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COIMBATORE-641 035, TAMIL NADU

19FTO302 - FOOD NUTRITION

UNIT II - FOOD GUIDE- BASIC FIVE FOOD GROUPS

TOPIC 6

RECOMMENDED DIETARY ALLOWANCE DEFINITION:

The Recommended Dietary Allowance or RDA is the intake levels of essential nutrients, such as, vitamins and minerals, that are based on scientific knowledge to meet the nutrient requirements of healthy individuals.

It is judged by the Food and Nutrition Board and was first published in the year 1943 during World War II. The objective of RDA is to provide standards that serve as a target for good nutrition. The RDA for nutrients among different age groups is different. The first publication has been revised at regular intervals.

PURPOSE OF RECOMMENDED DIETARY ALLOWANCE:

- For obtaining and planning food supplies for different population groups
- It is used by different institutions to create nutritious and wholesome recipes and meals
- It is used to interpret food intake records of individuals
- It helps in determining and meeting the nutritional needs of different population groups
- It is useful in designing nutrition education programs
- Manufacturers use RDA to develop new food products in the industry
- RDA is also used to establish guidelines for nutrition labelling on the foods
- RDA is a useful tool for planning a diet and to prevent nutrient deficiencies

HOW TO MEET THE RDA:

- Diets should be wholesome and composed of a variety of foods that are derived from different food groups to achieve more vitamins and minerals
- Opt for natural and nutrient rich foods rather than depending on supplements
- Limit your intake of processed foods because a lot of nutrients are lost while cooking
- The requirement of certain nutrients during different stages of life changes. Pay special attention towards it. For example, the requirement of protein increases during pregnancy. With the help of the RDA you can determine how much protein should you increase in your diet.

RDAs for some nutrients remain unchanged or were revised only slightly from the ninth edition.

The following are major changes in this edition:

Energy Because reference weights are now actual medians rather than arbitrary ideals, the allowances are not directly comparable with values in the previous edition. Recommended allowances for adults were calculated by using empirically derived equations recently developed by the Food and Agriculture Organization for estimating resting energy expenditure and then multiplying the results by an activity factor representing light-to-moderate activity. Energy allowances range from 2,300 to 2,900 kcal/day for adult men and 1,900 to 2,200 kcal/day for adult women. Energy allowances in this edition and the previous one are similar, despite the different methods used to derive them.

Protein allowances for adults are based on nitrogen balance studies, as recently recommended by the Food and Agriculture Organization, rather than on the factorial method used in the past. Despite this difference in the derivation of RDAs, the allowance for adult men and women remains at 0.8 g/kg of body weight per day. The increment estimated for pregnancy is reduced from 30 to 10 g/day; this revision is more heavily influenced by theory of nitrogen gain and efficiency with which dietary protein is converted to fetal, placental, and maternal tissues than by new evidence.

Vitamin K RDAs for vitamin K are established for the first time in this edition; they are based on recently published work. The RDA for adults and children is set at approximately 1 µg/kg of body weight. There is no recommended increment during pregnancy and lactation, because the effects of pregnancy on vitamin K requirements are unknown and lactation imposes little additional need for this nutrient.

Vitamin C Allowances for vitamin C are largely unchanged from the ninth edition; for example, the RDA for adults of both sexes remains at 60 mg/day. An increment of 10 mg/day has been added for pregnant women to offset losses from the mother's body pool to the fetus; this is half the increment recommended in the previous edition. The subcommittee recommends that regular cigarette smokers ingest at least 100 mg of vitamin C per day, since smoking seems to increase metabolic turnover of the vitamin, leading to lower concentrations in the blood.

Vitamin B An RDA of 0.016 mg of vitamin B per gram of protein appears to ensure acceptable values for most indices of nutritional status in adults of both sexes; in the ninth edition, the RDA was 0.020 mg of vitamin B6 per gram of protein. The RDA is established in relation to the upper boundary of acceptable levels of protein intake, i.e., twice the RDA for protein. The resulting

vitamin B allowances of 2.0 and 1.6 mg/day for adult men and women, respectively, are lower than those in the previous edition.

Folate allowances in this edition are much lower (often by 50% or more) than those in the ninth edition for all the age-sex groups. The basis for lowering the RDA is the recognition that diets containing about half the previous RDA maintain adequate folate status and liver stores. The folate allowance of approximately 3 µg/ kg body weight for adults and adolescents translates to 200 µg/day for the adult male and 180 µg/day for the adult female—an amount typically consumed in the United States and Canada by adults who show no evidence of poor folate status. During pregnancy, the RDA for folate is 400 µg/day—half the RDA in the ninth edition. The subcommittee considers this amount sufficient to build or maintain maternal folate stores and to support rapidly growing tissue.

Vitamin B allowances in this edition are one-third to one-half lower than those in the ninth edition for all the age-sex groups. For example, the RDA for adults and adolescents of both sexes is now 2 rather than 3 µg/day and for children 1 to 10 years ranges from 0.7 to 1.4 rather than 2 to 3 µg/day. Reductions are based on recent data suggesting that the new allowances adequately sustain metabolic function and allow for biological variation, the maintenance of normal serum concentrations, and the build up or maintenance of substantial body stores; the

latter is especially desirable in view of the increased prevalence of achlorhydria (which diminishes vitamin B absorption) and pernicious anemia beyond age 60.

Calcium In the ninth edition, the RDA for calcium for all adolescents was set at 1,200 mg/day to age 18, the approximate age at which longitudinal bone growth ceases. However, because peak bone mass is probably not attained before age 25, the subcommittee has extended this allowance through age 24 to promote full mineral deposition. For older ages, the allowance of 800 mg in the ninth edition is maintained. The subcommittee believes the most promising nutritional approach to reducing the risk of osteoporosis in later life is to ensure a calcium intake that allows the development of each individual's genetically programmed peak bone mass. It urges that special attention be paid to calcium intakes throughout childhood to age 25 years. The subcommittee emphasizes that the RDAs for calcium do not address the possible increased needs of persons who may have osteoporosis and should receive medical attention. RDAs for phosphorus parallel those for calcium except in infancy. In addition, the allowance for vitamin D, which promotes calcium absorption, is maintained at 10 µg/day throughout childhood to age 25 years.

Magnesium Increments of magnesium during pregnancy and lactation are far lower than in previous editions (reduced to + 20 from +150 mg/day during pregnancy and to +75 and +60 from +150 mg/day during lactation); these amounts should be sufficient to meet the needs of the fetus and maternal tissue growth and to allow for individual variation. The allowance for children of sexes between 1 and 15 years of age is 6.0 mg/kg, an amount above the levels that were found to be sufficient to support a positive magnesium balance in adolescent boys and girls. This allowance translates into RDAs for children that are considerably lower than the RDAs in the ninth edition, especially for preadolescent children.

Iron In setting RDAs for iron, it was the subcommittee's judgment that a dietary intake that achieves a target level of 300 mg of iron stores meets the nutritional needs of all healthy people, since, over several months, this level of stores provides for the iron needs of a person consuming a diet nearly devoid of iron. Using population based data on iron intakes and status, turnover data, estimates of variability of iron losses among individuals, and distribution analysis, the subcommittee concluded that an RDA of 15 mg/day should meet the needs of essentially all healthy adolescent and adult women following usual dietary patterns and should provide a sufficient margin of safety. This allowance is a reduction from the 18 mg/day recommended in the ninth edition. The allowance for adult men and postmenopausal women remains at 10 mg/day. A daily iron increment of 15 mg/day averaged over the entire pregnancy should be sufficient to meet maternal and fetal needs. Daily iron supplements are usually recommended, since the total need cannot be met by the iron content of habitual U.S. diets or by the iron stores of at least some women. No additional allowance of iron is recommended during lactation, since losses of iron in milk are less than menstrual loss, which is often absent during lactation. In contrast, the ninth edition recommended the continued use of the iron supplements prescribed during pregnancy for 2 to 3 months after birth to replenish iron stores. The RDAs for iron are adequate for essentially all healthy people who daily consume diets containing 30 to 90 g of meat, poultry, or fish (containing highly absorbable heme iron) or foods containing 25 to 75 mg of ascorbate after preparation (to improve absorption of nonheme iron). People who eat little or no animal protein and whose diets are low in ascorbate may require higher amounts of food iron or vitamin C.

Zinc In the ninth edition, the RDA for adults of both sexes was set at 15 mg/day. In the present edition, the allowance remains at 15 mg/day for adult men, but is reduced to 12 mg/day for adult women on the basis of their lower body weight.

Selenium RDAs for selenium, established for the first time in this edition, are based on recent studies of Chinese men. The ninth edition provided a safe and adequate range for selenium

intake, which for adults was 50 to 200 µg/day. In the present edition, the RDA for selenium in adults is set at 70 µg/day for men and 55 day for women. RDAs for infants, children, and adolescents are extrapolated from adult values on the basis of body weight, and a factor is added for growth.