



MALAYSIAN DIETARY GUIDELINES

**NATIONAL COORDINATING COMMITTEE ON FOOD AND NUTRITION
MINISTRY OF HEALTH MALAYSIA
2010**

ISBN 978-983-3433-71 1

First Published in Malaysia 2010

Copyright © National Coordinating Committee on Food and Nutrition
Ministry of Health Malaysia, 2010

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording and/or otherwise, without the prior written permission from the publisher. Applications for such permission should be addressed to the Chairman, National Coordinating Committee on Food and Nutrition (NCCFN).

Published by:

Technical Working Group on Nutritional Guidelines
(for National Coordinating Committee on Food and Nutrition)

c/o
Nutrition Division
Ministry of Health Malaysia
Level 7, Block E10, Parcel E
Federal Government Administration Centre
62590 Putrajaya, MALAYSIA

Printed by :

Jaybees Print Industries Sdn Bhd (611177-H)

Contents	Page
Message by Minister of Health Malaysia	i
Foreword by Director-General of Health Malaysia	ii
Preface by Deputy-Director General of Health (Public Health)	iii
Preface by Chairman of Technical Working Group on Nutritional Guidelines	iv
Acknowledgement	v
Technical Working Group on Nutritional Guidelines	vi
List of Contributors	vii
Editorial Board	x
Pre-test Working Group	xi
List of Tables, Figures and Appendices	xii
Executive Summary	xv
Key Message 1 Eat a variety of foods within your recommended intake	1
Key Message 2 Maintain body weight in a healthy range	17
Key Message 3 Be physically active everyday	39
Key Message 4 Eat adequate amount of rice, other cereal products (preferably whole grain) and tubers	63
Key Message 5 Eat plenty of fruits and vegetables everyday	77
Key Message 6 Consume moderate amounts of fish, meat, poultry, egg, legumes and nuts	93
Key Message 7 Consume adequate amounts of milk and milk products	105
Key Message 8 Limit intake of foods high in fats and minimise fats and oils in food preparation	111
Key Message 9 Choose and prepare foods with less salt and sauces	125
Key Message 10 Consume foods and beverages low in sugar	141
Key Message 11 Drink plenty of water daily	155

Contents	Page
Key Message 12 Practise exclusive breastfeeding from birth until six months and continue to breastfeed until two years of age	169
Key Message 13 Consume safe and clean foods and beverages	183
Key Message 14 Make effective use of nutrition information on food labels	195
Participants of Consensus Meeting on the Malaysian Dietary Guidelines 2-3 September 2009	215



Minister of Health Malaysia

MESSAGE

The Ministry of Health Malaysia has often maintained that the prevention of chronic diet-related diseases relies upon a comprehensive approach including target-oriented nutrition intervention as well as wide-scale nutrition education for the public.

In this regard, the revised edition of the Malaysian Dietary Guidelines is primarily aimed at health care providers to assist them in the task of educating the public on appropriate means of enhancing their health through sound dietary practices. It is also intended to act as a tool for healthy eating promotion towards achieving the National Plan of Action for Nutrition of Malaysia.

The current edition has been rewritten to provide culturally sensitive dietary advice suited to the dietary needs of the various communities in Malaysia, and has been developed after careful research into habitual dietary patterns and is also based on the newly developed Recommended Nutrient Intake (RNI) for Malaysians. Thus, it not only addresses issues of nutrient sufficiency in the diet but also provides the know-how on healthy eating in the local context.

The publication of this book is timely, given that Malaysia has, for the past few decades, been experiencing a major transition in disease patterns due to rapid changes in lifestyle and social demography. We are witnessing an inevitable shift in the trend of diseases from acute illnesses to chronic non-communicable diseases such as cardiovascular disease, cancers and diabetes mellitus, which are largely preventable through good dietary practices. As such, no effort must be spared in getting as many Malaysians to eat healthily over the long term, as an increasing disease burden could have disastrous consequences on the nation's continued development.

I am certain that this book would prove to be an excellent resource for health care personnel, academicians, non-government organisations and other stakeholders interested in and servicing the area of health development, not only in Malaysia but also elsewhere. I heartily congratulate the review committee and all other individuals or agencies who have been diligently involved in the completion of these guidelines.


(DATO' SRI LIOW TIONG LAI)

FOREWORD

The publication of the Malaysian Dietary Guidelines is indeed very timely in view of our Government's efforts strives to ensure that all Malaysians have adequate access to practical and accurate information on nutrition and health. This is a crucial step towards empowering the community to make informed choices on their habitual dietary intake, which in turn, will influence their well-being.

It is undeniable that lifestyle practices such as poor diet, sedentary living, cigarette smoking and stress play major causative roles in the onset and progression of chronic diseases such as hypertension, heart disease, diabetes, obesity and other related illnesses. The well-being of the community, in many ways, depends on the quality of life led by each individual. In this regard, the Ministry of Health of Malaysia constantly strives to create awareness and inculcate healthy lifestyle practices amongst the masses. One of the many ways of promoting good health is by way of prevention, through education. The Malaysian Dietary Guidelines provide useful information for the general public as well as policy makers, and healthcare providers.

On behalf of the Ministry of Health Malaysia, I would like to convey my utmost appreciation and extend my compliments and heartiest congratulations to the Technical Working Group on Nutritional Guidelines and other relevant parties for their painstaking efforts that have led to the successful completion of this guidebook.

I am certain that the recommendations set forth in the Malaysian Dietary Guidelines would prove useful and invaluable for both the general public and health professionals alike.



TAN SRI DATO' SERI DR. HJ. MOHD. ISMAIL MERICAN
DIRECTOR-GENERAL OF HEALTH, MALAYSIA

PREFACE

The prevalence of diet-related chronic diseases such as obesity, diabetes mellitus, cardiovascular diseases and several forms of cancer have been on a continual upward trend in most developed nations as well as in developing nations in recent decades. This can be attributed to rapid changes in diets and lifestyles due to the inevitable forces of urbanisation, industrialisation and globalisation of trade. The increase in such diet-related diseases has overtaxed health budgets worldwide, while diminishing people's quality of life. Such trends, if left unattended, would definitely result in disastrous consequences on the social and economic front. Malaysia too has not been spared from this negative tide. This has prompted the government to adopt several intensive measures in a concerted effort to prevent the prevalence of such diseases from further increasing and jeopardising the well-being of the Malaysians.

One of the prime strategies identified under the National Nutrition Policy which was formulated by the Ministry of Health Malaysia in 2005 was to ensure that all Malaysians are provided with adequate access to reliable and accurate nutrition information in order to assist them in making informed decisions on their habitual dietary intake. This is important as self-empowered behavioural changes can often lead to better long-term outcomes. This revised edition of the Dietary Guidelines is significant in that it takes into account the habitual eating habits of Malaysians and makes recommendations based on the nutrient needs of the Malaysian population, as outlined in the Recommended Nutrient Intake (2005). Therefore, it can be considered as an authoritative guide on the dietary needs of every Malaysian.

It is hoped that this revised Dietary Guidelines would greatly assist health care providers in planning and executing effective health promotion activities for the community. In this regard, I would like to express my heartfelt congratulations and gratitude to members of the Technical Working Group on Nutritional Guidelines for their painstaking and untiring efforts resulting in the successful publication of the dietary guidelines. I would also like to commend and thank all those who have contributed in one way or another towards the development of the Malaysian Dietary Guidelines 2010.



DATO' DR. HASAN ABDUL RAHMAN
DEPUTY DIRECTOR-GENERAL OF HEALTH
(PUBLIC HEALTH), MALAYSIA

PREFACE

The first dietary guideline for Malaysians was published in 1999. While it remains a useful tool, changes in dietary patterns and lifestyles of Malaysians over the last decades, coupled with the ever increasing prevalence of diet-related chronic diseases and obesity, has prompted us to review and update the guidelines. It has also become necessary to review all previous dietary recommendations to take into account current understanding and developments in nutrition science.

The revised dietary guidelines, intended primarily for nutrition educators, health providers and policy makers, provides useful information and advice for choosing a nutritious diet, maintaining a healthy weight, achieving adequate exercise, and "keeping foods safe" to avoid foodborne illness. The recommendations contained in the dietary guidelines are in line with the objective of NPANM 2006-2015 i.e. to achieve and maintain optimal nutritional well-being of Malaysians.

The guidelines comprise 14 key messages that are considered most relevant to promoting healthy eating and active living. Each key message is supported by a detailed write-up providing background and rationale for the key recommendations made. This document by the Technical Working Group on Nutritional Guidelines has been prepared under the purview of the National Coordinating Committee for Food and Nutrition (NCCFN). The TWG was composed of scientific experts who were responsible for reviewing and analysing current dietary and nutritional information and incorporating them into a scientific evidence-based recommendations.

The Technical Working Group looks forward to the subsequent feedback from the end users to help us update and improve the guidelines from time to time. We are hopeful that the recommendations in this document will be widely used as a reference to help educate and guide Malaysians towards a healthy eating habit and lifestyle, vital in maximising good health and reducing risk for chronic diseases.

I would like to thank the members of the Technical Working Group, the contributors, the pre-test working group, the editorial working group, the Consensus Workshop participants, the Secretariat staff and all those who assisted in producing this valuable document for their hard work and dedication.



Professor Dr. Mohd Ismail Noor FASc, FIUNS

Chairman,

Technical Working Group on Nutritional Guidelines

National Coordinating Committee on food and Nutrition (NCCFN)

ACKNOWLEDGEMENT

The Technical Working Group on Nutritional Guidelines wishes to acknowledge individuals from various Departments and Institute, the Ministry of Health Malaysia, academicians from local universities, nutritionists, dietitians, endocrinologists, representatives from related professional bodies, representatives from the food manufacturing and trading industry and consumer bodies. Their invaluable contributions and commitment towards the successful completion of this document is greatly appreciated. A word of thanks is also extended to the Directors of State Health Departments; Director of Institute for Health Behavioural Research; Director of General Hospital Kuala Lumpur and Putrajaya Hospital; Dean of Faculty of Allied Health Sciences; Universiti Kebangsaan Malaysia; Dean of Medical and Health Science Faculty, University Putra Malaysia; Dean of School of Food Science and Nutrition, Universiti Malaysia Sabah; Dean of Kulliyah of Allied-Health Sciences, International Islamic University Malaysia and Dean of Pharmacy and Health Sciences, International Medical University for their kind support and co-operation.

Technical Working Group on Nutritional Guidelines

Chairman

Prof. Dr. Mohd Ismail Noor

Universiti Kebangsaan Malaysia

Vice Chairman

Fatimah Salim

Nutrition Division
Ministry of Health Malaysia

Secretary

Ainan Nasrina Ismail

Nutrition Division
Ministry of Health Malaysia

Assoc. Prof. Dr. Norimah A Karim

Universiti Kebangsaan Malaysia

Assoc. Prof. Raja Saidatul Hisan Raja Azam

Universiti Teknologi MARA

Dr. Mohd. Nasir Mohd. Taib

Universiti Putra Malaysia

Assoc. Prof. Dr. Suzana Shahar

Universiti Kebangsaan Malaysia

Assoc. Prof. Dr. Nik Mazlan Mamat

International Islamic University Malaysia

Assoc. Prof. Datin Dr. Safiah

Mohd. Yusof
(Former Deputy Director)
Nutrition Division
Ministry of Health Malaysia

Assoc. Prof. Dr. Poh Bee Koon

Malaysian Association Study of
Obesity (MASO)

Assoc. Prof. Dr. Tony Ng Kok Wai

International Medical University

Siti Sa'adiyah Hassan Nudin

Institute for Health Behavioural Research
Ministry of Health Malaysia

Dr. Tee E Siong

Nutrition Society of Malaysia (NSM)

Edmund Ewe Thean Teik

(Former Senior Principal Assistant Director)
Health Education Division
Ministry of Health Malaysia

Dr. Ismail Samad

(Former Senior Principal Assistant Director)
Disease Control Division
Ministry of Health Malaysia

Wan Roslina Wan Abdullah

Ministry of Agriculture and
Agro-Based Industry

Mohd. Jefri Crossley

Food Safety and Quality Division
Ministry of Health Malaysia

Cheah Chee Ho

Federation of Malaysian Consumer Association
(FOMCA)

Suraiza Abdullah

Federation of Malaysian
Manufacturers (FMM)

List of Contributors

Authors

Eat a variety of foods within your recommended intake

Assoc. Prof. Dr. Norimah A Karim
Universiti Kebangsaan Malaysia

Assoc. Prof. Dr. Ruzita Abd. Talib
Universiti Kebangsaan Malaysia

Ridzoni Sulaiman
General Hospital Kuala Lumpur

Surainee Wahab
Ministry of Health Malaysia

Maintain body weight in a healthy range

Assoc. Prof. Dr. Winnie Chee
International Medical University

Prof. Dr. Mohd. Ismail Noor
Universiti Kebangsaan Malaysia

Be physically active everyday

Assoc. Prof. Dr. Poh Bee Koon
Universiti Kebangsaan Malaysia

Dr. Nik Shanita Safii
Universiti Kebangsaan Malaysia

Rasyedah Ahmad Raqi
Universiti Kebangsaan Malaysia

Tan Sue Yee
Universiti Kebangsaan Malaysia

Eat adequate amount of rice, other cereal products (preferably whole grain) and tubers

Assoc. Prof. Dr. Nik Mazlan Mamat
International Islamic University Malaysia

Hanapi Mat Jusoh
International Islamic University of Malaysia

Dr. Roslee Rajikan
Universiti Kebangsaan Malaysia

Eat plenty of fruits and vegetables everyday

Assoc. Prof. Datin Dr. Safiah Mohd. Yusof
Universiti Teknologi MARA

Assoc. Prof. Dr. Mirnalini Kandiah
Universiti Putra Malaysia

Dr. Yasmin Ooi
Universiti Malaysia Sabah

Junidah Raib
Ministry of Health Malaysia

***Consume moderate amount of fish, meat, poultry,
egg, legumes and nuts***

Dr. Tee E Siong
Nutrition Society of Malaysia

Fatimah Sulong
State Health Department Negeri Sembilan

Consume adequate amounts of milk and milk products

Dr. Tee E Siong
Nutrition Society of Malaysia

Fatimah Sulong
State Health Department Negeri Sembilan

***Limit intake of foods high in fats and minimise fats
and oils in food preparation***

Assoc. Prof. Dr. Tony Ng Kock Wai
International Medical University

Dr. Suhaina Sulaiman
Universiti Kebangsaan Malaysia

Choose and prepare foods with less salt and sauces

Assoc. Prof. Dr. Suzana Shahar
Universiti Kebangsaan Malaysia

Dr. Zahara Abdul Manaf
Universiti Kebangsaan Malaysia

Nur Hana Hamzaid
Universiti Kebangsaan Malaysia

Consume foods and beverages low in sugar

Dr. Roslee Rajikan
Universiti Kebangsaan Malaysia

Assoc. Prof. Dr. Nik Mazlan Mamat
International Islamic University Malaysia

Hanapi Mat Jusoh
International Islamic University Malaysia

Drink plenty of water daily

Dr. Mohd. Nasir Mohd Taib
Universiti Putra Malaysia

Nor Baizura Md. Yusop
Universiti Putra Malaysia

Dr. Loh Su Peng
Universiti Putra Malaysia

***Practise exclusive breastfeeding from birth until six months
and continue to breastfeed until two years of age***

Fatimah Salim
Ministry of Health Malaysia

Ainan Nasrina Ismail
Ministry of Health Malaysia

Siti Adibah Ab. Halim
Ministry of Health Malaysia

Consume safe and clean foods and beverages

Assoc. Prof. Raja Saidatul Hisan Raja Azam
Universiti Teknologi MARA

Noradzhar Baba
Universiti Teknologi MARA

Nurhidayah Abdullah
Universiti Teknologi MARA

Dr. Tee E Siong
Nutrition Society of Malaysia

Linza Md. Yassin
Ministry of Health Malaysia

Har Rasyidah Mohd Irani
Ministry of Health Malaysia

Make effective use of nutrition information on food labels

Dr. Tee E Siong
Nutrition Society of Malaysia

Fatimah Sulong
State Health Department Negeri Sembilan

Editorial Board

Chief Editor

Prof. Dr. Mohd Ismail Noor
Universiti Kebangsaan Malaysia

Editors

Ainan Nasrina Ismail
Ministry of Health Malaysia

Fatimah Salim
Ministry of Health Malaysia

Dr. Mohd Nasir Mohd Taib
Universiti Putra Malaysia

Assoc. Prof. Dr. Nik Mazlan Mamat
International Islamic
University of Malaysia

Assoc. Prof. Dr. Norimah A Karim
Universiti Kebangsaan Malaysia

Assoc. Prof. Dr. Poh Bee Koon
Universiti Kebangsaan Malaysia

Assoc. Prof. Raja Saidatul Hisan Raja Azam
Universiti Teknologi MARA

Assoc. Prof. Dr. Safiah Mohd. Yusof
Universiti Teknologi MARA

Surainee Wahab
Ministry of Health Malaysia

Assoc. Prof. Dr. Suzana Shahar
Universiti Kebangsaan Malaysia

Dr. Tee E Siong
Nutrition Society of Malaysia

Assoc. Prof. Dr. Tony Ng Kock Wai
International Medical University

Dr. Yasmin Ooi
Universiti Malaysia Sabah

External Editor

Dr. Zawiah Hashim

Pre-Test Working Group

Head

Siti Sa'adiah Hassan Nudin

Institute for Health Behavioural Research
Ministry of Health Malaysia

Ainan Nasrina Ismail

Ministry of Health Malaysia

Fatimah Salim

Ministry of Health Malaysia

Mohd Zabri Johari

Institute for Health Behavioural Research
Ministry of Health Malaysia

Norfazilawati Othman

Institute for Health Behavioural Research
Ministry of Health Malaysia

List of Tables, Figures and Appendices

KEY MESSAGE 1

- Table 1.1 A comparison between the recommended serving to be taken per day and actual serving consumed by Malaysian adult
- Table 1.2 Distribution of number of servings according to food groups based on calorie value
- Figure 1.1 Malaysian Food Pyramid
- Appendix 1 Example of one day menu for 1500 kcal, 2000 kcal and 2500 kcal

KEY MESSAGE 2

- Table 2.1 Relative risks of health problems associated with obesity
- Table 2.2 Recommended BMI cut-off points for body weight classification and public health action for Malaysian
- Table 2.3 Interpretation of Z-scores for BMI-for-age
- Table 2.4 Waist circumference cut-off points
- Figure 2.1 Influences on energy balance and weight gain : energy regulation
- Figure 2.2 Energy intake must equal energy output for weight maintenance
- Figure 2.3 Prevalence of overweight and obesity in Malaysian adults: NHMS II (1996), MANS (2003) and NHMS III (2006)
- Figure 2.4 Prevalence of overweight and obesity in children age 6 - 12 years in Peninsular Malaysia (2002 and 2008)
- Appendix 1 Basal metabolic rate (MJ/day), total daily energy expenditure (MJ/day) and Physical Activity Level (PAL) of Malaysian
- Appendix 2 BMI cut-off points for 5 to 19 years boys (z-score)
- Appendix 3 BMI cut-off points for 5 to 19 years girls (z-score)
- Appendix 4 Example of high calorie or energy-dense foods and lower calorie choices
- Appendix 5 Benefits of weight loss on health risks in obesity
- Appendix 6 Recommended weight gain throughout pregnancy

KEY MESSAGE 3

- Figure 3.1 Physical Activity Pyramid
- Appendix 1 Examples of moderate and vigorous activities defined by level of intensity
- Appendix 2 Examples of flexibility and strength training activities defined by level of intensity
- Appendix 3 Examples of structured and unstructured physical activities

KEY MESSAGE 5

- Table 5.1 Consumption pattern of common fruits and vegetables by Malaysian adults

	Appendix 1	Serving size and weight of selected fruits and vegetables
	Appendix 2	Vitamin C content in one serving of commonly consumed fruits
	Appendix 3	Vitamin C content in one serving of commonly consumed vegetables
	Appendix 4	Vitamin A (expressed as Total RE) content in one serving of commonly consumed fruits
	Appendix 5	Vitamin A (expressed as Total RE) content in one serving of commonly consumed vegetables
	Appendix 6	Potassium content in one serving of commonly consumed fruits
	Appendix 7	Iron content in one serving of commonly consumed vegetables
KEY MESSAGE 8	Table 8.1	Desirable amount of dietary fat at selected calorie levels
	Figure 8.1	Essential fatty acids
	Figure 8.2	Conversion of cis-isomer to trans-isomer of fatty acids
	Figure 8.3	Cholesterol content of common foods
	Figure 8.4	Impact of TFAs vs SFAs on plasma LDLC/HDLC ratio
KEY MESSAGE 9	Table 9.1	Dietary reference intakes of sodium for children
	Table 9.2	Sources and content of sodium in selected foods
KEY MESSAGE 10	Table 10.1	Mean intake of selected beverages and foods among Malaysian
	Table 10.2	Example of sugar content in some local beverages and snacks
	Table 10.3	Sugar content in local <i>kuih</i>
	Figure 10.1	Caries prevalence by age group
	Figure 10.2	Sugar consumption per person in Asia
KEY MESSAGE 11	Table 11.1	Calculation of water requirement according to RNI for different age group
	Table 11.2	Daily intake of water and beverages (2 to 13 years)
	Appendix 1	Dietary Reference Intakes for Water
KEY MESSAGE 12	Appendix 1	Acceptable medical reasons for use of breast milk substitutes
	Appendix 2	Method of storing and thawing expressed breast milk
KEY MESSAGE 13	Table 13.1	Incidence of food borne and water borne illness cases in Malaysia for 1998 to 2006
	Appendix 1	General requirements for labelling of food
	Appendix 2	WHO 5 keys to safer foods

KEY MESSAGE 14

Table 14.1	A sample NIP with only mandatory nutrients
Table 14.2	A sample NIP with only optional nutrients
Appendix 1	Foods requiring mandatory nutrition labelling
Appendix 2	Guide to use of Nutrient Information Panel (NIP)
Appendix 3	Comparing nutrient content of different brands
Appendix 4	Permitted nutrient function claims
Appendix 5	Conditions for nutrient content claims
Appendix 6	Conditions for contents of other food component for use in nutrition claims

EXECUTIVE SUMMARY

It is now widely accepted that the major causes of morbidity and mortality in Malaysia are related to unhealthy eating habits and a sedentary lifestyle. Besides an alarming increase in prevalence of overweight and obesity, diet-related diseases such as type 2 diabetes, cardiovascular disease, hypertension and certain forms of cancer have recorded an increase during the last few decades in Malaysia. The role nutrition plays in addressing these problems have been recognised by the Government with the establishment of the National Nutrition Policy (NNP) in 2005 and in line with the NNP, the National Plan of Action for Nutrition of Malaysia (2006-2015) was developed with a broad objective to achieve and maintain the nutritional well being of Malaysians. In order to meet the objective to improve food intake and dietary practices of Malaysians, one of the recommended strategies is to ensure that every individual gets access to information on nutrition.

The Malaysian Dietary Guidelines (2010) is a compilation of the latest science-based nutrition and physical activity recommendations prepared by the Technical Working Group on Nutritional Guidelines under the auspices of the National Coordinating Committee on Food and Nutrition (NCCFN). Its aim is to provide advice on how to promote healthy eating and also practise an active lifestyle. Consumer-friendly brochures and pamphlets will be produced to help the general public in understanding the scientific language of the Dietary Guidelines and to help them make informed choices on what constitute a healthy diet.

The Malaysian Dietary Guidelines (2010) differ in scope compared to the previous version first published in 1999. The updated guidelines contain 14 key messages as compared to 8 key messages described in the previous guidelines and also contained detailed background paper on each of the key messages. Due to the nature of the dietary guidelines, the background papers were developed as a result of a process of comprehensive, rather than systematic, review of the literature. This publication has included 55 key recommendations under the 14 key messages with some additional recommendations for special population groups.

Since food can provide most if not all of our nutrient needs, the basic assumption of the Dietary Guidelines is that nutrient needs should be met primarily through food consumption. It is envisaged that if implemented as a whole, the dietary guidelines should encourage Malaysians to consume less calories, be more active and make wiser food choices.

The recommendations in the Malaysian Dietary Guidelines 2010 are for Malaysians over two years of age. It is important to incorporate the food preferences of different ethnic groups, vegetarians, and other groups when planning diets and developing educational programmes and materials. The Malaysian Dietary Guidelines is intended primarily for use by nutritionists, dietitians, healthcare educators or providers and policy makers. The information in the Dietary Guidelines is useful for the development of educational materials, in designing and implementing nutrition-related programmes, including national food policies, nutrition education and information programmes.

The Malaysian Dietary Guidelines was developed by experts in nutrition and public health with involvement from the community through pre-testing of the proposed key recommendations. Preliminary work began in early 2007 and the final draft document was tabled at a Consensus Workshop attended by all relevant stakeholders in September 2009. The following is a listing of the key recommendations according to the key messages proposed in the Malaysian Dietary Guidelines:

- Key Message 1 : Eat a variety of foods within your recommended intake
- Key Message 2 : Maintain body weight in a healthy range
- Key Message 3 : Be physically active everyday
- Key Message 4 : Eat adequate amount of rice, other cereal products (preferably whole grain) and tubers
- Key Message 5 : Eat plenty of fruits and vegetables everyday
- Key Message 6 : Consume moderate amounts of fish, meat, poultry, egg, legumes and nuts
- Key Message 7 : Consume adequate amounts of milk and milk products
- Key Message 8 : Limit intake of foods high in fats and minimise fats and oils in food preparation
- Key Message 9 : Choose and prepare foods with less salt and sauces
- Key Message 10 : Consume foods and beverages low in sugar
- Key Message 11 : Drink plenty of water daily
- Key Message 12 : Practise exclusive breastfeeding from birth until six months and continue to breastfeed until two years of age
- Key Message 13 : Consume safe and clean foods and beverages
- Key Message 14 : Make effective use of nutrition information on food labels

Key Message 1 : Eat a variety of foods within your recommended intake

Key recommendations

1. Choose your daily food intake from a combination of foods based on the Malaysian Food Pyramid.
2. Choose your daily food intake according to the serving size recommended.

Additional recommendations: Nutrient supplements

Eating a variety of foods daily as guided by the Malaysian Food Pyramid should provide all the nutrients needed by the body. Therefore, supplements are not necessary for most individuals. Supplements of vitamins, minerals or fibre do not supply the nutrients and other essential components present in foods that are important to health. Nutrient supplements cannot be used as a substitute for proper food choices and supplements of some nutrients taken regularly in large amounts are harmful. However, supplements may be needed to meet specific nutrient requirements such as during convalescence, in pregnant and lactating women and for the elderly. Nutrient supplements should only be taken on the advice of nutritionists, dietitians or medical doctors.

Key Message 2 : Maintain body weight in a healthy range

Key recommendations

1. Maintain body weight in the healthy range by balancing calorie intake with physical activity.
2. Weigh yourself regularly, at least once a week.
3. If you are an adult, prevent gradual weight gain over time.
4. If overweight, aim for a slow and steady weight loss.
5. If underweight, increase energy intake as recommended.

Key Message 3: Be physically active everyday

Key recommendations

1. Be active everyday in as many ways as you can.
2. Accumulate at least 30 minutes of moderate intensity physical activity on at least five to six days a week, preferably daily.
3. Participate in activities that increase flexibility, strength and endurance of the muscles, as frequent as two to three times a week.
4. Limit physical inactivity and sedentary habits.

Additional recommendations: Special groups

Children and adolescents

Toddlers should accumulate at least 30 minutes a day, while preschoolers should accumulate 60 minutes a day of structured physical activity. In addition, toddlers and preschoolers should also engage in a minimum of 60 minutes to several hours per day of unstructured physical activity.

Children and adolescents should do 60 minutes or more of either moderate or vigorous intensity physical activity daily. Children and adolescents are also recommended to include muscle and bone strengthening activities as part of their 60 minutes or more daily physical activity.

Pregnant women

Healthy pregnant women who are not previously active should engage in moderate intensity activity for up to 30 minutes a day during pregnancy and during postpartum period. For healthy pregnant women who are habitually active, it is recommended that they continue to stay active at an appropriate level of physical activity throughout their pregnancy and the postpartum period. Muscle training especially for strengthening the back, stomach and pelvic floor is also important and is recommended for bearing the weight of the baby.

Pregnant women should avoid activities at high risk of falling (such as riding) and contact sports (such as basketball). They should also avoid overheating the body by doing activities in short periods, for example, in intervals of 15 minutes. Women with complicated pregnancy are not advised to exercise, but may instead benefit from rest. These include placenta praevia, pregnancy induced hypertension, heart disease, multiple pregnancy and women who have a history of miscarriages and bleeding.

Overweight/ Obese

To lose weight, a total of more than 30 minutes a day of moderate intensity physical activity is recommended, whilst approximately 45 to 60 minutes per day of moderate intensity physical activity is required to prevent the transition from overweight to obesity. For weight control and for preventing weight gain or regain among formerly obese individuals, a total of 60 to 90 minutes a day of moderate intensity activity or lesser amount of vigorous activity is recommended.

Key Message 4: Eat adequate amount of rice, other cereal products (preferably whole grain) and tubers

Key recommendations

1. Consume at least four servings of cereal foods daily.
2. Choose at least half of your grain products from whole grains.
3. Choose cereal products that are high in fibre, low in fat, sugar and salt.

Key Message 5: Eat plenty of fruits and vegetables everyday

Key recommendations

1. Eat a variety of fruits everyday.
2. Eat a variety of vegetables everyday.
3. Eat at least five servings of fruits and vegetables everyday.

Key Message 6: Consume moderate amounts of fish, meat, poultry, egg, legumes and nuts

Key recommendations

1. Consume fish more frequently, if possible daily.
2. Consume meat, poultry and egg moderately.
3. Practise healthier cooking methods for fish, meat poultry and egg dishes.
4. Choose meat and poultry that are low in fat and cholesterol.
5. Consume legumes daily.
6. Include nuts and seeds in weekly diet.

Key Message 7: Consume adequate amounts of milk and milk products

Key recommendations

1. Consume milk and milk products everyday.
2. Replace sweetened condensed milk and sweetened condensed filled milk with unsweetened liquid or powdered milk.

Additional recommendation: Lactose intolerant

Lactose intolerance persons may also derive the health benefits associated with milk and milk products by consuming lactose-free predigested milk. They can choose predigested milk products such as yoghurt and consume more calcium fortified or enriched milk products to meet their calcium requirement.

Key Message 8: Limit intake of foods high in fats and minimise fats and oils in food preparation

Key recommendations

1. Limit the intake of unsaturated fats to less than 10% of total daily calorie intake.
2. Increase the intake of unsaturated fats monounsaturated fatty acids (MUFA) and polyunsaturated fatty acids (PUFA).
3. Limit the intake of foods with high cholesterol.
4. Limit foods containing trans fatty acids (TFAs).
5. Minimise the use of fat in food preparation in order to keep total daily fat intake between 20% to 30% energy.
6. When eating out, choose low-fat foods.

Key Message 9: Choose and prepare foods with less salt and sauces

Key recommendations

1. Limit salt intake to one teaspoon a day.
2. Reduce consumption of highly salted foods and condiments.

Additional recommendations: Infants and children

Breastfeed babies exclusively at least up to six months. After a child reaches six months of age, mother can feed the baby with homemade complementary foods with no added salt. If mother chooses to feed baby with commercially prepared complementary foods, read labels for sodium content when purchasing.

Children should limit the intake of high sodium snacks and fast foods. Instead, choose fresh fruits and low sodium foods as snacks. Consumption of processed foods such as chicken nuggets, meatball and meat burger which contain high sodium should be limited. It is advisable to choose low salt option or home made processed foods with less salt.

Key Message 10: Consume foods and beverages low in sugar

Key recommendations

1. Eat foods low in sugar.
2. Drink beverages low in sugar.

Key Message 11: Drink plenty of water daily

Key recommendations

1. Drink six to eight glasses of plain water daily.
2. Maintain fluid intake from other food sources.
3. Avoid alcoholic beverages.

Additional recommendation: Special groups

Children

Children between two to six years old require four to six glasses of plain water since excessive intake of water may displace intake of nutritious foods and milk.

Lactating mothers

Lactating mothers need to increase water intake up to at least an extra two glasses daily.

The elderly

Remind and encourage the elderly to drink sufficient plain water. They should also be advised to continue intake of other fluid sources such as fruits and vegetables, juices and soups. Caregivers of the elderly should reassure the elderly that they can request plain water or beverages at any time.

Key Message 12: Practise exclusive breastfeeding from birth until six months and continue to breastfeed until two years of age

Key recommendations

1. Prepare for breastfeeding during pregnancy.
2. Initiate breastfeeding within one hour of birth.
3. Breastfeed frequently and on demand.
4. Give only breast milk to baby below six months with no additional fluid or food.
5. Continue to give babies breast milk even if the baby is not with the mother.
6. Introduce complementary foods to baby beginning at six months of age.
7. Lactating mothers should get plenty of rest, adequate food and drink to maintain health.
8. Husbands and family members should provide full support to lactating mothers.

Additional recommendation: Breastfeeding and babies of HIV- positive mothers

In adherence to the Ministry of Health's policy, infants born to HIV-positive mothers are strictly not to be breastfed, even by a wet nurse (KKM, 2003). HIV- positive mothers should receive counselling on infant feeding and guidance on safe and appropriate use of infant formula.

Additional recommendation: Breastfeeding and working mothers

For successful lactation to continue after returning to work, supportive worksite health-promotion policies are required that provide education and facilitate either frequent feeding or frequent expression and storage of breast milk.

Health professionals and child care providers should support mothers by encouraging them to continue breastfeeding and offering ongoing support during the transition back into the workplace. In consideration of the extensive published evidence for improved outcomes in breastfed infants and their mothers, a strong advocacy for breastfeeding is justified. Mothers should be encouraged to think positively and not to assume that breastfeeding will not be possible under their particular circumstances.

Key Message 13: Consume safe and clean foods and beverages

Key recommendations

1. Choose safe and clean foods and beverages.
2. Store foods appropriately.
3. Prepare foods hygienically.
4. Cook foods thoroughly.
5. Hold foods appropriately.
6. When eating out, choose safe and clean premises.

Key Message 14: Make effective use of nutrition information on food labels

Key recommendations

1. Use Nutrition Information Panel (NIP) as a guide in making food choices.
2. Make use of nutrition claims wisely.
3. Educate children on the use of NIP.

Additional recommendation: Breastfeeding and babies of HIV- positive mothers

In adherence to the Ministry of Health's policy, infants born to HIV-positive mothers are strictly not to be breastfed, even by a wet nurse (KKM, 2003). HIV- positive mothers should receive counselling on infant feeding and guidance on safe and appropriate use of infant formula.

Additional recommendation: Breastfeeding and working mothers

For successful lactation to continue after returning to work, supportive worksite health-promotion policies are required that provide education and facilitate either frequent feeding or frequent expression and storage of breast milk.

Health professionals and child care providers should support mothers by encouraging them to continue breastfeeding and offering ongoing support during the transition back into the workplace. In consideration of the extensive published evidence for improved outcomes in breastfed infants and their mothers, a strong advocacy for breastfeeding is justified. Mothers should be encouraged to think positively and not to assume that breastfeeding will not be possible under their particular circumstances.

Key Message 13: Consume safe and clean foods and beverages

Key recommendations

1. Choose safe and clean foods and beverages.
2. Store foods appropriately.
3. Prepare foods hygienically.
4. Cook foods thoroughly.
5. Hold foods appropriately.
6. When eating out, choose safe and clean premises.

Key Message 14: Make effective use of nutrition information on food labels

Key recommendations

1. Use Nutrition Information Panel (NIP) as a guide in making food choices.
2. Make use of nutrition claims wisely.
3. Educate children on the use of NIP.