
Development of Scientific Evidences of Japanese Diet in Its Promotion for Health and Wellness

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<Summary>

As the factor to lead Japan to the best country of long life expectancy in the world, the influence of eating habits and gastronomic original culture unlike America and European countries besides the advancement of medicine and improvement of life hygiene environment is extremely large [Sasaki, Lancet 378, 1205-1206 (2011)]. Japanese food is of interest worldwide as healthy food. In the typical Japanese meal, rice, seafood, vegetable, soybean, meat, milk, oils and fats, and fruits, etc. are abundantly used, and a variety of cooking methods are well practiced. Therefore, effective use of this gastronomic culture is of vital importance in the promotion of good health. It is very necessary to influence this (Japanese gastronomic culture) to the world by thorough research and information dissemination.

There is little research that synthesizes the quality of the menu of the meal with the succeeding analysis on it and there were a lot of examinations also that examine the influence of the individual element included in food which gave the living body to sustain so far.

In addition, comparison of Japanese food with European and American food had not been performed using DNA microarray analysis. Then, in our previous study, we examined the differences in gene expression levels in the liver of rats fed with “Japanese food” or “American food” using a DNA microarray. Two meals were cooked based on a menu of Japanese food and American food. The cooked meals were prepared to a freeze-dried powder and given to rats for three weeks as test diets. Total RNA was then extracted from rat liver and used in DNA microarray analysis. The expression levels of stress response genes were lower in rats fed Japanese food compared to those fed American food, and expression of genes of the sugar and lipid metabolism system was higher in rats fed Japanese food. Expression of genes associated with cholesterol catabolism increased markedly in rats fed Japanese food, although the ingested lipid content was low, and cholesterol accumulation in rat liver was prevented. Therefore, the results suggest that Japanese food is healthy and profitable compared with American food due to activation of metabolism and reduction of stress. [T. Tsuduki, N. Takeshika, Y. Nakamura, K. Nakagawa, M. Igarashi, T. Miyazawa. DNA microarray analysis of rat liver after ingestion of Japanese and American food. *J. Jpn. Soc. Nutr. Sci.* 2008; 61: 255-264].

Does Japanese food today is still healthy? The morbidity rate of the lifestyle disease has increased recently in Japan. One of the reasons is the change of food consumption to that of Europe and America. It was thought that the meal that the people with long life had been eating is effective for longevity. Which is among the Japanese food is healthy? It is not known. There is little research that evaluates Japanese food in a scientific manner. In this study, to clarify “Is healthy utilization of Japanese food is high?” and “Is the intake of Japanese food the most effective for longevity and health maintenance?” a human and mouse experimental subjects will be used to deepened analysis of the validity of Japanese food as “health food”. If this research is completed, the utilization of Japanese food can be shown based on the scientific manner. Useful Japanese food for the prevention of aging disease (which the number of

patients currently increasing) can be shown. In addition, this could become an important help of the nutrition education that reviews the present eating habits. And, eventually would provide the world the information of the utilization of Japanese food as a food choice that promotes good health.

Evaluation of Nutrient Intakes and Nutritional Status Using Urine Samples

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<Summary>

Although dietary survey is often used for nutrition assessment to properly manage nutritional status in individuals and groups, dietary survey can't evaluate nutritional status. A nutritional biomarker can be an indicator of nutritional status with respect to intake or metabolism of dietary constituents. Recent validation studies have developed the urinary compounds as nutritional biomarkers to estimate nutrient intakes. Here, I will review the several nutrients validated to estimate their intakes by measuring urinary compounds. Furthermore, we have conducted to establish urinary water-soluble vitamins as nutritional biomarkers to assess their intakes, and made the following findings to contribute to the establishment and effective use of urinary water-soluble vitamins as potential nutritional biomarkers.

Risk of Upper Aerodigestive Tract Cancers Associated with Chronic Alcohol Consumption and Methods for Removal of Salivary Acetaldehyde

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<Summary>

Chronic alcohol consumption is a significant risk factor for squamous cell carcinoma in the upper aerodigestive tracts (oral cavity, pharynx, larynx and esophagus), colon and breast (female). Acetaldehyde accumulates in the oral cavity after alcohol intake and is thought to be responsible for increased risk of alcohol-related upper aerodigestive tract cancer, in particular, among aldehyde dehydrogenase 2-inactive heterozygotes. The International Agency for Research on Cancer, WHO, concluded in 2010 that there is sufficient evidence in humans to associate the carcinogenicity of acetaldehyde with the consumption of alcoholic beverages, and also that the acetaldehyde resulting from the consumption of alcoholic beverages causes cancers of the upper aerodigestive tract. The rapid removal of acetaldehyde from the oral cavity after drinking could thus serve as an effective strategy for reducing the risk of alcohol-related upper aerodigestive tract cancers. Currently, two distinct methods are available for the removal of acetaldehyde in saliva: stoichiometric removal with L- cysteine and catalytic removal with the microbial cells. The latter method may circumvent the potential problems associated with the former, such as toxicity and amino acid imbalance.

The Prevention of Sarcopenia and Malnutrition

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<Summary>

Sarcopenia, the loss of muscle mass and strength, is a natural phenomenon which occurs during every stage of aging. Physiological age-dependent changes explain the declines in protein synthesis, muscle mass, and strength. However, inactivity contributes even more to the loss of muscle mass than does aging, and it is also clear that aging and inactivity combine to cause an even more serious condition than is caused by either alone. Moreover, while sarcopenia is caused by malnutrition, a vicious cycle exists where inactivity due to sarcopenia leads to even more serious malnutrition.

In order to maintain proper muscle tone, it is necessary to engage in resistance training using heavier loads than are typically encountered in everyday life. Elderly people can also benefit from and see the effects of muscle training. Proper and sufficient nutrition is necessary during resistance training. Conversely, insufficient nutrition during resistance training can result in a malnourished state.

“Nutrition Labelling Systems – Using Data on Current Trends and Research from around the World to Predict the Future”

1. Overview of Nutrition Labelling in Japan from the Initial Introduction to the Current Mandatory Nutrition Labelling System

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<Summary>

When nutrient declaration is made on the label of foods offered for sale, nutrition information shall be provided in accordance with Nutrition Labelling Standards under the Health Promotion Act, which has been overseen by the Consumer Affairs Agency since September 2009.

Based on discussions during the “Roundtable on Nutrition Labelling” and the “Roundtable on the Unification of Food Labelling” meetings held from 2010 to 2011 by the Consumer Affairs Agency, the Agency plans to submit a new law during present ordinary session of the Diet. The purpose of this new law will be to ensure food safety and to also provide consumers with information necessary to make rational food choices.

Therefore, in this article, I would like to look back over the historical transition of discussion in Japan from the formation of the first labeling system to the present day mandatory nutrition labelling system. I will also discuss the current state of affairs and issues surrounding mandatory nutrition labelling, including world trends and the shift toward mandatory nutrition labelling in foreign countries. Moreover, I would like to introduce new ways of thinking about the priorities placed on the nutritional information added to labels.

Outlook of the Third-term Action Plans in the ILSI Japan-Endowed Chair “Functional Food Genomics” at the University of Tokyo

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<Summary>

The ILSI Japan endowed chair “Functional Food Genomics” at the University of Tokyo is going to finish its II-term activity. The activity has had the background that, with an increase in social expectation for functional foods, a close industry-government-academia collaboration is required to verify scientific evidence of individual functional food products. Against this backdrop, the endowed chair was founded at the University of Tokyo in December 2003. The chair has been engaged in analyzing the up- or down-regulation of particular genes in target tissues after ingestion of nutrients and/or functional foods and thus in assessing the potential merits or demerits of these ingested factors, in expectation of academic and industrial contributions.

The accomplishments attained through I- and II-terms include more than 100 original papers and 300 presentations in national and international conferences, with highly satisfactory results. In particular, the chair has been invited to international as well as domestic congresses many times, and has also had many overseas scientists visit. The activity of the chair has thus been internationally famous.

In Japan, higher than 65-year-old people are going to exceed 30 % of the total population. Obesity of infants and their lifestyle-related diseases are also of a matter of concern. In considering these social problems, it is of pressing importance to make up science and technology on wholesome foods for consumers’ healthy life. The significance of the endowed chair’s activity must lie just at this point.

To add value to this chair, we are enthusiastically looking forward to continuing its activity to III-term. The plans are overviewed here.

Report of the 6th Asian Conference on Food and Nutrition Safety

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<Summary>

On November 26-28, 2012, ILSI Southeast Asia Region (ILSI SEA Region) together with its co-organizer, the Agri-Food & Veterinary Authority of Singapore (AVA), organized the 6th Asian Conference on Food and Nutrition Safety at the Raffles City Convention Centre in Singapore. Several other local and international organizations, including the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of Australia, National Environment Agency (NEA) of Singapore, International Commission on Microbiological Specifications for Food (ICMSF) and Singapore Workforce Development Agency (WDA), also provided their support to the conference.

The theme of this edition of the conference was “Minimizing Risks, Maximizing Benefits - A Role for Food Safety and Nutrition”, highlighting the increasing awareness in Asia of the complexities and needs for considering both the risks and benefits when assessing food and nutrition safety concerns. The conference was well attended by more than 350 participants representing academic, government and industry stakeholders from 25 countries across Asia and beyond.

Report of the 34th Session of the Codex Committee on Nutrition and Foods for Special Dietary Uses

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<Summary>

The 34th Session of the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) was held in Bad Soden am Taunus, Germany from 3 to 7 December 2012. The Committee was attended by 274 delegates representing 62 Member Countries, one Member Organization (EU) and 31 International Organizations (NGOs). The Session reached the following conclusions:

- The Committee advanced to Step 8 the Draft Revision of the Guidelines on Formulated Supplementary Foods for Older Infants and Young Children and the Draft Nutrient Reference Values for Saturated Fatty Acids and Sodium, and to Step 5/8 the General Principles for Establishing Nutrient Reference Values for Nutrients Associated with Risk of Diet-Related Non-Communicable Diseases for General Population (NRVs-NCD) and the Proposed Draft Additional or Revised Nutrient Values for Labelling Purposes on certain Vitamins and Minerals in the Codex Guidelines on Nutrition Labelling.
- The Committee forwarded the Consolidation of the General Principles for Establishing NRVs of Vitamins and Minerals and General Principles for Establishing NRVs-NCD for adoption.
- The Committee agreed to submit to the Commission a proposal for new work on the Proposal to Review the Codex Standard for Follow-up Formula.
- The Committee agreed to Step 2/3 for redrafting, comments and further discussion at the next session the Proposed Draft Additional or Revised Nutrient Reference Values for Labelling Purposes in the Codex Guidelines on Nutrition Labelling for other than described above, including protein, the Proposed Draft Revision of the Codex General Principles for the Addition of Essential Nutrients to Foods and the Proposed Draft Amendment of the Standard for Processed Cereal-Based Foods for Infants and Young Children to include a New Part B for Underweight Children.