Review

The comparison of Singapore with Japan in terms of nutrition and health status

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A) Our basic stance toward dietary advice based on medicinal diet

Nutrition has developed remarkably in the twenty century. Molecular nutrition and food research has become active in the 21st century.

Advances in medicine have a huge effect on the development of nutrition. One of medical innovation in recent years is the introduction of evidence based medicine(EBM). This scientific thinking influenced the area of nutrition and evidence based nutrition has been established. However, Singaporean researcher said that despite the expansion of EBM, Traditional Chinese Medicine is still the lack of robust evidence from the EBM perspectives[1].

In consequence, there has not been considerable research on medicinal diet. On the other hand, a lot of findings concerning the causal relationship between modern nutrition and health status has been accumulated .Therefore, we should have clear points about fruitful results of modern nutrition first(Fig1). On that basis, it is better to apply medicinal diet to nutritional field.

In Japan, new food labeling system started in 2015 and some consumers will develop a strong tendency to look for healthcare products with scientific evidence.

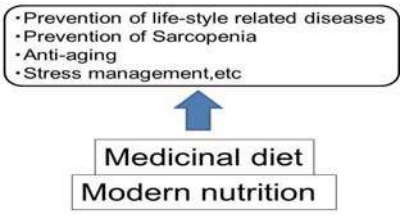

Fig1. Diagram of the application of modern nutrition and medicinal diet

B) Nutritional status in Singapore and Japan

First of all, it is important to investigate nutritional status in Singapore before nutrition advice project starts. Nutritional status in Japan is presented for reference.

The National Health Survey[2] and National Nutrition Survey[3] are conducted every five years among adults aged 18-69 years in Singapore. These surveys provide information on the health status of Singaporeans and nutrient adequacy of their diets. On the other hand, in Japan, based on the Health Promotion Act, the National Health and Nutrition Survey is a survey conducted annually by the Ministry of Health, Labour, and Welfare in order to understand the status of people's health, nutritional intake and lifestyle habits[4]. Participants were family members aged 1 year and over.

Nutritional status was compared between Singapore and Japan using data of National Nutrition Survey 2010 and National Health and Nutrition. Age groups showing at this report are 18-69 years old in Singapore and over 20 years old in Japan, because age group of the survey in two countries are slightly different from each other. Dietary survey methods conducted are the food frequency questionnaire in Singapore and semi-weighing one-day dietary records of household in Japan. These data are allowed to compare , because data are mean values obtained from the group.

1. Energy intake

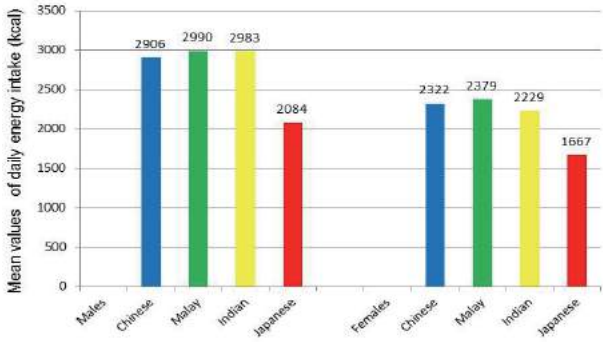

Fig2. Mean values of daily energy intake (kcal)

There is a big difference in daily energy intakes between Singapore and Japan in both male and female. Daily energy intakes among three ethnic groups in Singapore indicate much higher than that among Japanese. This is partly because Singaporean consume higher fat foods compared to Japanese (refer to Fig3).

To be honest, we were very much surprised at this finding. This result is not responsible for the different methods for food survey.

2. Fat energy ratio

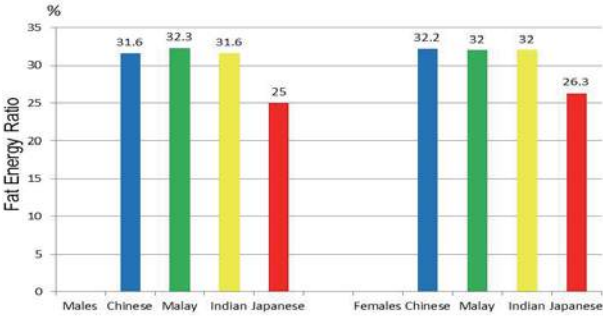

Fig3. Mean values of fat energy ratio

The proportion of energy contributed by dietary fats exceeds 30% in Singapore. According to Food-based Dietary Guidelines for Adults by Singapore government, total fat should be limited to 25-30% of total calorie intake, of which less than 10% is from saturated fat. In addition, Asians do not have so high digestive and absorptive function of fat. Therefore, fat energy ratio should decrease as soon as possible.

3. Dietary fiber intake

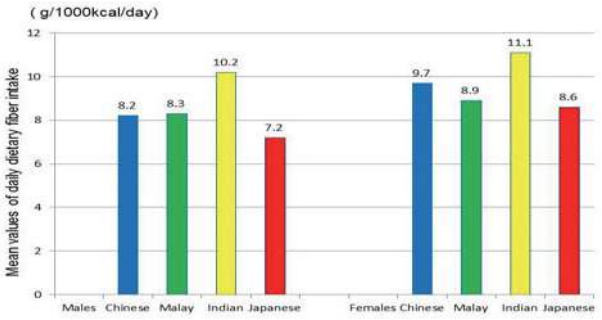

Fig4. Mean values of dietary fiber intake(g/1000kcal/day)

Mean values of daily dietary fiber intake per 1000 kcal is calculated to compare the intake in Singapore with that in Japan, because mean values f daily energy intake are much different between Singapore and Japan. Interestingly, the intake of dietary fiber among Indians shows the highest values in both sexes.

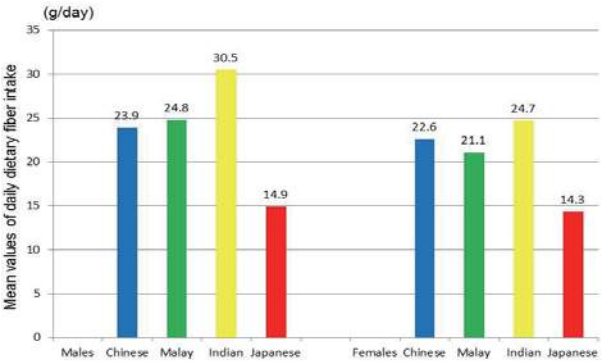

Fig5. Mean values of dietary fiber intake(g/day)

The amount of intake per day is provided as the recommended intake of dietary fiber. According to WHO[6], people should eat 25g per day of fiber for preventing diet-related chronic diseases. There are several reasons why Japanese takes less dietary fiber. Intakes of rice and vegetables as the sources of fiber has been decreasing for about 30 years. Why Indians have higher intake of dietary fiber compared to Chinese and Malays?

4. Salt intake

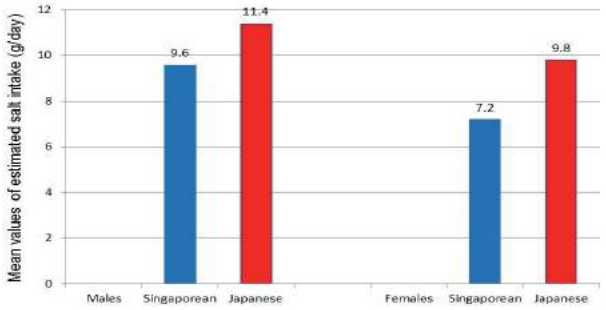

Fig6. Mean values of estimated salt intake(g/day)

Twenty-four hour urine collection method was used to evaluate the intake of salt in Singapore. Questionnaire survey on nutritional intake is performed in Japan. Urine collection method is more correct than questionnaire survey. However questionnaire survey using dietary record also can provide a fairly good approximation.

Salt intake is higher among Japanese than that among Singaporean. Dietary Reference Intakes for salt(day) for Japanese is 8g for males and 7g for females. It is difficult for Japanese to achieve this goal, because most of Japanese prefer salty foods such as pickled vegetable, miso soup, soy sauce and dried-salted fish.

Unfortunately, there was no information on salt intake by sex and ethical group at National nutrition survey 2010 in Singapore. According to the data by ethical group, intakes of salt per day among Chinese, Malay and Indian were 8.4g, 7.6g, 8.7g, respectively. This finding resulted in no ethical difference in salt intake.

C) Health status in Singapore and Japan

1. Cause of death

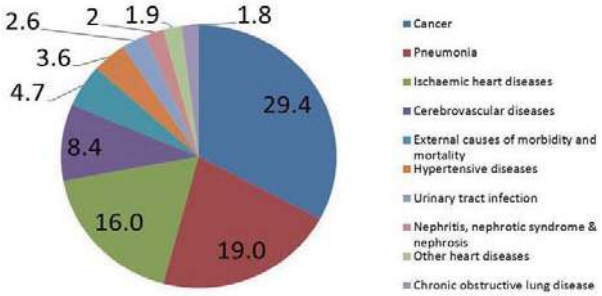

Fig7. Principal causes of death in Singapore(Singapore Health Facts,2014)

Leading causes of mortality are major non-communicable diseases such as cancer, pneumonia, ischaemic heart diseases, cerebrovascular diseases, hypertension and injuries[6]. In 2014, cancer, pneumonia, ischaemic heart disease and cerebrovascular diseases together accounted for approximnately 70% of the total causes of death.

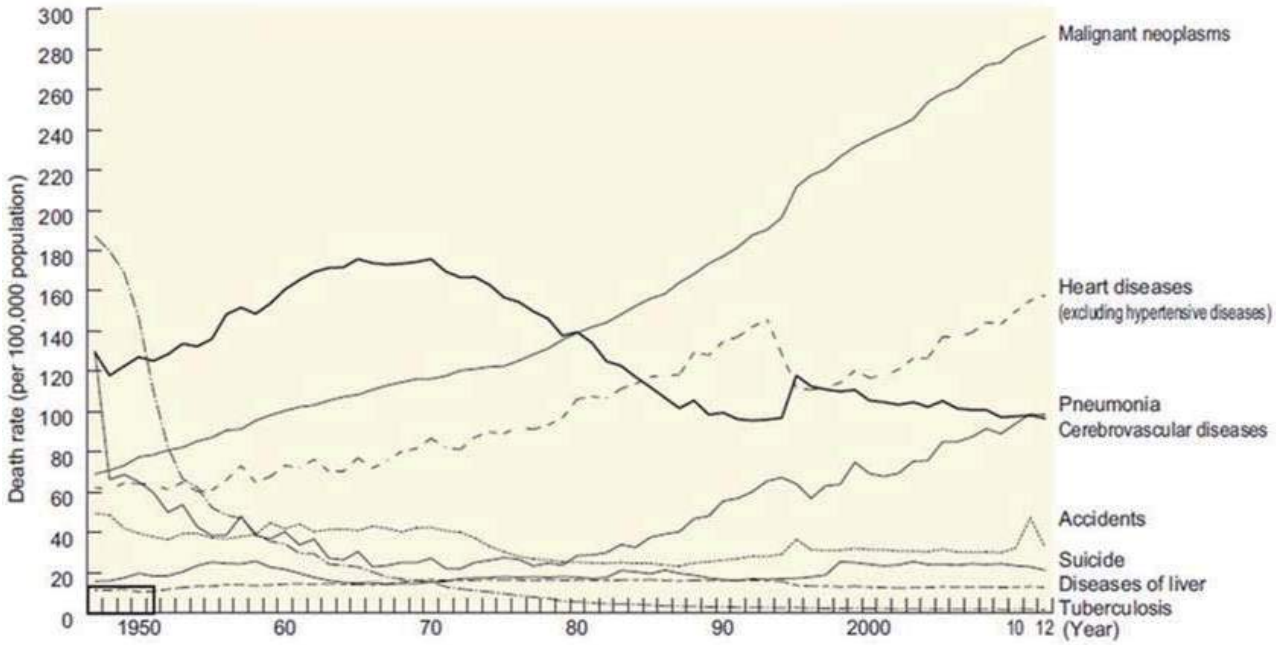

Fig8. Trend in causes of death in Japan(Vital statistics)

Japan has three major causes of death for years have been cancer, heart disease, and cerebrovascular disease. However, in 2011, pneumonia had supplanted cerebrovascular disease as the third leading cause of death. Pneumonia had previously occupied the fourth position since 1975. Of the leading causes of death, cancer covers 28.5%, heart disease covers 15.5%, and pneumonia 9.9%.

2. Life-style related diseases

The relative risk of cancer among Indian men is only 53.0% that of Chinese men, and for Malays the corresponding figure is 67.6%[8]. These differences are especially marked for cancers of the nasopharynx, lung (Indians), oesophagus, stomach, colon, rectum, liver and skin. The opposite effect can be observed among Malay females with tongue cancer and lymphoid neoplasms, Indian with cancer of tongue and mouth.

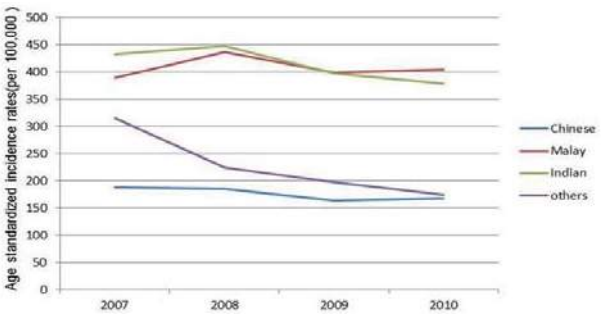

Fig9. Age standardized incidence rates(per 100,000 population) of acute myocardial infarction(AMI) by ethnic group, 2007-2010

Table1. Relative risks for incidence rate of selected sites by ethnic group after adjustment of agea by sex, 2003-2007 (Chinese as reference group)

MALES Site	ASR among Chinese[b]	Malay		Indian	
		RR[c]	95% CI[d]	RR[c]	95% CI[d]
Tongue	1.5	0.30	0.12-0.73	1.96	1.26-3.07
Mouth	1.3	0.51	0.24-1.11	1.75	1.05-2.93
Nasopharynx	12.5	0.53	0.42-0.66	0.07	0.04-0.15
Oesophagus	4.1	0.25	0.13-0.47	0.54	0.33-0.89
Stomach	16.3	0.32	0.25-0.42	0.55	0.44-0.71
Colo-rectum	44.7	0.58	0.52-0.66	0.38	0.32-0.45
Liver	19.4	0.71	0.60-0.85	0.45	0.35-0.58
Larynx	3.9	0.61	0.40-0.92	0.75	0.49-1.16
Lung	44.3	0.81	0.72-0.90	0.37	0.31-0.44
Skin, including melanoma	10.5	0.34	0.24-0.47	0.33	0.23-0.49
Prostate	25.2	0.71	0.61-0.83	0.65	0.54-0.79
Bladder	7.3	0.85	0.65-1.10	0.68	0.49-0.95
Lymphoid neoplasms	14.5	1.13	0.96-1.32	0.75	0.60-0.94
Myeloid neoplasms	4.6	1.03	0.77-1.38	0.76	0.51-1.12
Pancreas	6.3	0.71	0.52-0.96	0.65	0.45-0.94
All	**247.5**	**0.68**	**0.65-0.72**	**0.51**	**0.48-0.55**

FEMALES Site	ASR among Chinese[b]	Malay		Indian	
		RR[c]	95% CI[d]	RR[c]	95% CI[d]
Tongue	0.5	1.98	1.05-3.73	2.63	1.29-5.37
Mouth	0.4	0.39	0.09-1.59	4.83	2.64-8.86
Nasopharynx	4.1	0.31	0.19-0.50	0.06	0.02-0.24
Stomach	8.1	0.37	0.26-0.51	0.60	0.42-0.86
Colo-rectum	31.5	0.61	0.53-0.69	0.38	0.30-0.47
Liver	4.9	0.79	0.58-1.07	0.66	0.42-1.03
Lung	17.4	0.71	0.60-0.84	0.24	0.16-0.35
Skin, including melanoma	7.5	0.49	0.36-0.67	0.32	0.19-0.53
Breast	59.9	0.91	0.84-0.98	0.78	0.70-0.87
Cervix uteri	9.3	0.86	0.70-1.06	0.36	0.24-0.53
Corpus uteri	12.0	0.90	0.76-1.08	0.88	0.70-1.11
Thyroid	5.6	1.28	1.03-1.60	0.83	0.60-1.16
Lymphoid neoplasms	9.6	1.44	1.21-1.71	0.87	0.66-1.14
Myeloid neoplasms	3.6	1.14	0.84-1.56	0.63	0.37-1.06
Ovary, etc.	12.2	1.05	0.89-1.23	0.83	0.65-1.04
All	**212.2**	**0.83**	**0.79-0.87**	**0.65**	**0.61-0.69**

a: Adjusted for age and ethnic group using generalized linear regression model for binary data with the Chinese as the reference population.
b: Age-standardized rate (per 100,000 per year) to 'World' population.
c: Relative risk
d: 95% confidence interval

Malay and Indian ethnic groups had higher age standardized incidence rates than Chinese and others[9]. Chinese had remained stable over the 4-year period. As a reference, the age-adjusted incidence rate of AMI was 62.6(1999-2001) in a Japanese Population. Japan showed lower incidence rate of AMI than Singapore, but this rate has been increasing gradually.

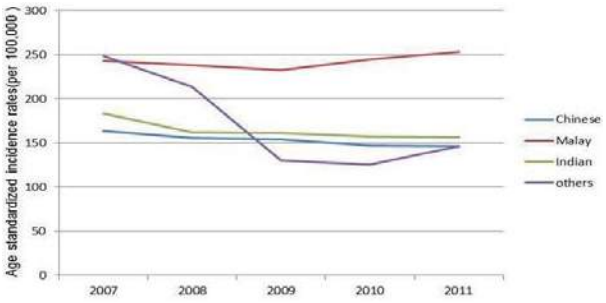

Fig10. Age standardized incidence rates (per 100,000 population) of stroke by ethnic group, 2007-2010 (source: Singapore stroke registry report No.2)

Malays have the highest ASIR from 2008 onwards, followed by Indians and Chinese, whose rates are similar[10]. The ASIR for Chinese and Indians showed a clear declining trend over the 5-year period. As a reference, age standardized incidence rates (per 100,000 population) of stroke is 422 for males and 212 for females according to Hisayama study (a long-term population-based prospective study) in Japan[11]. Stroke incidence consistently decreased mainly in the aged group.

3. Risk factors for Life-style related diseases

a) Diabetes mellitus

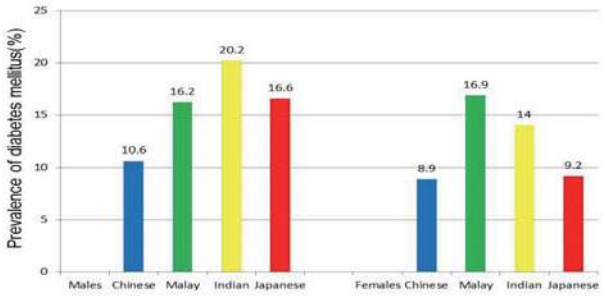

Fig11. Prevalence of diabetes mellitus (%)

The cautions are described before explaining the Fig 6. Diagnose criteria is different between Singapore and Japan. In Singapore, the two hour plasma glucose concentration provided diagnostic classification for diabetes mellitus. In Japan, those with diabetes mellitus were defined as those having a hemoglobin A1c of 6.5% or more, or as those who responded to the questionnaire by saying that they were currently receiving diabetes treatment. Therefore, an estimated prevalence of diabetes mellitus in Japan is supposed to be overestimation in some degree.

Indians had the highest prevalence of diabetes (20.2%) compared to 16.2% in Malays and 10.6% in Chinese among males. On the other hand, Malays had the highest prevalence of diabetes(16.9%) among females. Interestingly, Chinese indicated the lowest prevalence of diabetes in both sexes, although intake of energy and fat energy ratio had similar levels
among three ethnic group.

As for Japanese, males indicated higher prevalence of diabetes than Chinese males and females showed the similar prevalence of diabetes as Chinese females. This interpretation remains a matter of speculation.

b) Hypertension

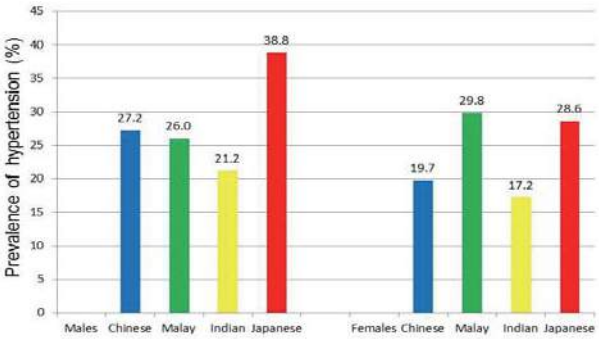

Fig12. Prevalence of hypertension (%)

It should be noted that definition of hypertension at the health survey in Singapore is different from that of hypertension in Japan. Singapore used the WHO Classification criteria (systolic blood pressure >= 140mmHg, or diastolic blood pressure>= 90mm Hg). Japan used the following criteria : systolic blood pressure >= 140mm Hg. Japanese criteria may underestimate the prevalence of hypertension. Subjects were 30 to 69 years old in Singapore.

It is obvious that Japanese male had the highest prevalence compared to Singaporean male. The following results are interesting points. Prevalence of hypertension in Malay was equal to that of hypertension in Japan.

Indians had the lowest prevalence of hypertension.

c) Total cholesterol

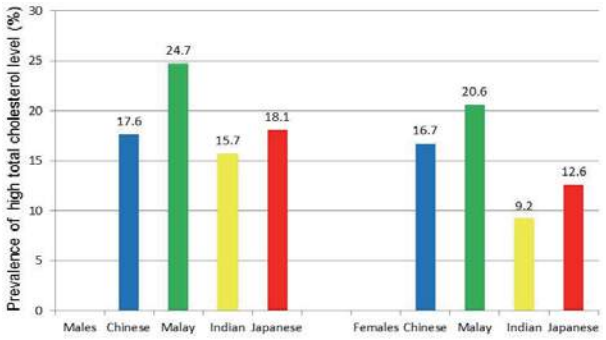

Fig13. Prevalence of high total cholesterol level (%)

Definition of high total cholesterol level was the same in both Singapore and Japan (serum total cholesterol>=240mg/dl). Malay showed the highest prevalence of high total cholesterol in both sexes and to the contrary, Indian had the lowest prevalence in both sexes.

d) Obesity

Singapore adopted the WHO international classification of weight status (Table1). On the other hand, Japan Society For The Study Of Obesity set its own standards (Table2). According to the previous epidemiological studies, Japanese with obese Ⅰ have the same risk as Caucasian people with obese Ⅱ for life-style related diseases. That is why pre-obese status is classified as obesity in Japan.

Table2. Classification of weight status (Singapore)

Classification	Body Mass Index(BMI)(kg/m^2)
Underweight	<18.5
Normal weight	18.5=< <25
Overweight	25=<
Pre-obese	25=< <30
Obese	30<

Table3. Classification of weight status (Japan)

Classification	Body Mass Index(BMI)(kg/m^2)
Underweight	<18.5
Normal weight	18.5=< <25
Obese Ⅰ	25=< <30
Obese Ⅱ	30=< <35
ObeseⅢ	35=< <40
ObeseⅣ	40=<

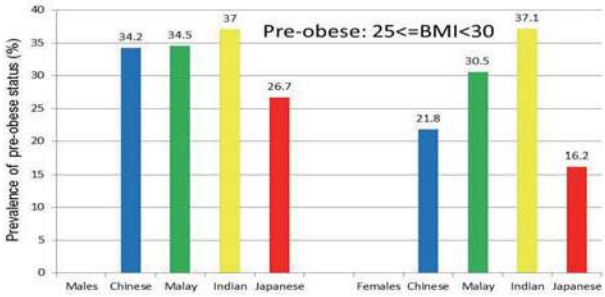

Fig14. Prevalence of pre-obese status (%)

Singaporean had higher prevalence of pre-obese status than Japanese in both sexes. By ethnic group, Indian males and females showed the top prevalence. Especially, prevalence among Indian females had more than twice the prevalence of Japanese ones.

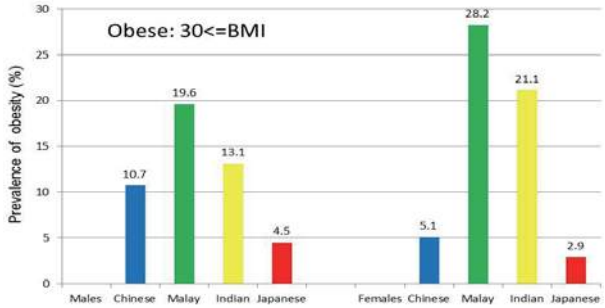

Fig15. Prevalence of obesity (%)

Unlike in the case of pre-obese status, Malays indicated the highest prevalence of obesity in both sexes among Singaporeans. Prevalence among Malay males and females had four times and ten times the prevalence of Japanese ones, respectively. Indian females also had higher prevalence compared to Japanese ones.

D) Dietary guideline

The first dietary guidelines have been released by the National Advisory Committee on Food and Nutrition in 1988 for all Singaporeans aged 2 years and above (Table1)[12]. The purpose of these guidelines is to prevent obesity and non-communicable chronic diseases such as cancer and cardiovascular disease. Therefore, low intake of salt and fat, and high intake of fruits and vegetables are recommended.

Table4. Dietary Guidelines for Singaporeans (1988)

Dietary Guidelines for Singaporeans (1988)
• Eat a variety of foods
• Maintain a desirable body weight. Lose weight if obesity is a problem
• Restrict total fat intake to 20-30% of total energy intake
• Modify composition of fat in the diet to consist of: 1/3 PUFA, 1/3 MUFA, 1/3 SFA
• Reduce cholesterol intake to less than 300 mg/day
• Maintain intake of complex carbohydrates at about 50% of total energy intake.
• Reduce intake of refined & processed sugar to less than 10% of total energy intake.
• Reduce salt intake to less than 5 g a day.
• Reduce intake of salt cured, preserved & smoked foods.
• Increase intake of fruits, vegetables & wholegrain products
• For those who drink, limit alcohol intake to not more than 2 standard drinks per day (about 30 g alcohol)
• Encourage breastfeeding in infants till at least 6 months of age.

The Healthy Diet Pyramid has been introduced in 1995(Figure1). Nutrient-based guidelines had been translated into food-based guidelines. This means that guideline was demonstrated in a concreate form to people.

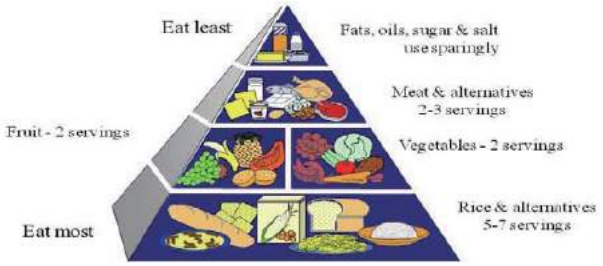

Fig16. Singapore's Healthy Diet Pyramid (1995)

Subsequently updated versions of the dietary guidelines for adults aged 18-65 years and children aged below 18 years has been released by the Health Promotion Board(HPB), Singapore in 2003 and 2007, respectively. The main theme of the 2003 dietary guidelines were the need for weight management and a healthy diet in the context of preventing non-communicable chronic diseases. In contrast, the 2007 dietary guidelines focused more on encouraging parents and care-givers to give their children healthy foods in order to establish healthy lifelong habits.

Table5. Food-based Dietary Guidelines in Singapore for adults and children

Dietary Guidelines for Adults 18-65 years of age (2003)
• Base your diet on the Healthy Diet Pyramid Recommendations
• Aim to achieve and maintain a healthy BMI
• Eat sufficient amounts of grains, especially whole grains
• Eat more fruit and vegetables every day
• Choose and prepare food with less fat, especially saturated fat
• Choose and prepare food with less salt and sauces
• Choose beverages and food with less sugar
• If you drink alcoholic beverages, do so in moderation

Table6. Food-based Dietary Guidelines in Singapore for adults and children

Dietary Guidelines for Children & Adolescents (2007)
• Aim for variety and balance
• Develop healthy habits
• Cut down on saturated fat
• Eat enough fruit and vegetables
• Go for whole-grains
• Bone up on calcium
• Limit your salt intake
• Watch the sugar
• Breastfeeding – Baby's best beginning

HPB uses the dietary guidelines to inform and direct public policy and health promotion programmes including ①food service guidelines, ②food advertising guidelines, and ③the "Healthier Choice Symbol Programme". Food service guidelines were used as a basis for how to improve food provided by the food service industry. One of these guidelines Include more whole-grains and vegetables in the dishes, while selecting ingredients with less saturated fat, trans fat and salt. Food advertising guidelines targeted at children. As an example, food products that run counter to the dietary guidelines ethos of promoting an overall healthy diet should not be allowed to be advertised to children. The Healthier Choice Symbol (HCS) is a front-of-pack label for packaged food products used by HPB to help consumers identify products that are healthier than similar types of products. To qualify for the HCS, a food product must meet a range of product-specific standards for nutrients, such as calcium, saturated fat, added sugar and sodium, etc. The number of HCS products reached 2871 ones until 2010. Consumers who use HCS products were more likely to meet their nutrient requirements according to National Nutrition Survey 2010.

Fig17. Healthier Choice Symbol label

Fig18. Healthy Diet Pyramid (2009)

The Healthy Diet Pyramid has been updated over the years to better reflect the state of science, the last update being in 2009 to incorporate whole-grains. However, user feedback has indicated that while the Healthy Diet Pyramid is well-recognised, this very familiarity might mean the Pyramid may no longer be able to influence Singaporeans to change their dietary behavior.

The United States Department of Agriculture has released a new food guide graphic[13]. The Health Promotion Board has also explored My Healthy Plate, which is a friendly visual tool designed for Singaporeans in 2014[14]. It is developed with the latest science-based recommendations on healthy eating habits and aims to provide an easy-to-understand visual representation of a balanced and healthy diet. My Healthy Plate's key eating habits are:

・Fill half your plate with Fruit & Vegetables
・Fill a quarter of your plate with Whole-grains
・Fill a quarter of your plate with Meat & Others

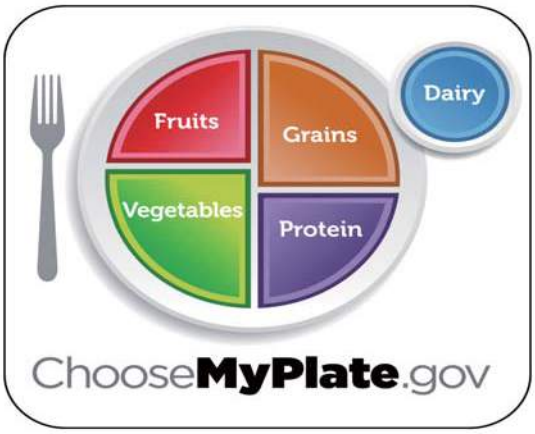

Fig19. My plate, United States Department of Agriculture

Fig20. My healthy plate, Health Promotion Board, Singapore

Fig21. One soup and three side dishes, Japan

Japan has traditional dietary pattern called “one soup and three dishes”. “One soup and three dishes” is the combination of the following four elements; cooked rice; soup of dashi stock made of kombu or katsuobushi and seasoned with miso or salt, with some ingredients; pickles such as salted pickles or pickles using bran or sake lees; side dishes such as grilled, stewed or dressed foods. Pickles, that refresh the mouth during the meal, and cooked rice are always served as basic items, so they are not counted as a part of the “three dishes.” This dietary pattern consists balanced diet except for high amount of salt.

E) Issues have to be examined

1) Evidence based functional food and food labeling system

In the western medical field, evidence based medicine has been developed for the last three decades. In conjunction with this new trend, evidence based nutrition began to be introduced in the field of nutrition. Complying with this tide, many kinds of

Food for Specified Health Uses (FOSHU) has appeared in the healthcare market(Fig1). FOSHU refers to foods containing ingredient with functions for health and officially approved to claim its physiological effects on the human body. FOSHU is intended to be consumed for the maintenance / promotion of health or special health uses by people who wish to control health conditions, including blood pressure or blood cholesterol. In order to sell a food as FOSHU, the assessment for the safety of the food and effectiveness of the functions for health is required, and the claim must be approved by the Ministry of Health, Labour and Welfare. In 2015, new Functional Labeling System has been introduced, based on scientific evidence under not government but corporate responsibility. As for the function claims, there are two main conditions: "Clinical trials using final products or "systematic review of studies with peer review on the functional ingredients" will be required. In comparison with FOSHU, new Functional Labeling System does not require a lot of the development costs and time. This means that food companies can accelerate product development concerning functional foods. Food with Nutrient Function Claims (FNFC) refers to all food that is labeled with the nutrient function for 17 ingredients (12 vitamins and 5 minerals).

The effects of medicinal food on human body has been clinically acknowledged for a long period. Nowadays, it is desirable to get enough evidence of the effects of these foods. In this regard, there are many evidences of the effects of chemical ingredients in the supplements.

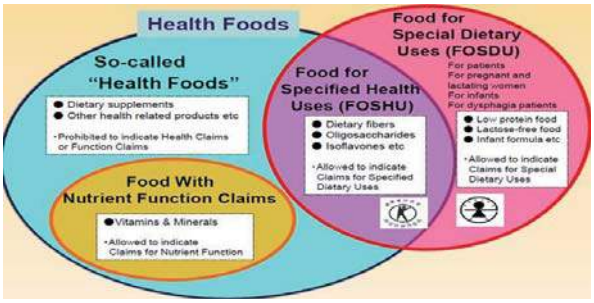

Fig22. Health food labelling system in Japan

2) Microbiota producing an effect of crude drug

Glycoside in some crude drugs is hydrolyzed by microbiota and aglycone is produced. This aglycone exerts a physiological effect in human body(Fig3). Therefore glycoside is a prodrug. The crude drug may be only marginally effective as treatments if those who take the crude drug do not have microbiota which can hydrolyze a glycoside(Fig4). However, persons without microbiota which can hydrolyze a glycoside respond to a crude drug if they take probiotic products(Fig5). Not only probiotic but also prebiotic such as dietary fiber and oligosaccharide influence microbiota. It is crucial for doctors and nutritionists to encourage patients to eat a healthy diet which improves the environment inside the intestines.

Consequently, it becomes more and more important to investigate the relationship between traditional Chinese medicine and microbiota.

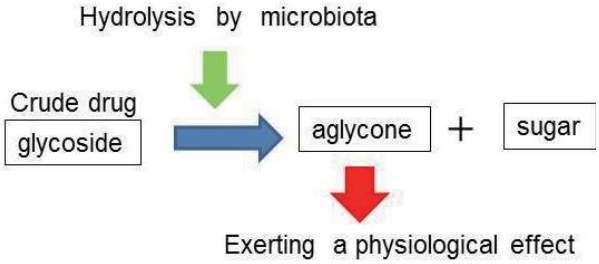

Fig23. Production of aglycone by microbiota

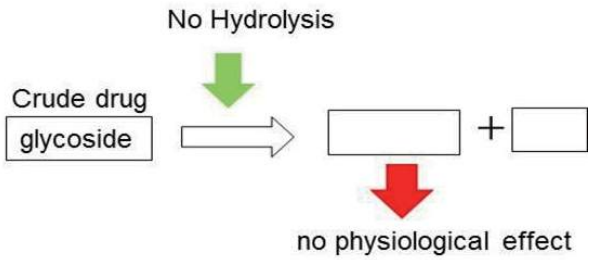

Fig24. No production of aglycone by microbiota

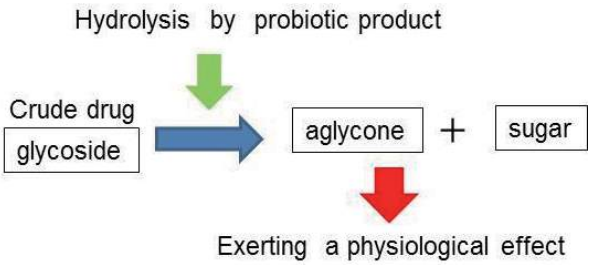

Fig25. Production of aglycone by probiotic product

3) Role of Dietitian and nutritionist for dietary advice in Singapore

We understand that currently, it is difficult for dietitian or nutritionist to work at a clinic of TCM. However, as previously mentioned, nutritional advice without an

information based on modern nutrition is insufficient to improve patients' health and nutrition status. For these reasons, it is desirable to engage experts who had mastered nutrition in the future.

F) Proposal

1) Creation of medicinal diet pyramid

When nutrition advice based on medicinal diet develops at a clinic of TCM, it is necessary to create medicinal diet pyramid for easily understanding medicinal diet.

2) Developing products meeting Healthier Choice Symbol Programme

Food Strategy by The Health Promotion Board nudges people to use healthier ingredients when preparing home-cooked meals and encourages Singaporeans to become accustomed to making the healthier choice their default choice. To date, there are 2,500 HCS products available across 70 food categories. Adoptable standard for HCS is based on modern nutrition. To differentiate our product from competition, it is important to combine medicinal diet and modern nutrition to make a style all our own.

3) Developing products to make contributions to solve modern health problems

The National Health Survey 2010 showed that there have been favorable trends in hypertension and high blood cholesterol prevalence. However, obesity and diabetes prevalence is on a rising trend. The deregulation of both the immune system and inflammatory status is an important factor in the development of overweight/obesity and type 2 diabetes(Fig26)[15].

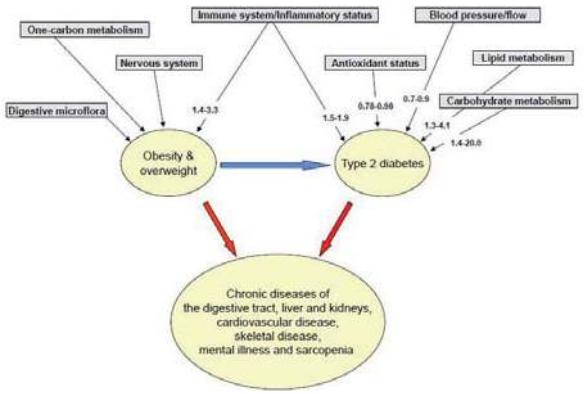

Fig26. Sequence of events relating overweight/obesity and type 2 diabetes to various physiological mechanisms and other chronic diseases

Some medicinal foods have the function of dissipating heat(清熱). Dissipating heat means anti-inflammation in Western medicine. It is highly likely that medicinal foods with dissipating heat prevent and improve overweight/obesity and type 2 diabetes. In addition, medicinal foods with eliminating stagnant and activating the blood(活血化瘀) have the possibility to reduce the risk of cardiovascular disease.

The interior of bodies of many patients with allergies is very often chilled(裏寒) in Japan. If patients take foods with warming inside(温裏) and avoid foods with chilling inside, these diet behavior can provide symptomatic improvement. Traditional Chinese Medicine classifies food function into four types; heating, warming, chilling and cooling. There is no classification like this in modern nutrition. Such function contribute strongly to improve health condition.

Pneumonia is the second leading cause of death in Singapore and its mortality shows the increasing tendency in line with aging of society. A probiotic food reduced the incidence of influenza in schoolchildren[16]. Probiotic and prebiotic have the possibility to decrease the risk for the infection among persons with compromised immune systems such as children and elderly people.

Sarcopenia is also one of health problems in aging society. Exercise and healthy diet are required to prevent the onset of sarcopenia. As for healthy diet, a lot of protein intakes are necessary. However, if elderly people have a poor appetite, it is difficult to take high-abundance protein. In such cases, medicinal foods with strengthening the spleen(健脾) are useful in the improvement of a poor appetite. Medicinal bread also prevent sarcopenia because this bread enhance a function of kidney deficiency(腎虚).

Food function peculiar to medicinal foods has the potential to improve life-style related diseases. When we will develop tailor-made remedy by medicinal diet, it is much better to determine a target disease.

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