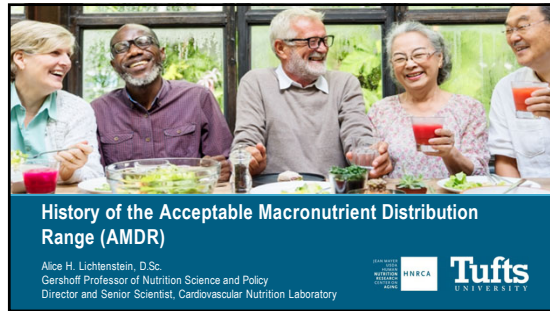
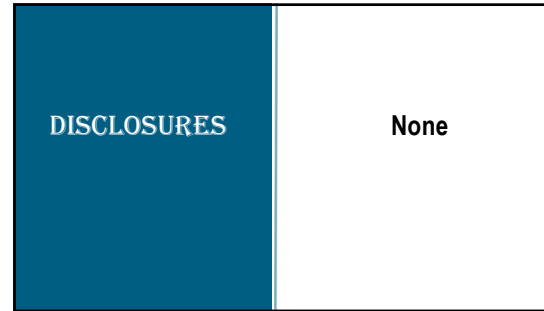
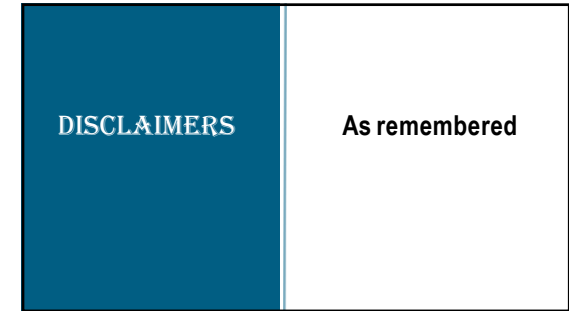




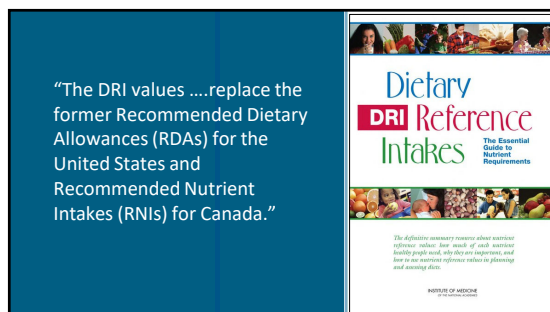
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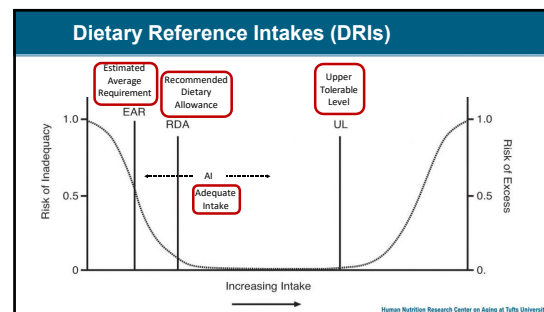
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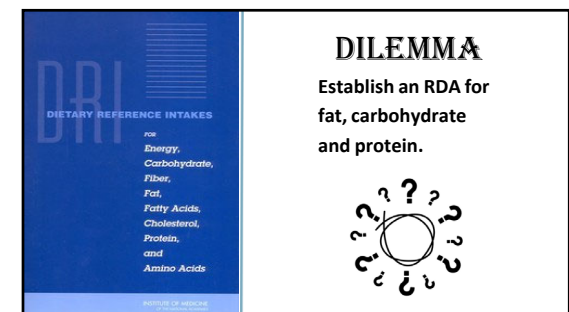
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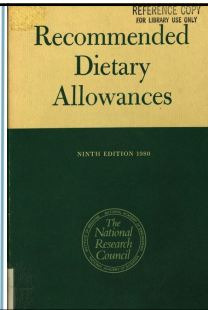
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6

Dietary Carbohydrate;

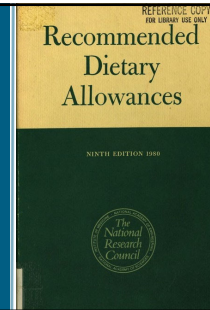
- "Man, like most mammals, is capable of converting amino acids and the glycerol moiety of fats to glucose, and as a consequence there is no specific dietary requirement for carbohydrate."
- "Nonetheless, it is generally agreed that a reasonable proportion of the caloric intake should be derived from carbohydrate."



7

Dietary Carbohydrate;

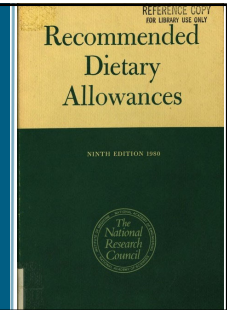
- "A diet devoid of carbohydrate is likely to lead to ketosis,, can be prevented by the ingestion of 50-100 g of digestible carbohydrate."
- "However, intakes considerably above this minimal level are desirable."



8

Dietary Fiber;

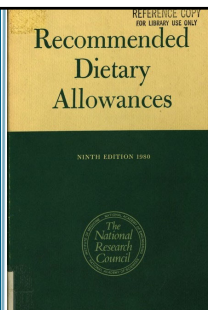
- "Recently, considerable attention has been directed to the possible importance of dietary fiber."
- "Although there is no demonstrated metabolic requirement for dietary fiber, its physiological significance has not been adequately explored."



9

Dietary Fiber;

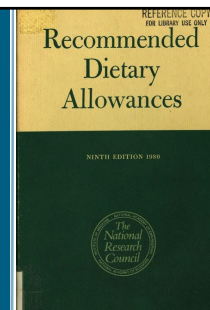
- "In view of the possible reduction in absorption of mineral elements induced by high dietary intakes, marked increases in dietary fiber should be avoided."



10

Dietary Fat;

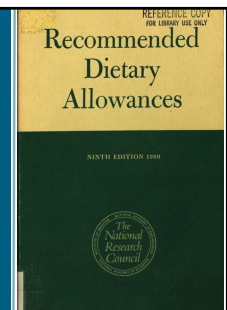
- "Total fat intake, particularly in diets below 2000 kcal, should be reduced so fat is not more than 35% of dietary energy."
- "Since fat has the highest caloric density of the primary nutrients, a decrease in fat consumption can produce the greatest change in dietary energy."



11

Essential Fatty Acids;

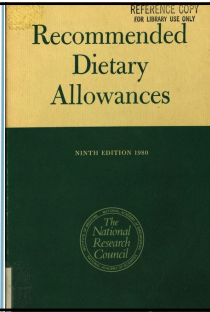
- "The amount of dietary linoleic acid found to prevent both biochemical and clinical evidence of deficiency in several animal species and also in man is 1-2 percent of dietary calories."



12

Dietary Protein;

- The protein allowance set at 0.6 g/kg body weight of high quality protein to cover the needs of almost all healthy individuals in the population.
- After correcting for 75% efficiency of utilization the value was set at 0.8 g/kg body weight.



13

Recommended Dietary Allowances

10th Edition 1989

The most authoritative source of information on nutrient allowances for healthy people.

Dietary Carbohydrate;

- “Most amino acids, the glycerol component of fat, and some organic acids can be converted to glucose.”
- “Therefore, there is no absolute dietary requirement for carbohydrates, at least under most circumstances.”

14

Recommended Dietary Allowances

10th Edition 1989

The most authoritative source of information on nutrient allowances for healthy people.

Dietary Carbohydrate;

- “In the absence of dietary carbohydrates, however, lipolysis of stored triglycerides and the oxidation of fatty acids increase, and ketone bodies accumulate.”

15

Recommended Dietary Allowances

10th Edition 1989

The most authoritative source of information on nutrient allowances for healthy people.

Dietary fiber;

- “Because they are hygroscopic, dietary fibers soften the stool and, hence, promote normal elimination.
- Fiber-rich diets may also increase satiety. Some fiber components,, also lower plasma cholesterol levels, either by binding bile acids or by other mechanisms.”

16

Recommended Dietary Allowances

10th Edition 1989

The most authoritative source of information on nutrient allowances for healthy people.

Dietary fiber;

- “Fibers may also bind to mineral elements. In this way, wheat bran may interfere with mineral absorption,
- but neither wheat bran nor other fibers, at the levels consumed in this country, appear to have an appreciable effect on the absorption of minerals.”

17

Recommended Dietary Allowances

10th Edition 1989

The most authoritative source of information on nutrient allowances for healthy people.

Dietary fiber;

- “..... desirable fiber intake be achieved not by adding fiber concentrates to the diet, but by consumption of fruits, vegetables, legumes, and whole-grain cereals,”

18

Recommended
Dietary
Allowances

10th Edition **1989**

The most authoritative source of information on nutrient allowances for healthy people.

Dietary lipids;

- “Disappearance data, however, do not indicate the amount of fat actually consumed [in the U.S.], because they are not adjusted for waste, spoilage, trimming, or cooking losses.”
- No specific recommendation.

NATIONAL RESEARCH COUNCIL

19

Recommended
Dietary
Allowances

10th Edition **1989**

The most authoritative source of information on nutrient allowances for healthy people.

Dietary lipids;

- “....., the Food and Nutrition Board's Committee on Diet and Health recommended that the fat content of the U.S. diet not exceed 30% of caloric intake, that less than 10% of calories should be provided from saturated fatty acids, and that dietary cholesterol should be less than 300 mg/day.”

NATIONAL RESEARCH COUNCIL

20

Recommended
Dietary
Allowances

10th Edition **1989**

The most authoritative source of information on nutrient allowances for healthy people.

Essential fatty acids;

- “Linoleic acid intake at levels from 1 to 2% of total dietary calories is sufficient to prevent both biochemical and clinical evidence of deficiency in several animal species and in humans (Holman, 1970).”

NATIONAL RESEARCH COUNCIL

21

Recommended
Dietary
Allowances

10th Edition **1989**

The most authoritative source of information on nutrient allowances for healthy people.

Essential fatty acids;

- “The Committee on Diet and Health of the Food and Nutrition Board recently recommended that the average population intake of n-6 PUFA remain at current level of about 7% of calories.”
- “..... individual intakes not exceed 10% of calories because of lack of information about the long-term consequences of a higher intake.”

NATIONAL RESEARCH COUNCIL

22

Recommended
Dietary
Allowances

10th Edition **1989**

The most authoritative source of information on nutrient allowances for healthy people.

RDA for Protein;

- “There are fewer data for young adult women, but there is evidence that requirement values, when adjusted for body weight, are not substantially different from those for young men.”
- “Accordingly, the recommended allowance for reference protein is 0.75 g/kg per day for both sexes.”

NATIONAL RESEARCH COUNCIL

23

Recommended
Dietary
Allowances

10th Edition **1989**

The most authoritative source of information on nutrient allowances for healthy people.

RDA for Protein;

- “By averaging the two sets of balance data (i.e., from the long and short-term studies), a protein requirement of 0.6 g/kg per day (rounded) was obtained” [plus 2 x 12.5%, coeff var) = 0.75 g/kg].”

NATIONAL RESEARCH COUNCIL

24

RDA for Protein;

- “The recommended allowance for reference protein (0.75 g/kg) is accepted to be the same for the elderly as for young adults.”

25

DILEMMA

Establish an RDA for fat, carbohydrate and protein.

26

Acceptable Macronutrient Distribution Ranges (AMDRs);

- “An AMDR is the range of intakes of an energy source that is associated with a reduced risk of chronic disease yet can provide adequate amounts of essential nutrients.”

27

Acceptable Macronutrient Distribution Ranges (AMDRs);

- “..... expressed as a percentage of total energy intake because its requirement,, is not independent of other energy fuel sources or of the total energy requirement of the individual.”

28

Acceptable Macronutrient Distribution Ranges (AMDRs);

- “If an individual consumes below or above this range, there is a *potential* for increasing the risk of chronic diseases shown to affect long-term health, as well as increasing the risk insufficient intakes of essential nutrients.”

29

Macronutrient	AMDR (as percent of energy) ^a		
	Children 1–3 y	Children 4–18 y	Adults
Fat	30–40	25–35	20–35
<i>n</i> -6 polyunsaturated fatty acids ^b (linoleic acid)	5–10	5–10	5–10
<i>n</i> -3 polyunsaturated fatty acids ^b (α-linolenic acid)	0.6–1.2	0.6–1.2	0.6–1.2
Carbohydrate	45–65	45–65	45–65
Protein	5–20	10–30	10–35

IOM, 2005. The National Academies Press. <https://doi.org/10.17226/10490>

30

Acceptable Macronutrient Distribution Ranges	
Additional Macronutrient Recommendations	
Macronutrient	Recommendation
Dietary cholesterol	As low as possible while consuming a nutritionally adequate diet
Trans fatty acids	As low as possible while consuming a nutritionally adequate diet
Saturated fatty acids	As low as possible while consuming a nutritionally adequate diet
Added sugars	Limit to a maximal intake of no more than 25 percent total energy ^c

IOM, 2005. The National Academies Press. <https://doi.org/10.17226/10490>

31

Recommended Dietary Allowance for Protein
• “..... RDA for protein for adults is 0.8 g/kg/day, or ○ 56 and 46 g/day for reference men and women weighing 70 kg and 57 kg, respectively. ○ For a small adult weighing 45 kg, the recommended protein intake would be 36 g/day, ○ while for a larger adult weighing 90 kg, the RDA would be 72 g/day.”

IOM, 2005. The National Academies Press. <https://doi.org/10.17226/10490> (page 946)

32

AMDR and RDA for Protein
• AMDR 10-30% energy, 2000 kcal ○ 10% = 200 kcal, 50 g protein ○ 30% = 600 kcal, 150 g protein • “..... RDA for protein for adults is 0.8 g/kg/day, or 56 g/day [224 kcal, 11% energy] and 46 g/day [184 kcal, 9.2 % energy] for reference men and women weighing 70 kg and 57 kg, respectively.”*

*IOM, 2005. The National Academies Press. <https://doi.org/10.17226/10490> (page 946)

33

AMDR and RDA for Protein
• AMDR 10-30% energy, 1600 kcal • 10% = 160 kcal, 40 g protein • 30% = 480 kcal, 120 g protein • “..... for a small adult weighing 45 kg, the recommended protein intake would be 36 g/day [144 kcal, 9% energy].”*

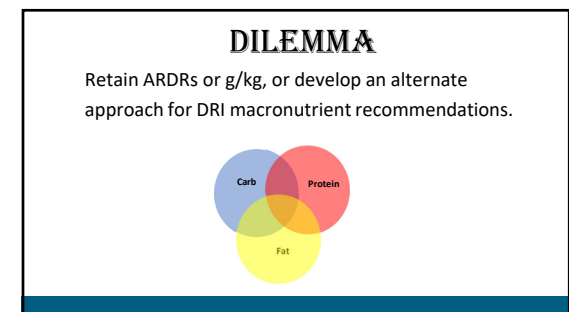
*IOM, 2005. The National Academies Press. <https://doi.org/10.17226/10490> (page 946)

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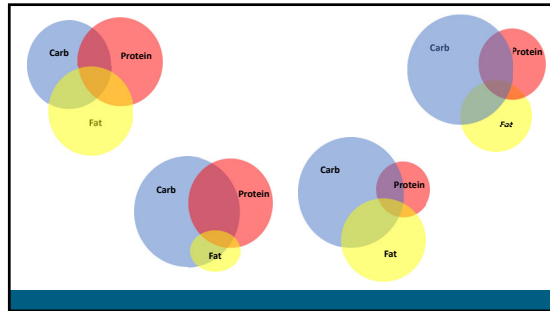
AMDR and RDA for Protein
• AMDR 10-30% energy, 3000 kcal • 10% = 200 kcal, 50 g protein • 30% = 600 kcal, 150 g protein • “..... for a larger adult weighing 90 kg, the RDA would be 72 g/day [288 kcal, 9.6 % energy].”*

*IOM, 2005. The National Academies Press. <https://doi.org/10.17226/10490> (page 946)

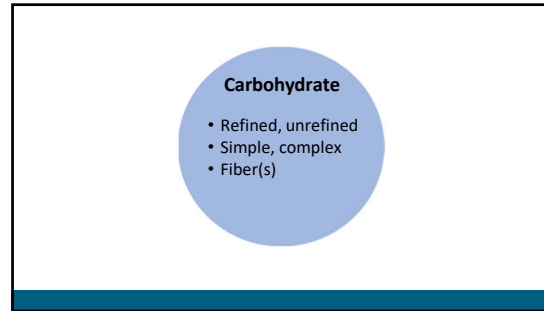
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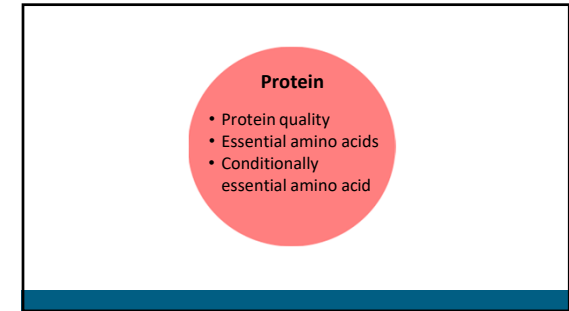
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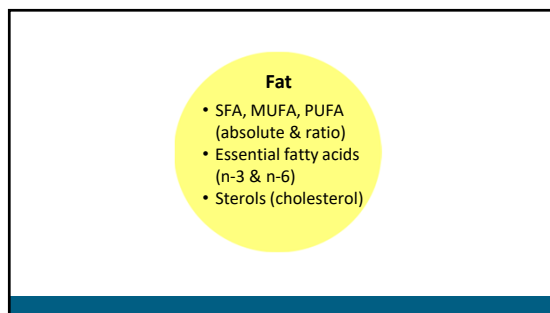
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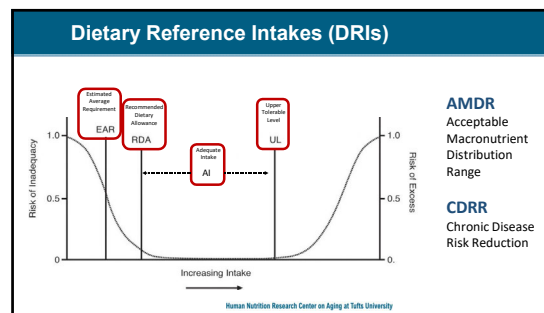
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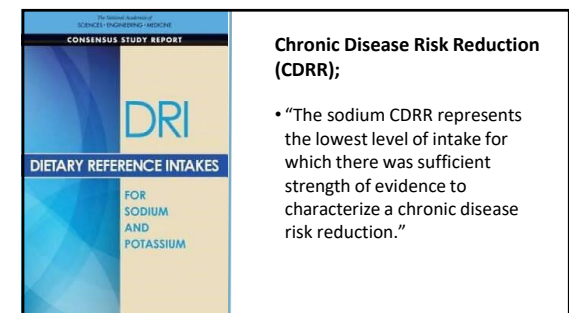
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42

The National Academies of
SCIENCES, ENGINEERING, MEDICINE

CONSENSUS STUDY REPORT

DRI

DIETARY REFERENCE INTAKES

FOR
SODIUM
AND
POTASSIUM

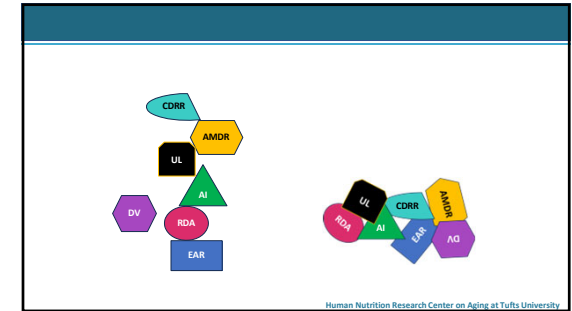
Chronic Disease Risk Reduction (CDRR);

- “The sodium CDRR, therefore, is the intake above which intake reduction is expected to reduce chronic disease risk within an apparently healthy population.”

43



44



45



46