

Press Release
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National Consensus Dietary Guidelines for Healthy Living and
Prevention of Obesity, Diabetes and Related Diseases

Released by

***Department of Science and Technology, Ministry of Science
and Technology, Govt. of India***

***Diabetes Foundation (India),
and***

***National Foundation of Diabetes, Obesity and Cholesterol
Disorders (N-DOC)***

Background:

Prevalence of obesity, diabetes and hypertension is rapidly increasing in India. There are 50.8 million diabetics in the country out of World's 285 million according to the figures released by International Diabetes Federation (IDF) on 18th October, 2009 (www.idf.org). These diseases are affecting young people posing a substantial economic burden.

Perhaps the most important reason for increasing prevalence of obesity, diabetes and hypertension is rapidly changing imbalanced dietary habits ("nutritional transition"). This is due to many reasons; easy availability of convenience foods, frequent snacking on energy-dense fast foods, high consumption of packaged foods in place of traditional home made foods etc. This transition has resulted in excess consumption of calories, saturated fats, trans fatty acids (TFAs), simple sugars, salt and low intake of fiber.

Why Revisions in Dietary Guidelines are needed?

It is important to focus on changing imbalanced diets, and critically look at and revise the existing dietary guidelines for healthy living for Asian Indians. Existing dietary guidelines were prepared in 1998 by National Institute of Nutrition (NIN), Hyderabad but these guidelines have not been revised so far. An important aim is to make the revised guidelines user-friendly, so that these could be interpreted and used by any practitioner of medicine or even general public.

The Consensus Development Process:

1. This consensus statement has been prepared by more than 100 renowned experts belonging to the varied disciplines; nutrition, internal medicine, metabolic diseases, endocrinology, cardiology, exercise physiology and sports medicine from all over India for the first time, under the aegis of Dept. of Science and Technology, Gov. of India.
2. The guidelines have been formulated after extensive and multiple consultations with experts. A draft of guidelines was prepared by the Steering

committee and was circulated to all participants for feedback and comments before the meeting. After incorporating the valid suggestions, the revised consensus document was circulated among all the experts for a second review before the consensus meeting. The experts appraised the rationale, background, and proposals during the Summit on Nutrition organized by Department of Science and Technology, Ministry of Science and Technology and *Diabetes Foundation (India)* on 5th April' 09. The draft was modified and circulated again to all the experts for their comments and finalized.

What does this Document Contain?

1. **You are being provided synopsis of the document.** The final unabridged document due to be published in peer reviewed indexed medical journal. In this unaccompanied document, recommendation on different nutrients have been provided along with methods of calculation of energy requirement, different oil combinations that should be used, diet charts from four regions of India: North, West, East and South, exchange lists, Glycemic Index of 71 food items, etc. The guidelines with complete knowledge about diet planning have been given in simple language.
2. The guidelines are largely aligned with latest dietary guidelines by the WHO and other international agencies.

Estimated Impact of these Guidelines:

Countrywide adaptation of these guidelines is likely to have a significant impact on prevalence and management of obesity, the metabolic syndrome, polycystic ovarian syndrome, hypertension, high cholesterol and triglycerides, fatty liver, diabetes, stroke, heart disease, gout, gangrene, obstructive sleep apnea, heart failure, infertility, osteoarthritis, respiratory problems, and various types of cancers.

Quotes from Experts:

**Dr. Anoop Misra, Director and Head, Department of Diabetes and Metabolic Diseases, Fortis Hospitals, New Delhi, and Director, Diabetes, Obesity and Metabolism, *Diabetes Foundation (India)*
*anoopmisra@gmail.com, 9811153997***

“These guidelines incorporate worldwide research and opinions in nutrition and modulated according to India specific data. We believe that application of these guidelines will significantly help in preventing and halting diabetes and obesity epidemic in India. More importantly, simplicity of guidelines, and provision of standard diet charts catering to different regions of India will help people from any part of country follow balanced diets”

**Mrs. Rekha Sharma, Chief Dietician, Medanta, The Medicity, and Former Chief Dietician, All India Institute Of Medical Sciences, New Delhi.
*rekhadsharma01@hotmail.com***

“On observing the nutritional health of population, research indicates rampant increase in obesity and other non-communicable diseases like diabetes and heart disease, primarily due to faulty eating and sedentary life style. Revision of dietary guidelines is therefore necessary to keep up with the changing scenario of health and we need scientific broad based dietary guidelines, tailor made to the eating pattern of the Indian population”

Dr. Shashank Joshi, Senior Endocrinologist, Lilavati & Bhatia Hospital, Mumbai, and Emeritus Editor, Journal of Association of Physicians of India.
shashank.sr@gmail.com, 9820186302

"Diet and Nutrition guidelines are most necessary especially as food cooked in every Indian household is different. Current available information is not adequate so we need to know and guide the health care professionals as well as people and patients at large the evidence based information from the urban and semi-urban environment. Most of the National Institute of Nutrition data are predominantly rural centric. It is imperative to have such guidelines so save the native Asian Indian race from the ravages of the Non-communicable disease epidemic of heart diseases, diabetes and cancer."

Annexure 1: Dietary Guidelines for Adult Asian Indians for Healthy Living and Prevention of Obesity & Diabetes (abbreviated, detailed guidelines will be published in a peer reviewed indexed medical journal by Jan/Feb, 2010)

Note: # Modified recommendation, ## New recommendation

Energy (Calories)#:

The energy recommended must be based to maintain ideal weight and health in Indian adults. Energy requirement should be calculated based on height, weight and activity level, e.g. a medium frame Indian man of 165 cm of height should weigh 62 kg and if he is sedentary would require 1850 K cal to maintain healthy weight.

Carbohydrates#:

1. The daily carbohydrate intake should be approximately 50-60% of total calorie intake. For example, in an 1800 and 2000 calorie diet, the carbohydrate intake would be 225-270 g/day and 250-300 g/day, respectively, for a sedentary to moderately active individual. Carbohydrates could be derived from whole wheat, unpolished rice, barley (*jaun*), buckwheat (*kuttu*), oats (*jai*) etc.
2. Complex carbohydrates and its products are to be preferred over refined carbohydrate and its products, e.g. whole grain bread over white (*maida*) bread.
3. Low Glycemic Index (GI) carbohydrate foods (oats (*jai*), unpolished rice, whole pulses, beans (*fali*) and legumes (*sabut anaz*), some whole fruits (like guava, apple etc.) should be preferred.
4. The total dietary fiber in daily diet should be 25 to 40 gms per day, hence high fiber food articles should be consumed [100g of apple (1 small apple) gives 1.0 g of fiber, 100g of whole wheat flour gives 1.9 g of fiber]. High dietary fiber containing foods: cereal, pulse, vegetable, salads and fruits like guava, *amla*, apple, pomegranate, peaches, pear etc.
5. At least 4-5 servings per day of fruits and vegetables are recommended.

Fats#:

1. Fat (both visible fat in the form of oil, butter, *ghee* etc. and invisible fat from cereals and pulses) should provide not more than 30% of total energy. This 30% of fat could be obtained by 4-5 tsp of oil (combination of two or more vegetable oils) and cereals and pulses in 1600 Kcal diet.
2. Saturated fats (butter, clarified butter i.e. *ghee*, mayonnaise etc.) should provide no more than 10 % of total energy; for individuals having LDL cholesterol of $\geq 100\text{mg/dl}$, saturated fats should be $< 7\%$ of total energy.
3. Essential polyunsaturated fatty acids (linolenic acid, e.g. safflower (*kardi*) oil, sunflower oil) should provide 5-8% of total energy, Alpha-linolenic acid 1-2 % of total energy (flaxseeds, canola oil, walnuts); optimal ratio of LA /ALA should be 5-10.
4. **Cis Monounsaturated fatty acids (nuts such as pistachio and almonds, olive oil) should provide 10-15% of total energy##.**
5. Trans fatty acids should be less than 1% of total energy (*vanaspati*, bakery food products, *ready-to-use soups and gravies*, margarine and all those foods prepared with *vanaspati* or margarine##).

Proteins#:

1. Protein intake should be based on body weight. This should be 1gm/kg/day, considering the quality of protein in a usual Indian vegetarian diet e.g. a man weighing 60 kg would require 60 gm of protein per day. This 60 gm could be obtained from 9 servings of whole wheat flour (1 serving= 25gm), 2 bowl of cooked dal (60 gm raw pulse)/ 2 pieces of lean meat such as chicken or fish and 500ml of double toned milk.
2. In conjunction with energy intake, the protein intake should provide 10-15% of the total calories in sedentary to moderately active individuals.

Salt#:

Salt intake should be less than 5 g of sodium chloride (or about 2 g sodium) per day. Dietary intake of sodium from all sources should be limited. Excess salt in the form of salted potato chips, packaged foods, Indian *pickles* (fruits and vegetables pickled and preserved in oil), *papads* (indigenous savory salty snack famous in South Asians), *namkeens* (salty fried snacks), and *chutneys* (condiments, usually involving a fresh, chopped primary vegetable or fruit with added seasonings mixed with salt), which are popularly used in Indian meals to enhance taste should be avoided.

Sugar and Artificial Sweeteners##:

1. Free sugars should be less than 10% of total calories. This includes all added sugars and sugars present in honey, syrups and fruit juices.
2. Artificial sweeteners can be used in moderation. However, these do not contain any beneficial nutrients and long-term health benefit, if any, is not clear in non-diabetic individuals. The Food and Drug Administration (FDA) has approved 5 artificial sweeteners; saccharin (Sweet 'N' Low, Sweet Twin, Necta Sweet), aspartame (Equal, Sweetex, Sugar free, Sugar free gold), acesulfame-K, neotame (both are used in beverages, dairy products, pharmaceutical products, chewing gum etc.), and sucralose (Splenda, Zero, Sugar free natura) as safe. Although doubts have been raised regarding safety of Saccharin, however, FDA has approved it to be used in limited quantity because of low price, good shelf life and stability to heat. Stevia (Stevi0cal, Gwiser) and some sugar alcohols (Sorbitol, xylitol, mannitol, maltitol etc.) have been approved by FDA under GRAS (Generally Recognized as Safe) status.

Other Dietary Habits:

1. Water#:

Drink 1.5 -2 liters (8-10 glasses) of water everyday; intake could be increased in hot climates.

2. Alcohol:

Regular excessive intake of alcohol is harmful. Till more data are available for Asian Indians, non-consumers of alcohol should not have alcohol; however, individuals consuming small quantity of alcohol should not be discouraged.

3. Food Choices while Eating Out###:

Choose healthy snack options. Smaller portion sizes should be preferred over larger. Avoid aerated drinks and high calorie drinks and opt for beverages like butter milk, coconut water, fresh lime with water etc.

4. Meal Portion and Times^{##}:

Small frequent meals at regular intervals should be taken. Gap between 2 meals should be between 3-4 hours.

5. Regular Breakfast^{##}:

A healthy breakfast, planned according to guidelines above, should be essential part of meal plan.

6. Cooking Methods:

Correct cooking methods could minimize intake of fats in diet. Boiled/steamed/roasted/grilled/sautéed/Poached/ Broiled/ Pan broiled/ stewed methods are recommended over frying as they reduce the fat content in food and minimize the visible fat intake.

Annexure 2: Comparison of NIN Dietary Guidelines* (1998/ with Current National Consensus Guidelines (2009)

Nutrient		NIN Guidelines	Current Consensus Guidelines
Energy		As per body requirement	Method of calculation of energy need has been provided
Carbohydrates		60-70% of total energy	50-60% of total energy
Proteins		10-12% of total energy	10-15% of total energy
Fats	Total Fats	15-30% of total energy	Less than 30% of total energy
	Saturated fatty acids	Not clear	Less than 10%
	Trans fatty Acids	No recommendation	Less than 1%
	Essential poly-unsaturated acids (PUFAs)	Not clear, Ratio of PUFA/SFA= 0.8-1.0 has been recommended	PUFA should be 5-8% of total energy
	Alpha linolenic acid (ALNA)	No recommendation	1-2% of total energy
	Mono-unsaturated fatty acids (MUFAs)	No recommendation	10-15% of total energy
	Linolenic acid/ALNA	5-10	5-10
Salt		Less than 8 g per day	Less than 5 g per day
Sugar		20-25 g per day	Less than 10% of total energy
Artificial Sweeteners		No recommendation	Moderate use, FDA approved sweeteners (five) provided
Water		1 liter/ 5 glasses per day	1.5- 2 liter/8-10 glasses per day
Alcohol		Intake should neither be encouraged nor recommended for non-users	Intake of small quantity should not be discouraged
Food choices while eating out		Not mentioned	New recommendations have been included
Meal portion and times		Not mentioned	
Regular breakfast		Not mentioned	
Cooking methods		Methods using less of oil are recommended	Methods using less of oil are recommended

* National Institute of Nutrition (NIN) (1998), Dietary Guidelines for Indians: A Manual, NIN, Hyderabad.

Annexure 3: Prevalence of Diabetes and Impaired Glucose Tolerance (IGT) in South Asian Region and India

(Source: International Diabetes Federation (IDF) Atlas (2009) available at www.idf.org)

<i>Prevalence of Diabetes in South-East Asia</i>		
	2010	2030
Total population (millions)	1,439	1,788
Adult population (20-79 years, millions)	838	1,200
<i>Diabetes and IGT (20-79 years)</i>		
<i>Diabetes</i>		
Prevalence (%)	7.0	8.4
Number of people with diabetes (millions)	58.7	101.0
<i>IGT</i>		
Regional prevalence (%)	5.8	6.4
Number of people with IGT (millions)	48.6	76.4
<i>Prevalence of Diabetes in India</i>		
Prevalence of diabetes (%)	7.1	9
Number of people with diabetes (millions)	50.8	87

Annexure 4: Prevalence of Obesity in India
(Adapted from Misra and Khurana. J Clinical Endocrinology and Metabolism, 2008)

<i>Author and year</i>	<i>Country/region and urban/rural area</i>	<i>Age (yr)</i>	<i>Sample (n)</i>		<i>Prevalence of obesity (%)</i>	
			<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
Misra et al.2005	North India (urban)	38.9	640 ^b		10.1	25.9
Gupta et al.2004	North India (urban)	>20	960	840	25.6	44.0
Deepa et al.2007	South India (urban)	>20	2350		43.2	47.4
Gupta et al.2007	North India (urban)	>20	532	559	37.8	50.3

Annexure 5: Prevalence of Hypertension and Heart Disease in India

1. There is marked increase in the prevalence of hypertension among Asian Indians. Urban studies have shown increasing overall prevalence of hypertension in India from 6.64% in 1988 to 36.4% in 2003. Overall, steeper rise in the prevalence of hypertension has been seen in urban than rural areas in India; with significant increase in systolic pressure than diastolic pressure, thus being more closely linked to cardiovascular events and cardiac mortality. Current urban and rural prevalence is 10-15%, and 20-30%, respectively.
2. By the year 2020 India will have more individuals with cardiovascular disease (CVD) than any other region. It has been predicted that by 2020, there would be a 111% increase in cardiovascular deaths in India. Coronary deaths in India have almost reached double in last 20 years; from 1.17 million in 1990 to 1.59 million in 2000 and expected to reach 2.03 million in 2010. WHO estimates (1998-2000) also suggest an urban prevalence of CHD to be around 10% in Indian adults aged ≥ 35 y age, based on several studies.

Annexure 6: Sample Diet Charts for North and South India (1400 K Cal)

Meal	Exchanges	North (e.g. New Delhi)	South (e.g. Bangalore)
Early Morning	¼ Milk**	Tea/ Coffee 1 c	Tea/ Coffee 1 c
Breakfast	½ Milk	Milk 1 c or curd 1 K	Milk 1 c or curd 1 K
	1 Cereal	Chapati 1/ bread-1/cereal flakes 2tbsp	Idli 2 small with chutney/small Dosai 2/ Upma 1c / Roti 1
	1 Meat/poultry	2 Egg white/ low fat cottage cheese (Paneer) 30 gms	2 Egg white/ low fat cottage cheese (Paneer) 30 gms
	Fat	Oil: 1 Tsp	Oil: 1tsp
Mid-morning	1 Fruit	1 seasonal fruit	1 seasonal fruit
Lunch	2 Cereal	2 Chapatis (60g) medium	Rice 1 K / Chapati 2
	1 Pulse	~1 K Dal	Sambhar 1 K (with ½ K veg grp B)/ dal/ fish 1 pc/ chicken 1 pc *
	2 ½ Veg	<ul style="list-style-type: none"> ▪ 1 Veg grp A: 1 K ▪ ½ Veg grp B: 1/2 K ▪ Salad (1/2 Veg grp A + 1/2 Veg grp B) 	<ul style="list-style-type: none"> ▪ Veg grp A: 1 K ▪ Veg grp B : 1 K
	½ Milk	1 K curd	1 glass Buttermilk
	1 ½ Fat	Oil – 1 ½ Tsp	Oil – 1 ½ Tsp
Tea & Snacks	¼ Milk	Tea/ Coffee 1 c	Tea/ Coffee 1 c
	1 cereal	~ 1 K vegetable poha / ½ K roasted namkeen	Rice – ½ K/ Rava Idly - 1 / Avalakki – ½ K / Puffed rice – ½ K
Dinner	2 Cereal	2 Chapatis (60g) medium	Chapatis 2 / Ragi ball 1 (small)
	1 Pulse/ 1 meat-poultry	~1 K Dal/ 1 pc chicken/ fish*	Dal/ Sambhar (with ½ veg grp B) 1 K/ chicken 1pc/ fish 1 pc*
	2 ½ Veg	<ul style="list-style-type: none"> ▪ 1 Veg grp A: ½ K ▪ ½ Veg grp B: 1 K ▪ Salad: 1K (1/2 Veg grp A + 1/2 Veg grp B) 	<ul style="list-style-type: none"> ▪ Veg grp A + B: 1 K ▪ Salad 1 K (1/2 Veg grp A + 1/2 Veg grp B)
	Fruit	1 seasonal fruit	1 seasonal fruit
	1 ½ Fat	Oil – 1 ½ Tsp	Oil – 1 ½ Tsp
Bedtime	½ Milk	Milk – 1 c	Milk – 1 c

C - cup ; k- katori; g- glass; Tsp-Teaspoon ; Tbsp-Tablespoon

*- Non-vegetarian foods not more than 2-3 times a week

** - double toned milk