SNS COLLEGE OF NURSING

Saravanampatti (po), Coimbatore.

DEPARTMENT OF NURSING

COURSE NAME : BSC (NURSING) I YEAR

SUBJECT : NUTRITION

UNIT: III: ENERGY AND NUTRITION

TOPIC : BASAL METABOLIC RATE

INTRODUCTION

Food is the fuel source of the body, the ingested food undergoes metabolism to liberate energy required for the vital activities of the body.

DEFINITION

BMR is defines as the minimum amount of energy required by the body to maintain life at complete physical and mental rest in post absorptive state.

DEFINITION

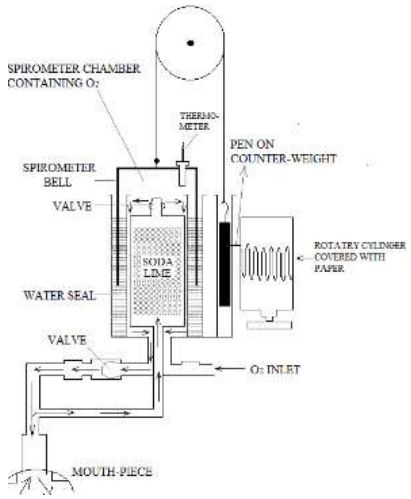
It is also defined as several functions within the body occurs at basal condition such as

- working of heart and other organs
- conduction of nerve impulse
- reabsorption by renal tubules
- GI Mobility.
- Ion transport across membrane

MEASUREMNET OF BMR

BMR can be measured by the apparatus of Benedict and Roth or by Douglas bag method.

The subject should be awake, at complete physical and mental rest, in post absorptive state and in a comfortable surrounding.



NORMAL VALUE

- ✓ Adult man : 35 – 38 cal/ sq.m/hr or 1600 cal/day
- ✓ Adult Women: 32- 35 cal/sq.m/hr or 1400cal/day
- ✓ A BMR value between -15% and +20% is considered as normal.

FACTORS AFFECTING BMR

1) AGE

BMR decreases with advancing age.

2) SEX:

Males have more muscle mass and lower body weight. Thus, they have high BMR.

FACTORS AFFECTING BMR

3) HEREDITARY FACTORS

Some people are born with faster metabolism and some with slower metabolism

4) BODY SURFACE AREA

Surface area depends on weight and height. Greater the surface area, higher is the BMR and Vice versa.

FACTORS AFFECTING BMR

5) ENVIRONMENTAL CONDITIONS

Exposure to cold cause an increase in BMR in order to create the extra need for heat for the maintenance of body temperature. A short exposure to heat has little or no effect on BMR but upon prolonged exposure to high temperature there is compensatory heat loss, this results in increase in BMR.

FACTORS AFFECTING BMR

6) BODY TEMPERATURE

For every 0.5 degree rise in body temperature there is 7% increase in BMR. With the rise in temperature, there is increase in the rate of chemical reactions causing increased BMR.

FACTORS AFFECTING BMR

7) EXERCISE

Physical exercise not only influences body weight by burning calories. It also helps to raise BMR by building extra lean tissue.

8) DRUGS

It includes Caffeine, benzidine, Alcohol and Epinephrine and Nicotine increase BMR

FACTORS AFFECTING BMR

9) PREGNANCY

The BMR of pregnant mother rises after 6months of gestation. BMR of mother is sum of her own BMR as in the non pregnant state and of that of fetal metabolism.

FACTORS AFFECTING BMR

10) SATATE OF NUTRITION

BMR is lowered in state of starvation, malnutrition and wasting disease.

11) HORMONES

Thyroid hormone increases BMR. Adrenaline, catecholamines, and GH also increase BMR.

CONCLUSION

BMR is the rate of energy consumption under basal conditions per unit time per square meter of surface area is known as “Basal Metabolic Rate”.

ASSESSMENT

- Define BMR
- Explain factors affecting BMR
- Describe the measurement of BMR.

REFERENCE

- Darshan sohi, " A comprehensive textbook of applied Nutrition and dietetics" , 3rd edition, published by Jaypee publication.
- Shella John, Jasmine devaselvam, "Essentials of Nutrition and dietetics for nursing", 2nd edition, published by Wolters Kluwer.
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THANK
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