with attention to distinctive Japanese foods and methods of preparation, regional and seasonal specialties, as well as the role food plays in festivals, and so on. These things make lunch often the most enjoyable time of the day for Japanese children.

The more I learn about the school lunch program, the more interested I become. I recognize the value and significance of the program that Japanese have developed for their children. Hope that I can contribute to the development of school meals in Vietnam.

Keywords: School lunch, School dietitian , Menu, Food culture

## SY7-1



### **Utilization of Functional Agricultural Products for Health Maintenance and Promotion**

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One of the SDGs is the goal of health and well-being for all. In Japan, the SDG Action Plan 2022 calls for the achievement of human health and longevity, and the greening of agriculture, forestry, and fisheries for planetary health. The greening of agriculture, forestry, and fisheries includes the promotion of smart agriculture and the development of food products and dietary habits to extend healthy life expectancy. This paper presents examples of the research using functional agricultural products to maintain and promote our health, particularly the development of agricultural products with function claims (leafy greens, fruits, green tea, etc.) under the Foods with Function Claims System (FFC system), and the development of diets combining functional agricultural products based on evidence. In the future, in order to extend healthy life expectancy, it will be necessary to obtain accurate data on nutritional and functional ingredients contained in foods, to link individual health data, and to build a self-care food provision system that can recommend meals suited to an individual's physical condition. The construction of such a system, which will determine how to obtain highly accurate data and how to integrate and analyze such data, is important to realize future health promotion through food consumption.

Keywords: Functional agricultural products, Foods with Function Claims, Self-care food provision system, Extension of healthy life expectancy

## SY7-2



### **Role of Diet Diversification in Food Security and Health Promotion**

Mian Kamran Sharif<sup>1</sup>, Fayza Khan<sup>2</sup>, Tabana Naz<sup>1</sup>

*<sup>1</sup>National Institute of Food Science & Technology, University of Agriculture, Pakistan, <sup>2</sup>Health Icon Medical & Diagnostic Centre, Pakistan*

The developing nations are in total chaos because of malnutrition. According to recent estimates, 149 million children under 5 are stunted alongwith 45 million wasted and 38.9 million overweight or obese. In Pakistan, four out of ten children under five years of age are stunted while one fifth are suffering from wasting. Triple burden of malnutrition is already a hurdle in accomplishing sustainable development goals. The World Food Programme (WFP) estimates that approximately 43% of Pakistanis are food insecure and 18% of those have acute food insecurity. Around 37% population is food insecure. According to GHI 2021, Pakistan ranks 92nd position out of 116 nations. Being agro-based economy, Pakistan is producing array of food commodities some of which are even exporter; however, food insecurity is widely prevalent in certain areas of the country. Consequently, the population is suffering from triple burden diseases mainly due to poor quality diet. Healthcare cost has also increased with escalating inflation making it very difficult to promote health. Pakistan has become a staple food surplus country with overall food availability being relatively stable yet expressing low dietary diversity. A diet with less variety leads towards food insecurity, poor health outcomes, and more food shortages. More attention should be given to diet diversification to improve health and reduce risks of mortality and morbidity. Establishing sustainable dietary guidelines, eliminating subsidies for commodity crops, adding cost to the foods with high environmental degradation such as red meat will ultimately lead to more plant-based diets and less meat consumption benefitting both the environment and reduce the risk of non-communicable diseases among the people. There is need of legislation in developing countries to ensure the consumption of blended diets to lower the stress on their staple diets. Furthermore, this strategy will help in alleviating malnutrition and improving food security.

Keywords: Malnutrition, Food Security, Climate Change, Diet Diversification, Dietary Staples

## SY7-3



### **Insights from a Dietary Survey of Children in an Area Close to Forests in Stung Treng Province, Kingdom of Cambodia**

Saiko Shikanai

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Forests provide a variety of forest-derived foods for the local population, and food obtained from foraging may be more accessible and nutritious than food purchased with cash.

Cambodia is reported to be experiencing a significant decline in forest area.

Nevertheless, about half of the country is covered by forests, especially in the northeastern provinces of Ratanakiri and Stung Treng, which border Laos, where forest areas are extensive and people live in close contact with the forests.

Although Cambodia is experiencing stable economic development, there are disparities between urban and rural areas in terms of income, education, and sanitation, and the same is true for nutritional intake.

However, few dietary surveys have been reported to determine the nutritional intake of people in forest areas.

Therefore, we conducted a dietary survey of children aged 7-10 years in four forest-adjacent villages in Stung Treng Province, Kingdom of Cambodia, using the Food Frequency Questionnaire (FFQ) developed for Cambodian children and the 24-hour recall method.

The results of the children's nutritional intake status, obtained mainly from the FFQ, will provide an opportunity to assess how diet, food richness, and health promotion can contribute to the health of people in remote areas of Cambodia, as well as from the perspective of Sustainable Development Goals (SDGs).

**Keywords:** Cambodia, Dietary Survey, Food Frequency Questionnaire (FFQ), Sustainable Development Goals (SDGs)

## SY8-1



### **What is Needed to Become a Dietitian Trusted and Respected by Society: From an Educator's Point of View**

Shigeru Yamamoto

*Asian Nutrition, Jumonji University, Japan*

A dietitian is the most important expert in food and health. However, for example, it is not a dietitian but a doctor, a food science expert, etc. who makes dietary intake standards and enteral nutritional supplements. Isn't such a fact lowering the social trust and respect of dietitians? About 20 years ago in Japan, a system was established in which it is not a doctor but a registered dietitian who teaches clinical nutrition in the registered dietitian training course. The reason was that doctors could teach about illness, but not about diet. But do dietitians live up to that expectation? Let me give you some examples.

1) Salt DRI. Recently salt DRI for the elderly has been reduced from 8 to 7 g for men. Dietitians must cook according to administrative instructions. Appetite of patients was significantly reduced. When it was returned to the original amount, their appetite recovered. It is the dietitian who notices this and points out the problems of the policy. Dietitians need to be more than just using figures of DRIs of various nutrients, they need to be leading experts of DRI development.

2) Necessity of dietitian's researches at their work places: Most dietitians work in making menus and preparing meals with many considerations from taste to economy. Their academic achievements are rather poor. At universities, instructors who do not have experience in the field of dietetics play a central role. This has the consequence that students will not be able to learn how to conduct researches at workplaces of dietitians. It is necessary to break this vicious circle and requires dietitians can conduct on-site researches.

Keywords: dietitian, professional, research, university education

## SY8-2



### **What is Needed to Become a Dietitian Trusted and Respected by Society: From a Hospital Dietitian's Point of View**

Chanida Pachotikarn

*Thai Dietetic Association, Thailand*

The challenge to become a trusted and respected dietitian by other healthcare professional is crucial. It is important that hospital dietitians as a member of multidisciplinary team play a key role in all levels of clinical nutrition practice as well as at the hospital foodservice administrative level. Physicians, nurses and pharmacists who work alongside with dietitians need to recognize and valued the role of dietitian in improving quality of care in hospitalized patients. In order to achieve this matter, dietitians need to gain relevant clinical and management knowledge, skill and competency to provide safe and ethical nutrition therapy. The Nutrition Care Process (NCP) is a framework for thinking and decision making that dietitians use to guide professional practice in providing high-quality nutrition care. Medical nutrition therapy provides a systematic assessment, diagnosis, treatment, and intervention. Translating the science of food nutrition and therapeutic diet into hospital meal is fundamental to dietetic practice. Science-based decisions, derived from the best available research and evidence need to be put into practice. The art of communication also is essential in the dietitian's role. The common problem that most of dietitians face is they are not confident enough to stand up for their recommendation when they have to explain to other health care professionals. To solve this problem, we need to come together to the same core values and harmonized the Standards of Practice (SOP) and Standards of Professional Performance (SOPP) which can be used as guides for self-evaluation and to determine the education and skills needed to practice. We need a strong organization body such as AFDA and collaboration among Dietetic Association to make dietitian trusted and respected by society.

Keywords: Dietitian, Hospital, Trust, Respect, Nutrition Care Process

## SY8-3



### **What Is Needed To Become A Dietitian Trusted And Respected By Society: From a MD's Point of View**

Linh Thuy Nguyen

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Bachelor of Nutrition was established at Hanoi Medical University in 2013. Currently, Vietnam has 11 universities that give Bachelor of Nutrition education with about 2000 dietitians in 5 next years. Dietitians will become the main contributor to the healthcare system. From the medical doctor's viewpoint, we expect dietitians: (1). Finding the health problem by screening, assessment, and diagnosis of nutrition. (2) Providing the nutrition intervention by education, counseling, making the menu; (3). Dietitians need in-deep knowledge and practical experience to provide special nutrition care. (4). Confidence to discuss with doctors and stakeholders to give the best quality of nutrition to promote health, prevent and treat diseases. (5). Dietitians need a license as others specialize in the healthcare system.

For example:

1) Dysphagia patients: RDs must screen, assess nutritional status and assess the diet to answer the questions: Do the patient have malnutrition? What are the estimated energy and nutrients requirements? The feeding routes? If the patient was tube-fed, RDs need to design a menu with a liquid texture that can be delivered using a tube. With oral feeding, RDs need to confirm the food texture, along with the level of thickening. RDs will explain to the patient about the role of a dysphagia-appropriate diet and feeding posture. They will also discuss with doctors and nurses about nutrition care plan for the patient.

2) Cancer patients: Cancer patients have many side effects of treatment therapy that lead to reduced energy intake. RDs will need to find the reason for the reduction such as vomiting, nausea, mouth ulcer, diarrhea, constipation, etc. RDs will counsel patients and design a menu depending on factors such as division into many smaller meals, choosing less spicy food, oral nutrition support, and dental hygiene.

Keywords: Dietitians, MD's point of view, Vietnam

# WS1

## Young Dietitians of AFDA Member Countries

**Chairpersons:** Georgen Choong Jean Thye (*Malaysian Dietitians' Association, Malaysia*)  
Tzu Yun Chu (*Taipei Veterans General Hospital, Taiwan*)  
Varanya Techasukthavorn (*Chulalongkorn University, Thailand*)  
Samitti Chotsriluecha (*Phramongkutklao Hospital and College of Medicine, Bangkok, Thailand*)  
Yupa Chanwikrai (*University of Phayao, Thailand*)  
Trang Thu Nguyen (*Jumonji University, Japan*)

**Speakers:** Saori Kataoka, *Kanagawa University of Human Services, Japan*  
Ishak Halim Octawijaya, *Kanagawa University of Human Services, Japan*  
Risako Okuyama, *Aomori Hachinohe the Second Prefectural School for the Disabled, Japan*  
Giang Huong Nguyen, *Jumonji University, Japan*  
Diep Van Nguyen, *Fujinoe Company, Japan*  
Thao Phuong Tran, *Jumonji University, Japan*  
Ngoc Thi Ta, *Asian Nutrition and Food Culture Research Center, Vietnam*  
Marita Villarama De Guzman, *Nutritionist-Dietitians' Association of the Philippines, Philippines*  
Zi-Xuan Lin, *National Taiwan University Hospital, Taiwan*  
Yootana Prommaun, *Satuek Hospital, Thailand*  
Pongsakorn Longchuan, *Somdech Phra Pinklao Hospital, Thailand*  
Phuong Mai Nguyen, *Quest Company, Japan*

With the rapid development of Asia, diet patterns and the nutritional situation are changing. As young dietitians, we need to gather to discuss and exchange ideas. For ACD 2022, we have created a workshop to discuss dreams, worries, and what to do to address them. Currently, we have 30 members, who are young dietitians ( $\leq 39$  years old) from each member country, who have come together to discuss three main topics: Obesity, Malnutrition, and the legal aspects of Dietetics.

Obesity is a global public health problem and is generally caused by excessive calorie intake and sedentary lifestyles. Under this topic, we will discuss three issues related to obesity in Asian countries, including the criteria and prevalence of obesity in different population groups (children and adults); the factors contributing to obesity in the context of each country; and the policy measures taken by the respective countries to improve the situation. At the end of the session, the information from the different countries will be evaluated to develop ideas to improve the strategies to fight obesity and create a healthier community.

Malnutrition (referred to as undernutrition) remains an important problem in many countries, especially in Asia. For this topic, we will share our knowledge regarding this critical matter so that we can provide the proper care for our patients. In the malnutrition session, each country will indicate their malnutrition prevalence in hospitals and communities and which tools they use for screening and assessment. Dietitians from each country will also give suggestions on methods to improve the patients' nutritional status (such as frequent meals, special meals/menus).

A completed and well-structured legal system needs to be established to protect the profession of dietitians in the healthcare system. For this topic, the content of the discussion will include the history of the dietetics system in each country, qualifications to be a dietitian, the legal situation of dietetics in hospitals, school nutrition (school lunch programs), community, and other (companies, sports nutrition...). The weaknesses and strengths of each system will be discussed so that in the future we can improve our systems and help dietitians be powerful and motivated in their profession.

Up to now, we have had several online meetings and exchanged a lot of great knowledge and experience. After ACD 2022, we are looking forward to continuing our friendship among young dietitians so that we can share our knowledge and support each other in the future.

**Keywords:** Obesity, Malnutrition, Legal system

## WS2-1



### **Dietitian's Activities in Obesity Prevention Programs**

Samitti Chotsriluecha

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During past two-decade, non-communicable disease (NCDs) prevalence was escalated and affected on long term individual health and health care cost. Overweight and obesity was disease of excessive intake and imbalance of nutrient utilization, represented by high fat storage in body composition, excess nutrient in blood circulation. Obesity related disease such as cardiovascular disease, diabetes, dyslipidemia, fatty liver disease, obstructive sleep apnea, depression, and so forth burdened long-term health and quality of life

Food, nutrition and diet intake play a major role on body weight and metabolic function and also related to metabolic syndrome incidence. However, the substantial knowledge of nutrition and disease was socialized propaganda, but who was responsibility to communicate nutrition science to people, if not dietitian.

Dietitian can be a part of obesity prevention programs from individual patients such as diet counseling, food-nutrition and health awareness, healthy eating lifestyle, health literacy, and also to public health policy e.g., exclusive breast feeding, nutrition programs for school children, sugar-fat-salt tax, healthier food production via collaborate with entrepreneurship. Dietitian demonstrate effective nutrition intervention in metabolic syndrome treatment and obesity-related disease such as diabetic prevention program, diabetic remission program, therapeutic lifestyle changed programs, and dietary approach to stop hypertension program. In conclusion, dietitian may a one of health care professionals who promotes satisfied healthy lifestyle and sustainable healthy society.

Keywords: obesity, obesity prevention programs, obesity related disease

## WS2-2



### **Dietitians' Activities in Indonesian Obesity Prevention Programs**

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Trend of overweight and obesity in Indonesia increasing. Basic health research in Indonesia in 2013 – 2018 shows that the proportion of overweight and obesity at the age of > 18 years has increased by 3.3% and 8.2%, respectively, while the proportion of central obesity at the age of > 15 years has increased by 4.4%. Obesity is caused by poor food quality. A survey in Indonesia in 2014 showed 29.7% of the Indonesian consumed sugar, salt and fat more than their needs. Moreover, the intake of fruit and vegetables is less than recommended. It is tended to increase due to the more intense of promotion of ultra-processed food, the easier access to unhealthy foods, and the increase of consumption of sugary drinks. Lack of activity also has an impact on obesity. The research found that 33.5% of Indonesians aged > 10 years have lacked activity. Dietitian play a role in efforts to prevent and reduce obesity. The prevention activities are carried out through education and counseling at health service facilities, or at the commemoration of nutrition, children, elderly day and propaganda of healthy food through TV shows, radio, leaflets or posters. Handling of obesity is done through a weight loss program through diet counseling and weight monitoring. Since the COVID-19 pandemic nutrition education and counseling have been carried out by utilizing IT such as tele-nutrition, social media, videos and the provision of healthy food or the home care diet catering. The Indonesian Dietetic Association is involved in developing and implementing guidelines and obesity prevention programs from the Ministry of Health.

Keywords: obesity, dietitian, activity programs

## WS2-3



### **Obesity Control Measures Using Specific Health Guidance in Japan**

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Overcoming the nutritional obstacle known as double burden malnutrition (DBM) has become a major challenge worldwide. In particular, obesity is closely related to lifestyle-related diseases, and countermeasures are desired. Since April 2008, Japan has focused on obesity due to visceral fat accumulation, aiming to prevent lifestyle-related diseases by providing specific health checkups and specific health guidance. Here, we will introduce the measures implemented in Japan against obesity to date and the related results.

The subjects were citizens 40 years old or older, stratified by the number of risk factors for lifestyle-related diseases, based on the results of specific health checkups and questionnaire items. In the screening procedure, in addition to the accumulation of visceral fat, the results of health checkups, and question items related to smoking history were incorporated as risk factors. Furthermore, the subjects were stratified into active supporters and motivational supporters.

The proportion of obese people in Japan was 33.0% for men and 22.3% for women in 2019. In FY 2020, the number of people eligible for specific health checkups was 54.18 million, and the implementation rate of specific health checkups was 53.4%. A total of 5.22 million people were eligible for specific health guidance in FY 2020, and the implementation rate for the specific health guidance was 22.7%. In the same year, the rate of decrease in the number of people with metabolic syndrome and those in the pre-diabetic group was 10.9%, compared with FY 2008.

It can be considered that specific health guidance can improve lifestyle habits and prevent metabolic syndrome. Increasing the implementation rate of specific health guidance is a challenge we will face in the near future. Of course, specific health guidance tailored to changes in the results obtained over time and also to the lifestyle of the target population must be provided.

Keywords: obesity, specific health guidance, specific health checkups , lifestyle-related diseases

## WS3-1



### **Food-based Dietary Guideline for Sustainable Healthy Diets: Lessons from Japanese Diet and Longevity toward SDGs**

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Japan currently has the Dietary Reference Intakes, which show recommended values at the nutrient level, and the Dietary Balance Guide, which indicates how much of each of the following five food groups should be eaten: main meals, side dishes, main dishes, milk and dairy products, and fruits. However, from the perspective of achieving the Sustainable Development Goals (SDGs), WHO and FAO have recommended that guidelines for sustainable and healthy diets be formulated, taking into account the social, cultural, economic, and environmental factors of each country, as one of the actions for reforming the food system. In response to this, National Institute of Health and Nutrition has registered a commitment to propose a new science-based "Food-based Dietary Guideline" by 2030 in the Tokyo Nutrition for Growth Summit 2021. Japan has achieved the world's longest life expectancy on the basis of healthy diet and universal health coverage. According to data from the National Health and Nutrition Survey and other sources, the Japanese diet is already characterized to some extent as being close to the goals of the "Sustainable and Healthy Diet" recommended by the WHO and FAO, as it is based on plant-based foods, rich in seafood, and low in free sugars, and also to the scientific targets for a planetary health diet by the EAT-Lancet Commission on Food, Planet, Health. However, further modifications are necessary to achieve SDGs. We believe that the dietary guideline based on the Japanese diet will serve as a model for the Sustainable and Healthy Diet" in the world.

Keywords: Dietary guideline, Health, Sustainability

## WS3-2



### **The Commitment and Its Progress of the Federation of Japanese Nutrition Societies (FJNS)**

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The Federation of Japanese Nutrition Societies (FJNS) is a coalition of fifteen academic societies related to nutrition sciences. The FJNS was formed in 2017 with the aim of actively promoting nutrition research and its social implementation. Each academic society exchanges and shares information with each other, aiming to provide advocacy to society when necessary.

The Tokyo Nutrition for Growth Summit (N4G) was an important opportunity for FJNS to consider and show how we could contribute to solving global nutrition issues, such as double burden of malnutrition. FJNS launched a taskforce in October 2020, held discussion about one year, then completed the commitment as follows.

FJNS, through survey and review of its member societies' "extensive research on nutrition issues in Japan," will demonstrate the effectiveness of the Japanese diet towards tackling the double burden of malnutrition. By supporting and empowering personnel, especially young researchers, and health professionals, who can bridge such research-based evidence to practice, FJNS commits to resolve global nutritional challenges. To achieve this, by 2030, FJNS will organize/support research/training programs (e.g., research grants, e-learning programs, practical education programs, and overseas research fellowships) through its member societies' activities, primarily for young professionals in Japan as well as other countries. More than 300 individuals are expected to participate the programs. Progress will be reported at the symposia and workshops held during the International Congress of Nutrition and the Asian Congress of Nutrition to provide information and to recruit new candidates.

In the workshop, the progress of the commitment of each society will be presented.

Keywords: academic society, nutrition science, human resource development, global nutrition issues

## WS3-3



### **Nutritional Commitment of Ajinomoto Group - Nutrition Without Compromising Taste Toward Responsible Nutrition -**

Hisayuki Uneyama

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At the Nutrition for growth (N4G) Summit 2021 held in Tokyo last year during the Olympic Year, 26 companies and organizations declared their commitment as private sector. The world is facing the double burden of nutrition (that is, lifestyle-related diseases such as obesity, diabetes and cardiovascular disease caused by overnutrition as well as undernutrition, and the triple burden adding unhealthy ageing. It reminded us that it is an important malnutrition issue. It reaffirmed the importance of problem-solving through a comprehensive approach with multistakeholder partnerships, especially in the role played by the food industry, which provides food products to the general public. According to the Institute of Health and Metrics Evaluation (IHME)'s report, "excess intake of salt" remains the number one dietary risk for nearly 30 years, when the study began. Since the WHO's NCD monitoring framework began monitoring global salt reduction activities in 2013, there are concerns that the 30% salt reduction target has not yet been achieved, and unfortunately has been significantly exacerbated by the Covid-19. Especially in the East and Southeast Asia regions, excessive salt intake is recognized as the most serious public health issue in the region.

This symposium introduces the nutritional commitments made based on more than 110 years of experience on improving nutrition and health of the Ajinomoto Group, headquartered in Japan. Then, based on our wisdom experienced in super-ageing society with healthy longevity, we will discuss about the best way to solve game changing for upcoming Asia and the world.

Keywords: umami taste, salt reduction, nutritional commitment, protein quality, workforce nutrition

COI: HU is the employee of Ajinomoto Group

## WS3-4



### Promote and Develop the Dietetic System in Asian Countries

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In 2015, the UN announced the Sustainable Development Goals (SDGs) and it was internationally agreed that by 2030, various targets for sustainable development, including poverty, hunger, energy, climate change and peaceful societies, would be achieved. Against this background, the Tokyo Nutrition Summit 2021 was held in December 2021, with the support of 215 stakeholders, including 60 companies from 65 countries. The Japan Dietetic Association presented its commitment at a high-level session and at an official sub-event 'What the Japan Dietetic Association can do now to eradicate the world's nutrition challenges - 100 years of Japanese nutrition, for the world'.

Before the formation of the modern nation, the Japanese people were undernourished. While obtaining food aid from overseas, the government promoted nutrition policy as a national policy and continuously developed nutritional improvement through the provision of healthy meals and nutrition education by placing dietitians in group meal facilities. This approach curbed the westernization of diets following rapid economic growth and became the driving force behind the construction of a country with a long life expectancy.

To fulfil the commitments made at the Tokyo Nutrition Summit, this experience will be used to support research in practical nutrition, education and training of dietitians, as well as the creation and development of a dietitian system. Specifically, by 2030, we will establish education and training program in countries in Asia where no dietitians exist, and in countries where dietitians already exist but the systems are not fully functioning, we will provide support through conferences, workshops and study abroad program to help these countries improve their dietitian systems so that they can become self-sustaining and sustainable.

Keywords: SDGs, Tokyo Nutrition Summit 2021, Japan Dietetic Association, commitment

## WS4-1



### **Community Nutrition Activities by Public Health Dietitians - Maternal and Child Nutrition Program in Malaysia**

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Malaysia is experiencing a triple burden of malnutrition, characterised by 1) stunting and wasting, 2) overweight/obesity, and 3) anaemia. Nutrition deficits in this early period, especially during pregnancy, place the child at higher risk of later being overweight and NCDs through foetal programming. Based on the National and Health Morbidity survey in Malaysia, prevalence of underweight among children under 5 was 13.7 per cent in 2016, up from 12.4 per cent in 2015 and 19.6 per cent in 2011.

A recent longitudinal adolescents cohort study in Malaysia, has shown adolescents who did not meet their RNI for daily total iron intake have a 51.7% increase in the risk of developing anaemia compared to those whose daily RNI for iron is met. In addition, a systematic review of literature relating to adolescent diet in Malaysia found that 'gender, place of residence, and meal and snacking patterns' were the factors most closely associated with overweight and obesity.

Childhood nutrition is a priority area of the National Plan of Action for Nutrition of Malaysia (NPANM III) 2016-2025. Several programmes are in place to address the issues. Another area of public health concern is also overweight and obesity children. This issue needs to be curbed and unfortunately the problem is also quite relevant among the pregnant mothers thus if it is not intervened early it will also lead to gestational diabetes mellitus (GDM) where studies have shown the prevalence ranges from 18.3 % to 24.9 %.

The role of dietitians who are involved in public health is crucial as not only to educate the mothers about their child but also in ensuring them also not facing nutritional problems such as anaemia and preventing GDM where possible. Thus strengthening dietetics services in prevention and monitoring dietary aspects in non-communicable diseases are important.

Keywords: malnutrition, children, adolescent, dietitians

## WS4-2



### **Dietary Risk Factors of Physical Growth of Filipino School-aged Children**

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Mayu Sugita<sup>2</sup>, Marvin Bangan Toledo<sup>1</sup>,  
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**Objective:** The study evaluated the relationship of habitual nutrient intake and protein adequacy to the prevalence of child malnutrition.

**Materials and Methods:** Data were derived from a nationally representative sample of children aged 6–12 years. Two nonconsecutive day 24-h dietary recalls (24hR) were collected to estimate the individual food intake. PC-SIDE version 1.0 software was used to estimate the habitual intake of key nutrients accounting for between- and within-person differences in dietary intake. The 2007 WHO Protein Digestibility Corrected Amino Acid Score (PDCAAS) method was used to measure protein quality. The nutritional status is reflected in the weight-for-age, height-for-age, and body mass index (BMI)-for-age z-scores through WHO Growth Reference Standard (WHO, 2007).

**Results:** Undernourished school-aged children were found to have high protein inadequacy. Higher consumption of grains and cereal products, meat, and high-quality protein foods were associated with lower risk of stunting. Higher intake of milk and milk products, grains and cereal products, high-quality protein foods, calcium, riboflavin, and vitamin C were associated with lower risk of underweight. Higher consumption of grains and cereal products, riboflavin, thiamine, and fiber were associated with lower risk of wasting. On the contrary, higher consumption of meat, milk and milk products, grains and cereal products, high-quality protein foods, and vitamin C were associated with higher risk of obesity. Furthermore, linear growth of children was found to be associated with high-quality protein foods, calcium, vitamin B12, vitamin C, and vitamin D.

**Conclusion:** Malnutrition among Filipino children is influenced by nutrient intakes. However, the existence of malnutrition among children may be specifically attributed to the quality of protein consumed. Therefore, the study suggests that nutrition interventions and policies focusing on child malnutrition should improve not just the quantity but also the quality of protein sources consumed by children to aid in proper growth and development.

**Keywords:** physical growth, nutrient intake, protein adequacy, child malnutrition, school-aged children

## WS4-3



### **Public Health Nutrition Activities by Administrative Dietitians in Japan: The Maternal and Child Nutrition Program**

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The history of maternal and child nutrition program in Japan from the perspective of public nutrition activities by administrative dietitians was reviewed.

Books and reports published since 1930 related to nutrition policies and programs were searched. The content was assigned to one of four eras: 1) before and during World War II (1931–1945), 2) postwar reconstruction (1945–1960), 3) high economic growth bubble (1960–1989), and 4) post bubble Lehman shock and COVID-19 (1990–2022).

The findings were as follows; 1) Nutritional activities by the national government began with a feeding program for undernourished infants and mothers in rural areas. The position of “administrative dietitian” at public health centers at local government was initiated. 2) Administrative dietitians were placed in charge of national surveys such as the National Nutrition Survey and National Nutrition Survey on Preschool Children. Based on these results, “people centered activities”, such as counseling for the community and school lunch facility guidance, were developed. National institutes supported these programs including the implementation of the survey and training of local government personnel. The activities reduced infant mortality rate. 3) The Japanese diet and diseases began to change. Nutritional activities to prevent lifestyle-related diseases, including health checkups and guidance, were initiated. The programs were conducted by various groups including private sectors. 4) Due to a declining birthrate and aging population, “Health Japan 21” was established to prevent lifestyle-related diseases, respond to nutritional issues of the elderly, and reduce health inequalities. Dietitians have initiated activities for a healthy food environment reflected the community characteristics.

Conclusion is “Public health nutritional activities” has been conducted as “community people centered programs” under the administrative dietitians who are specialists at national and local governments. The maternal and child nutrition program has been in effect continuously; however, the scope of its issues and activities has changed by era.

Keywords: public health nutrition activities, administrative dietitians, historical transition, Japan, community people centered programs

## WS5-1



### **Systems, Activities and Issues for Hospital Dietitians – Active Participation to Eradicate Hospital Acquired Malnutrition**

Gordon Cheung

*Hong Kong Nutrition Association, Hong Kong*

Malnutrition is well-known for its negative impact on the physiological function, psychological well-being and clinical outcomes of patients, as well as prolonging the length of stay in hospital and increasing the medical expenses. In UK, studies revealed that 10-60% of hospitalized patients were found to be malnourished, and a cross-sectional survey in Hong Kong indicated overall 19.9% of our in-patients were at high risk of malnutrition.

In some cases, food services are sadly considered as an appropriate area for 'cost-cutting'. Working as a dietitian in the clinical settings, we should always remind the administrators about the health impact of poor nutritional care and the increased expenditure associated with longer episodes of care. We should actively involve in the development and implementation of nutrition policy in the organization, which include strategies for the treatment and prevention of malnutrition. We should actively participate the multidisciplinary team to oversee the hospital's nutrition management strategy to make sure the food and fluid provision to patients according to their requirement and refer them to nutrition-related services at the timely manner. We have to consider setting up the universal nutrition screening of patients on admission using validated screening tools and regular screening for long stay patients, and actively involve in the decision of oral nutrition support, enteral nutrition, and in some cases, partial or full parenteral nutrition. Studies proved the active dietitians' involvement in the nutrition support services improved clinical outcomes such as shortening length of stay, speeding up the wound healing, reducing surgical complications, and improved the psychological well-being and quality of life.

Keywords: Malnutrition, Nutrition support, Nutrition Screening

## WS5-2



### **Systems, Activities and Issues for Korean Hospital Dietitians**

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#### ■ **Health Care Insurance Systems and Hospital Nutrition Service in Korea**

Every Korean people is under national health insurance program which is administrated by Ministry of Health and Welfare and aim to improve citizens' health and promote social security.

For hospital nutrition service, education and counseling of diabetes, hypertension, CVD and cancer was considered as non-health care benefit in 2003, and now education and counseling of cancer, CVD, colonostomy, CKD is health care benefit. Hospital meal for inpatients has been covered since 2006.

#### ■ **Hospital Nutrition Service in Korea**

There are two main services in hospital nutrition service. One is food service for inpatients and the other is clinical nutrition service, for example nutrition screening, counseling, education or nutritional assessment and evaluation.

#### ■ **Hospital Nutrition Service Issues in Korea**

For clinical nutrition service, every dietitian in hospital should be highly educated. Food service in hospital is characterized by labor-intensive and required highly skilled employees, however, the satisfaction of hospital food service is one of the lowest items in most hospital.

#### ■ **For Sustainable Nutrition Service in Hospital**

Despite there are lots of burdens which we are faced, hospital service has been advanced for last decades and nutrition service has also been specialized. QoL, moreover, is considered as a most important health issue, nutrition is getting more crucial.

Dietitians in hospital, as a health care nutrition specialist, what should we do?

Keywords: Korean hospital food service, Korean hospital clinical nutrition service, health care insurance, hospital dietitian

## WS5-3



### **The Roles and Challenges for the Registered Dietitian in Kaifukuki (Convalescent) Rehabilitation Wards**

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Registered dietitians (RDs) in hospital settings play a dominant role in providing medical nutrition therapy, nutrition support, nutrition education, management for food services, or other clinical nutrition and food services practices. In Japan, the hospital's RDs were first placed as nutritional professionals for food service and providing nutritional education. Recently, Japanese RDs are taking a role in nutrition support that is more patient-centered and directly affective to patients' nutritional and health conditions than the past roles. However, the public healthcare insurance regulated only one RD per hospital to manage hospital food service and nutritional management until 2017. Kaifukuki (convalescent) Rehabilitation Ward (KRW) provides comprehensive, multidisciplinary rehabilitation to the patients after cerebrovascular disease, orthopaedic disease or disuse syndrome. Approximately 43% of malnourished patients were admitted to KRWs despite a lack of staffing RDs regulations. Moreover, the patients often experienced weight loss even though they were malnourished; the proportion of underweight patients increased during hospitalization, from 22% at admission to 24% at discharge. The Nutrition Committee of the KRW association has addressed this problem and clarified the association of malnutrition with poor functional outcomes in the patients admitted to KRW. Based on this evidence, the public healthcare insurance policy has been changed; the specified KRWs require the effort to staff RDs per ward and provide nutrition support for the patients with or at risk of malnutrition. From 2020, this regulation has been mandated. Today, most RDs in KRWs take part in nutritional assessment, planning nutrition care, monitoring, nutrition education, teaching cooking, and adjusting nutrition care for patients' daily lives after discharge. However, there remain some challenges, including the need to establish a "standard of practice", educational framework for on-the-job training, and integration of primary knowledge and skills into the program for undergraduate students.

Keywords: Registered dietitian, Kaifukuki (convalescent) Rehabilitation Ward, Clinical nutrition

## WS6-1



### **Development of Nutritional Assessment Sheet for Defecation in Spinal Cord Injury and Spina Bifida Athletes**

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Spinal cord injury and spina bifida athletes have problems with defecation. This presentation will discuss the research that has been conducted.

The purpose of this study was to describe the defecation status in spinal cord injury and spina bifida athletes and to develop a nutritional assessment sheet regarding defecation.

Methods: The study participants were 16 male athletes with spinal cord injury and spina bifida. The participants' defecation condition was collected from the results of the assessment in nutritional support for the athletes.

Results: The defecation status was classified into 6 items: defecation method, frequency of defecation, defecation timing, time required for defecation, presence or absence of bowel movement, and defecation problems. The most common method of defecation was spontaneous defecation (43.8%), followed by stool evacuation, laxatives, bowel washing, enemas, and suppositories. Defecation frequency, timing, duration, and bowel movements varied regardless of the disability category. Defecation problems were reported by 87.5% of all subjects, with loose stools and diarrhea being the most common problems (85.7%), and 83.3% of these problems were caused by diet or food. The Nutritional Assessment Sheet for Defecation was developed in a format including the six items on defecation status and the causes of defecation problems.

Conclusion: Spinal cord injury and spina bifida athletes, regardless of disability classification, have a variety of defecation status and defecation problems, and the causes of these problems are often related to diet and food. We believe that this nutritional assessment sheet on defecation will contribute to the support of spinal cord injury and spina bifida athletes.

Keywords: Spinal Cord Injury, Spina Bifida, Cervical Cord Injury, Defecation, Nutritional Assessment Sheet

## WS6-2



### **Challenges in Nutrition Management for Vietnamese Older Adults with Dysphagia**

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Dysphagia has become a common issue among older adult population. In developed countries, dysphagia screening/assessment is routine. Oral intake of thickened fluids and a texture-modified diet (TMD) is a priority alternative for dysphagia. Worldwide, the IDDSI was established with 5 levels of food including regular, soft & bite sized, minced & moist, pureed, and liquidized diet.

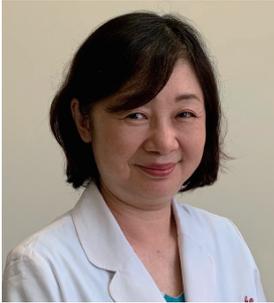
In Vietnamese hospitals, dysphagia screening/assessment and dietary treatment have not been matters of concern; the automatic solution for cases of choking/aspiration is still a prescription for tube feeding or for serving porridge without a thickening agent.

The study on more than one thousand Vietnamese older adult inpatients were screened dysphagia by dietitian showed that the rate of dysphagia was very high at 16.5% in the RSST and WST. About one third of patients had a normal nutrition status, 17% were in malnutrition, and more than half were at risk of malnutrition by MNA-SF. Malnutrition and dysphagia have a strong relationship in older adult inpatients. Therefore, for the proper treatment, nutritional and dysphagia screening at hospital admission are very important and should be recommended.

The other study on 344 Vietnamese older adult inpatients showed that 104 subjects were prescribed TMD. The textures of hospital diets have still not been adequately developed, according to IDDSI. In particular, the hospitals in the study had not yet developed pureed meals. Total energy intake from hospital meals and outside snacks in the regular diet group was higher than in the TMD group by about 150 kcal. Although energy provided from the hospital diet in both groups was similar, hospital meal wastage in the TMD group was higher than the regular diet group. TMD needs to be improved in texture and quality. Patients on TMD should receive further support from not only dietitian but also other medical staff.

Keywords: Nutrition, Dysphagia, Vietnam, Older adult inpatients

## WS7-1



### **Prevention of Frailty and Sarcopenia Using Nutrition, Food, and Exercise Support: Role of a Nutrition Care Station with Interprofessional Collaboration between Medical Staff and Registered Dietitians**

Yayoi Tanaka

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The Japan Dietetic Association established the Prefectural Dietetic Association Nutrition Care Station in 2008, and the Certified Nutrition Care Station was launched in 2018. A Certified Nutrition Care Station with enhanced functions became operational in 2021 and employed a registered dietitian with medical and long-term care skills. This nutrition care station plays an important role in the comprehensive management of nutritional needs of individuals within the community care system. This certified nutrition care station requires membership and aims to function as a community-based, independent, and profitable business base. Registered dietitians who work at highly skilled nutrition care stations are of the opinion that improvements in food and nutritional support in the home environment will reduce the prevalence of frailty and sarcopenia. In April 2022, a total of 456 nutrition care stations are functional across Japan. We intend to introduce a certified nutrition care station aimed at prevention of frailty and sarcopenia. The team at the center includes co-medical staff, such as registered dietitians and physiotherapists who have established the “Studio Cafe BALENA,” a facility associated with extension of healthy life expectancy through emphasis on “food,” “exercise,” and “social participation.” “BALENA” includes a long-term care outpatient rehabilitation facility, a certified nutrition care station, an exercise studio, and a community cafe. We collaborate with medical institutions and local governments to promote health exercises, walking classes, food support courses, community exchange events, food distribution services, and home-visit nutritional guidance, among other such services to expand the circle of a community-based society. This place is a new community center that addresses nutritional, food, and exercise concerns of local residents in an effort to prevent frailty and sarcopenia. As a nutrition expert, I wish to support my life as a new form of stabilizing nutrition and food.

Keywords: Frailty , Sarcopenia, Nutrition care station

## WS7-2



### **The Role of Nutrition Professionals in Strategies to Prevent Frailty and Sarcopenia in the Community**

Gordon Cheung

*Hong Kong Nutrition Association, Hong Kong*

In light of the longevity trend in Asia, the prevalence of frailty and sarcopenia are expected to be increasing in the coming decades and there would be a necessity to formulate the strategies to prevent such functional decline and loss of skeletal muscle. WHO raised the awareness of dementia as a public health priority in 2012 in view of its global prevalence and incidence, the associated mortality and the global economic cost. Scientists tried to unlock the mechanism(s) of causing dementia, particularly Alzheimer disease, to formulate preventive strategy. Sarcopenia is a complex aging process of multifactorial pathogenesis, influenced by lifestyle, nutrition, biological processes, as well as the immunological and endocrine mechanisms. It would be further complicated by COVID-19 pandemics and interact with COVID-19 to form a vicious cycle with the increased the susceptibility to infectious diseases and further muscle wasting.

A wide range of dietary substances have also been proposed to prevent Alzheimer's disease. A wide range of antioxidants such as vitamin C, vitamin E, flavanoids, lutein and zeaxanthin were effective to alleviate oxidative stress. Anti-inflammatory property of omega-3 fatty acids have also make it possible to prevent Alzheimer's disease. Adequate folate and/or vitamin B12 would avoid hyperhomocysteinemia, which may lead to neuronal cell death owing to the increased DNA damage and point mutation. Limiting the chronic exposure of aluminium and adequate vitamin D were also believed to be protective against Alzheimer's disease.

Screening with the validated questionnaire and functional assessment including the handgrip strength and physical performance would be vital to identify the sarcopenic patients and high risks individuals for possible nutrition intervention. On top of the resistance training, supplementation of vitamin D and protein in form of intact protein, branched-chain amino acid, and hydroxymethylbutyrate (HMB) were the promising candidates to prevent and treat the condition.

Keywords: Sarcopenia, Dementia, Prevention

## WS7-3



### **Novel Food Formulation Strategies to Prevent and Manage Sarcopenia**

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Sarcopenia, is associated with increased risk for several adverse health outcomes, including frailty, disability, falls, loss of independent living, and mortality. At present, there are no pharmacological treatment methods that are able to definitely halt the progression of sarcopenia/age-related muscle wasting or reverse sarcopenia. With life expectancy increasing worldwide, the economic burden of sarcopenia increases multifold. The complexity of its pathogenesis and the heterogeneity of clinical correlates render therapeutic interventions a challenging task. Hence the developments in this field will require a shift in paradigm, moving from a disease-centered approach to a holistic, personalized approach, that centres around diet and lifestyle. Formulation of food products with novel ingredients and processing methods to ensure delivery of quality proteins in the right quantity in an easily accessible and affordable manner becomes the priority. This presentation will throw light on the novel ingredients available to produce high protein food products, the regulatory challenges, bioavailability of these ingredients, sensory perception, nutritional value, cost effectiveness and efficacy of the final product. Selected real-life case studies on how nutrition professionals can work with food technologists and policy makers to drive the initiative of preventing and managing sarcopenia will be addressed. In addition, the discussion will also revolve around matters like, time of administration of protein rich food products, consumption of these high protein foods in combination with other foods in a meal and its impact on bioavailability and influence of physical activity on protein absorption. The functional effects of the diet as a whole in protein metabolism, moving from traditional approach on single dietary agents to boost protein intake will be addressed.

Keywords: Sarcopenia, Novel Food Ingredients, Personalised diet, Food Processing, Nutrition