Lecture 84:

Analysis of Food Journals, Nutrient Requirements, And Making Meal Plan

Copyright Protection:

- **No matter for what reasons your clients would come to see you, always analyze their food journals.**

- **In weight loss seekers, keeping track of what they eat is a very effective method to control and reduce their daily caloric intake.**

- **In athletes, food journals show about their calorie intakes and most importantly how acidic or alkaline their diets are.**

- **Analyze food journals before making meal plans.**

- **It is not recommended to analyze food journals every single session.**

- **When analyzing food journals, write down the corrections. Suggest them better choices based on their lifestyles.**

Canadian Academy of Sports Nutrition

Name.....

Diet Diary

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Breakfast							
Snack							
Lunch							
Snack							
Dinner							

How to Analyze Food Journals:

- **Breakfasts:**

- are they eating the same foods?

- check for variety.

- what kind of carbs is taken for breakfasts?

- bread.

- corn.

- cereal.

- oatmeal.

- rice.

- **<u>Correct their unhealthy habits:</u>**

- variety: at least 3 different meals in a week.

- beard: whole wheat bread.

- oatmeal: not quick oats.

- cereals: fiber > 5 gr, and protein > 6 gr per serving.

- at least 20 grams of protein for breakfasts.

- rice: brown or wild rice.

- add a fruit to breakfasts.

- **<u>Check the snacks and give them healthy options:</u>**

- fruits and veggies.

- yogurt with or without fruits.

- nuts.

- cheese.

- egg whites salad.

- hummus.

- sliced fruits with peanut butter.

- any proteins work as snacks: bars, shakes, and drinks.

- **<u>Check macronutrients:</u>**

- calculate their daily protein intake.

- complete vs incomplete.

- whether they take protein in divided portions.

- avoid larger amounts in one sitting.

- Fiber intake.

- calculate their average carbs intake.

- total carbs intake.

- no carbs for dinner for weight loss seekers.

- **<u>Check the eating pattern:</u>**

- which meal is the biggest one?

- does he/she skip any meals?

- is there a long gap (more than 2-3 hours) between meals?

- how often do they eat outside?

- how many times do they eat in a day in general?

- **<u>Lunches and Dinners:</u>**

- are they the same?

- how much protein there?

- how much fiber there?

- how big are the portions?

Nutrients Requirements:

What are nutrients?

- **They are substances that are not synthesized in sufficient amounts in the body and must be supplied by the diet.**

- **Nutrients requirements for healthy people have been determined experimentally.**

For optimal health, we need:

- **Macronutrients (carbohydrates, protein and fat, which provide energy).**
- **Micronutrients (vitamins and minerals).**
- **Water.**

Nutrients Required by Human

Organic Nutrients:

- 9 essential amino acids
- Glucose
- Essential fatty acids
- 4 fat soluble vitamins
- 19 water soluble vitamins
- fiber

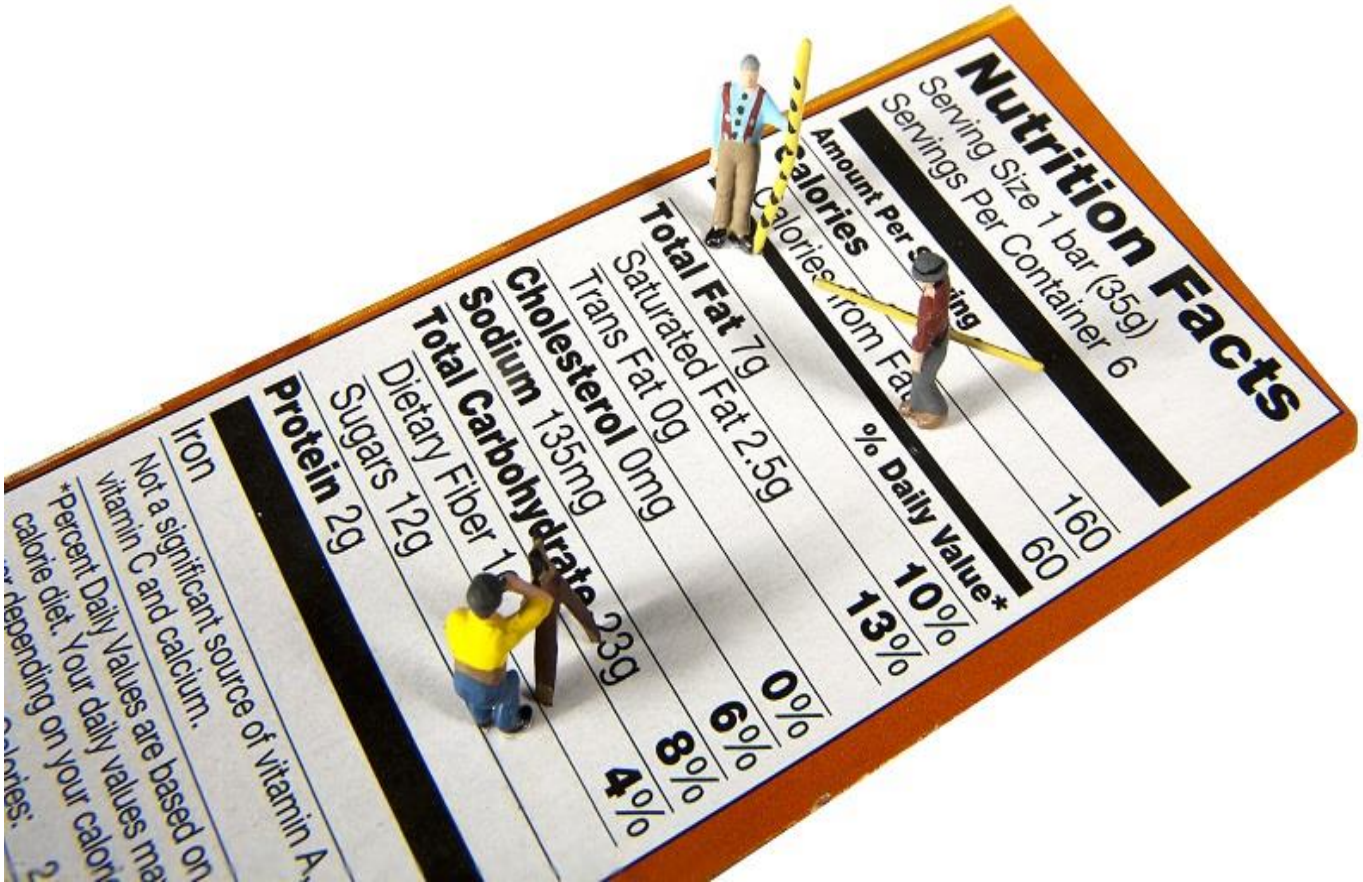
Inorganic Nutrients:

- 4 minerals
- 7 trace minerals
- 3 electrolytes
- Ultra trace elements

Dietary Reference Intakes (DRIs):

- **The benchmark recommendations regarding nutrient intakes have been significantly developed to guide clinical practice.**

- **The quantitative estimates of nutrient intakes are collectively referred to as the *DRIs*.**



DRIs include:

- **AIs (*adequate intakes*).**
- **AMDRs (*acceptable macronutrient distribution ranges*).**
- **EARs (*estimated average requirements*).**
- **RDAs (*recommended daily allowances*).**
- **ULs (*tolerable upper levels*).**

EARs (*estimated average requirements*):

- **It is the amount of a nutrient estimated to be adequate for half of the healthy people of a specific age and gender.**

- **The EAR is not an effective estimate of nutrient adequacy in people, because it is a median requirement for a group: 50% of people in a group fall below the requirement and 50% fall above.**

- **Therefore, a person with a usual intake at the EAR has a 50% risk of an inadequate intake.**

RDAs (*recommended daily allowances*):

- **It is the average daily nutrient intake level sufficient to meet the nutrient requirement of almost all healthy people (97-98%) of a specific gender, age, life stage or physiologic conditions (such as pregnancy and breastfeeding).**

- **It is basically the intake at which the risk of inadequacy to a person is very low (2-3%).**

- **The RDA is the nutrient-intake goal when planning diets of individuals.**

- **It is calculated from EARs: it is two standard deviations above the EAR to ensure that the needs of any given individual are met.**

- **The RDAs are used:**

- To formulate food guides such as food guide pyramid.

- To create food-exchange lists for therapeutic diet planning.

- As an standard for describing the nutritional contents of processed foods and nutrient-containing dietary supplements.

- **The nutrient content in a food is stated by weight or as a percent of the daily value (DV).**

- **DV is a variant of the RDA used in food labeling on nutrition facts panel that represents the highest RDA for an adult consuming 2000 kcal/d.**

AIs (*adequate intakes*):

- **It is the recommended average daily nutrient intake level based on observed or experimentally determined estimate of nutrient intake by healthy people.**

- **It is used when it is not possible to set an RDA for some nutrients that do not have an established EAR.**

- **In the DRIs, AIs rather than RDAs are proposed for:**

- infants up to age 1 year.

- calcium.

- chromium.

- vitamin D.

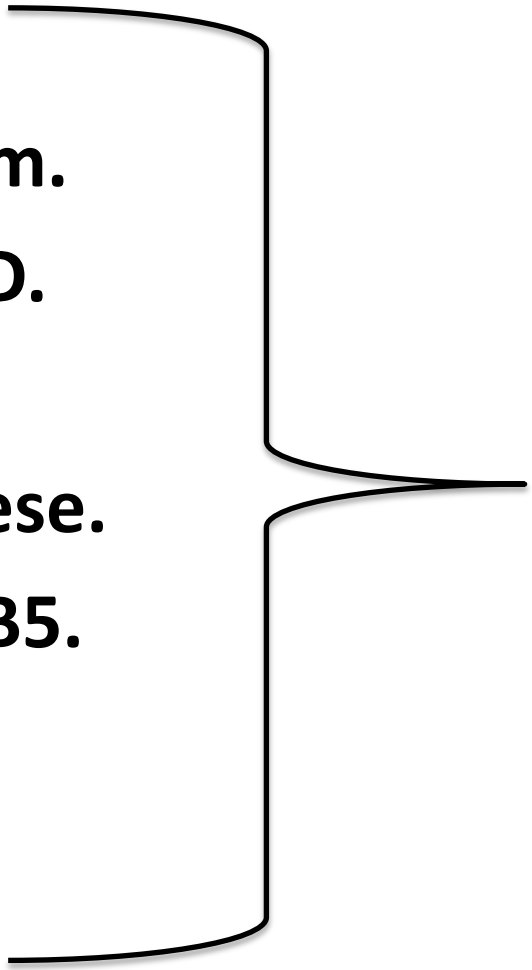
- fluoride.

- manganese.

- vitamin B5.

- biotin.

- choline.



For people of all ages

ULs (*tolerable upper levels*):

- **It is the highest average daily nutrient intake level that is unlikely to pose a risk of adverse health effects for almost all general people.**

- **Data on the adverse effects of large amounts of many nutrients are unavailable or too limited to be established.**

- **The lack of UL does not *mean* that the risk of adverse effects from high intakes does not exist.**

AMDRs (*acceptable macronutrient distribution ranges*).

- **It is a range of energy providing intakes of macronutrients that are considered to be healthy. These ranges are:**
- **Carbohydrates 45 – 60%.**
- **Protein 10 – 35%.**
- **Fat 20 – 35%.**

Performance Daily Intakes (PDIs):

- **It is not a component of DRIs.**

- **It has been developed by *sports nutrition specialists* to help athletes and physically active men and women meet their special nutritional needs.**

- **In most cases, the lower limit of the PDI range is equal to the RDA value. And the upper limits are generally recognized safe, but are intended for larger and more active individuals.**

Factors Affecting Nutrient Needs:

- **The DRIs are affected by age, gender, rate of growth, pregnancy, breastfeeding, physical activity, concomitant diseases, medications, and dietary compositions.**

The affecting factors are:

- 1) Physiologic conditions.
- 2) Dietary composition.
- 3) Route of administration.
- 4) Diseases.

1) Physiologic Factors:

- **Growth, intense exercise, pregnancy and breastfeeding increase needs for energy and essential nutrients.**

- **Energy and nutrient needs decrease with loss of lean body mass.**

- **Nutritional needs of elderly people especially those over 70 tend to be less than those of young people.**

2) Dietary Composition:

Dietary composition affects the bioavailability of nutrients, for example:

- **The absorption of Iron maybe impaired by higher amounts of fiber, calcium and lead.**
- **Non-heme iron cannot be absorbed properly in the absence of vitamin C.**
- **Complete proteins have higher biologic values than those of incomplete proteins.**

3) Route of Administration:

- **The RDAs apply only to oral intakes.**

- **When nutrients are administrated parenterally , similar values can sometimes be used for amino acids, carbs, fats, sodium, chloride, potassium and most vitamins, but not for most minerals.**

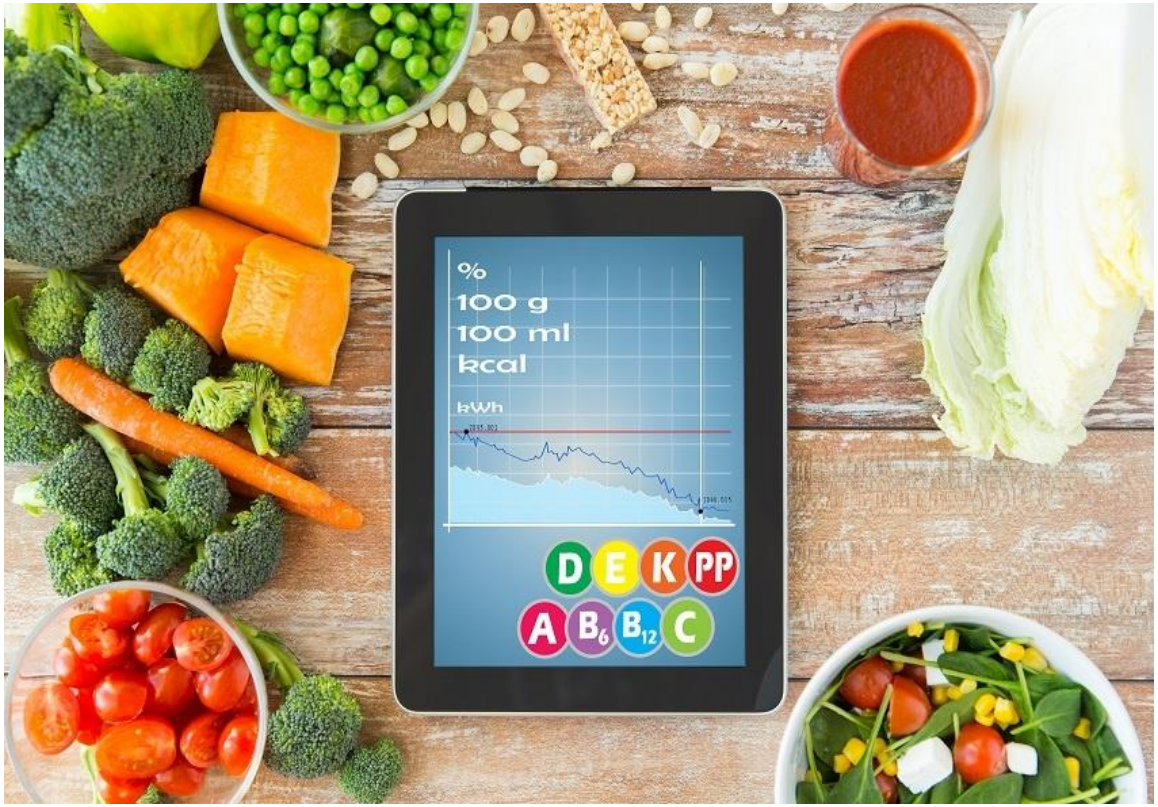
4) Diseases:

- **Deficiencies of certain nutrients may cause diseases, such as deficiency of iron, iodine, calcium, vitamins A, C, B1, B3, B9 and B12.**

- **In people with nutrient – deficient diseases, the nutrient needs would change.**

Calorie Counting and Meal Planning:

- **Calorie** is a unit of energy or heat that the body generates from the food we eat.



- **1 calorie is the quantity of heat needed to raise the temperature of 1 liter of water 1 centigrade.**

Calories generated by 1 gram of each macronutrients are:

- **Carbs.....4 calories**
- **Protein.....4 calories**
- **Fat.....9 calories**
- **Alcohol .....7 calories**

Daily Calorie Requirement:

How much calories do we need in a day?

- **Average energy intake is 1800 – 2500 Cal/day.**
- **The two major components that affect total calorie intake are:**

1) **Resting energy expenditure (REE).**
2) **Physical activity.**

- **For weight loss seekers: energy intake less than energy output.**

- **For weight to maintain stable: energy intake equal to energy output.**

- **For gaining weight: energy intake more than energy output.**

Total Daily Energy Expenditure (TDEE):

- **TDEE is the total amount of calories that the body consumes in 24 hours, including all activities.**

- **TDEE = BMR (REE) X Activity Multiplier**

How to Calculate BMR:

A) The Harris-Benedict formula has become a standard method to measure BMR:

- **Men: BMR = 66 + (13.7 X weight in kg) + (5 X height in cm) - (6.8 X age in years)**
- **Women: BMR = 655 + (9.6 X weight in kg) + (1.8 X height in cm) - (4.7 X age in years)**

B) Simplified equations for REE:

- **Men: REE = 900 + 10*m*.**
- **Women: REE = 700 + 7*m*.**

***m* is mass in kg.**

Activity Multiplier:

- **Sedentary = BMR X 1.2 (little or no exercise, desk job)**
- **Lightly active = BMR X 1.375 (light exercise/sports 1-2 days/wk)**
- **Moderately active = BMR X 1.55 (moderate exercise/sports 3-5 days/wk)**
- **Very active = BMR X 1.725 (hard exercise/sports 6-7 days/wk)**
- **Extra Active = BMR X 1.9 (hard daily exercise/sports & physical job or 2X day training, i.e. marathon, contest etc.)**

- **Example:**

Abazar:

- **Weight: 75 kg**
- **Height: 172 cm**
- **Age: 49**

BMR (Harris-Benedict formula) = 1620

REE = 900 + 10 X 75 = 1650

Total calorie intake = REE X Activity level

= 1650 X 1.55

= 2557

Factors Affecting Meal Plan:

- 1) Nutrients intakes:

- total calories required.
- calculated protein intake.
- calculated carbs intake.
- amount of fiber needed.

- 2) The type of sport your client is doing, and what time of the day?
- 3) Lifestyle:

- daytime works versus night-time works.
- dinning out versus dinning in.

When making meal plan:

- 1) distribute the total calories throughout the day.

- 2) for professional athletes, calories could be distributed equally in 5 – 6 real meals.

- **3) make a meal plan for at least 3 days.**

- **4) for weight loss seekers, most of the calories should be given during the first half of the day:**

- give three main meals and at least two snacks between.

- calorie distribution: 30 – 10 – 30 – 10 – 20.

Examples of Meal Plans:

Example 1: meal plan for weight loss:

Breakfast

- 1) One whole egg and 3 egg whites
- 2) One slice of whole wheat bread
- 3) One medium grapefruit

Snack

- ½ cup of low fat yogurt and ½ cup of sliced pineapple

Lunch

- **1) Beef steak 5 oz and ½ cup of quinoa**
- **2) Salad (lettuce, tomato and cucumber), 2 cups**

Snack

- **1 scoop of Whey protein Isolate with 1 tbsp of ground flaxseed**

Dinner

- **1) Fish, 5 oz**
- **2) Two cups of (bok Choy, cabbage, mushroom and radish)**

Example 2: meal plan for maintaining weight:

Meal 1:

- 1) Oatmeal (rolled oat), one cup, and 1 tbsp of ground flaxseed, and 1 tsp of cinnamon
- 2) 1 cup of almond milk
- 3) 4 egg whites
- 4) ½ cup of berries

Meal 2:

- Meat 4 oz and one medium yam and 2 cups of veggies

Meal 3:

- **1) Turkey 5 oz and one cup of brown rice**
- **2) 2 cups of green leafy vegetables (kale, parsley, and spinach)**

Meal 4:

- **One cup of cooked legumes and 3 oz of meat of your choice**

Meal 5:

- **1) Chicken, 6 oz**
- **2) Broccoli, one cup**
- **3) Asparagus, 6 spears**

Homework:

- **1) Describe how you calculate the total daily calorie intake for a 25 years old female with body weight of 135 lbs who exercises 3 times a week.**

- **2) Describe what RDAs is.**