

Nutrition for Nurses

Nutrition and Human Welfare

By

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Specific Dynamic Action of Foods.

The taking of food has a stimulating effect on the rate of metabolism. Protein stimulates it about 30 per cent more than one would expect from its actual calorie value. This is called the "Specific Dynamic Action" of protein. The stimulating effects of carbohydrates and of fats are much less than that of protein and therefore protein is a good food for cold countries, sedentary life and reducing weight. If 100 calories be assumed to be just sufficient to fill the needs of basal metabolism, the waste of energy due to specific dynamic action will demand that 140 calories from proteins or 114 calories from fats or 106 calories from carbohydrates be supplied to get the 100 calories. For a normal individual living on a mixed diet, the specific dynamic action will be ten per cent of the Basal Energy Metabolism.

The energy requirements of the body depend on various factors, age, size, weight, surface area, sex, muscular activity, temperature and climate, food eaten, internal secretions and status of health. All these depend upon (1) the total mass of active protoplasmic tissue in the body and (2) the total cellular activity.

1. **Age and growth** : A growing child has a higher rate of metabolism per unit of its weight than an adult because of its more active protoplasm. An old man has less need for energy because of the reduction in cellular activity.

2. **Size and weight** : A large person needs more calories than a smaller person because the Basal Metabolic Rate is proportional to the body weight.

3. **Size and Surface Area** : Energy

needs are directly proportional to the surface area of the body. A tall thin person will have a larger surface area than a short stout person of the same weight. Hence the energy needs of the former will be greater than that of the latter. Tables have been worked out for measuring a person's surface area through his data on height and weight.

4. **Sex** : Although the difference in the energy needs of boys and girls before 12 years of age is very little, a man seems to have a higher Basal Metabolic Rate than woman of the same age and size. In general, women's Basal Metabolic Rate is 14 per cent lower than that of men of corresponding age and size.

5. **Muscular activity** : The internal muscular activities have been discussed in basal metabolic rate. Here we are concerned with the external muscular work. The greatest variable factor in altering the rate at which we expend energy is the amount of muscular activity.

6. **Temperature** : If there is a rise in the body's temperature as in fevers, the energy needs are increased. If the climate is cold, more energy is needed for keeping the body warm.

7. **Special conditions** : In starvation or undernutrition, the basal metabolism is reduced as an automatic reduction in the body's daily drain on the source of energy. In pregnancy and lactation the needs are increased greatly. In certain disease conditions, the needs are greater and in certain others less than the normal.

8. **Internal Secretions** : Some hormones in the body also regulate the energy needs. If there is an excess of thyroxine in the body, the metabolic rate

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goes higher.

The following table gives the rate of energy expenditure for the various activities of the body :

Energy expenditure per hour under different conditions of muscular activity

Form of activity	Calories per hour		
	Per 70 Kgms.	Per Kgm.	Per Pound
Sleeping	65	0.93	0.43
Awake lying still	77	1.10	0.50
Sitting	100	1.43	0.65
Reading aloud	105	1.50	0.69
Standing relaxed	105	1.50	0.69
Hand sewing	111	1.59	0.72
Standing at laboratory work	115	1.63	0.74
Knitting	116	1.66	0.75
Dressing and undressing	118	1.69	0.77
Singing	122	1.74	0.79
Driving automobile	133	1.90	0.86
Typewriting rapidly	140	2.00	0.91
Dish washing	144	2.06	0.93
Ironing	144	2.06	0.93
Laundry, light	161	2.30	1.04
Sweeping	169	2.41	1.09
Walking 2.6 miles per hour	200	2.86	1.30
Carpentry, metal working	240	2.43	1.56
Bicycling, moderate speed	245	3.50	1.59
Dancing light	280	4.00	1.83
Walking 3.75 miles per hour	300	4.28	1.96
Dancing, briskly	336	4.80	2.18
Walking downstairs	364	5.20	2.36
Horse riding	371	5.30	2.40
Sawing wood	480	6.86	3.12
Swimming	500	7.14	3.25
Running	570	8.14	3.70
Walking upstairs	1,100	15.8	7.18
Rowing	1,190	17.0	7.65

Source : "Essentials of Nutrition" by Henry C. Sherman and Caroline Sherman Lanford, 1947, New York, Macmillan Co. Page 75.

The First National Convention of the Catholic Nurses' Guild Programme, 1957

October 8th, 6-30 p.m.

Holy Mass and Sermon by His Excellency, Rt. Rev. Conrad Vito, D.D., Bishop of Lucknow. Announcements by Father Tong.

After Mass, delegates met on the church lawn for informal introductions.

October 9th, 5 to 6 p.m.

Meeting at Moti Mahal. The primary purpose of this meeting was to discuss the position the Religious Sisters should hold in the Guild. Shall they be eligible for all offices? Shall they pay full fees? Shall they be subject to the same rules?

October 10th, 5 to 6 p.m.

Meeting at Moti Mahal. Preliminary discussion of provisional constitution. The name of the association. Shall we for a combination of political, diplomatic and apostolic reasons drop the word Catholic? Call it, for example, The Nurses' Guild of India?

October 11th, 5-30 p.m.

Meeting at Loretto Convent. Short address by Fr. Ziebert. Election of officers and Board of Directors. President, two vice-presidents, secretary, treasurer, and directors (council members). How Many?

October 12th, 9-30 a.m.

Meeting at the Cathedral Hall. Reading and ratifying of the constitution.

Discussion of the project of the national paper. Its name. Disadvantage of the word 'Catholic' in the title of it. Discussion of the banner and the badge. Display of samples. New suggestions. Brussels, 1958! Vote of thanks to Father Fulgentius.

12-00 Noon

Lunch.

October 12th, 3-00 p.m.

Board Meeting at Loretto Convent.

4-30 p.m.

Tea and farewell.

Our Roman Catholic members will be interested in this programme.

There was a good attendance at the meetings which were held during the TNAI Conference at Lucknow.

—Ed.