The Role of Nutrients

Directions:
1. Click the "Contents" button.
2. Open the Metabolism File.
3. Click Anatomy Overviews.
4. Click Role of Nutrients.

1. Why are nutrients metabolized from food essential?

From this main page, click on "Water" to investigate its nutrient role.

2. a. Describe two essential water functions.
   • Hydrogen bonds are attractions between the oppositely charged poles of the water molecules. The hydrogen portions of water molecules are more positively charged. The water portion of the molecule is more negatively charged. Opposites attract, so water molecules tend to cling together which is why H₂O is a combination of two gasses producing a liquid at room temperature. Pretty lucky for us since all life depends upon this!!
   
   b. The human body cannot store water so how do we maintain homeostasis?

Return to the main Nutrient homepage. Click on Carbohydrates to investigate their function.

3. Contrast the structures and functions of the following:
   a. Simple carbohydrates (monosaccharides & disaccharides)

   b. Complex carbohydrates (polysaccharides like glycogen)
4. Return again to the main nutrient homepage. This time, click on Proteins.
   a. What are peptide bonds? _________________________________
                                              _________________________________
   b. How do we acquire the “raw material” to synthesize new proteins? _________________________________
                                              _________________________________

5. From the main Protein page, click on Contractile Proteins.
   a. Why are contractile proteins important? _________________________________
                                              _________________________________
   b. Contractile proteins require ATP to function. Where does ATP come from?
                                              _________________________________

6. Return to the main Protein page and click on Catalytic Proteins.
   a. What is the general function of catalytic proteins (also known as enzymes)?
                                              _________________________________
                                              _________________________________
   b. Where do enzymes come from? _________________________________
                                              _________________________________

7. Return to the main Protein page and click on Regulatory Proteins.
   a. Describe the general function of regulatory proteins.
                                              _________________________________
                                              _________________________________
   b. Explain the function of insulin as a specific example. _________________________________
                                              _________________________________
8. Return, once again, to the main Protein page. This time, click on *Immunological Proteins*.
   a. What is the function of immunological proteins? ____________________________
   b. Relate immunological proteins to nutrition. _________________________________

9. Back again to the main Protein page and click on *Structural Proteins*.
   a. What is the general function of structural proteins.
   b. Relate structural proteins to nutrition. _________________________________

10. Identify the functions of transport proteins.______________________________
    ______________________________________________________________________
    ______________________________________________________________________
    ______________________________________________________________________

11. You're now finished with proteins so return all the way back to the main
    Nutrients page and let's investigate *Vitamins*.
    a. Identify vitamin functions. ____________________________
    ______________________________________________________________________
    ______________________________________________________________________
    ______________________________________________________________________
    ______________________________________________________________________
    ______________________________________________________________________
    b. How are vitamins related to nutrition? ________________________________
    ______________________________________________________________________
12. Back you go to the main Nutrients page. Journey next into the world of Lipids.

   a. Click on Cholesterol and identify three functions.
      
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13. Return to the Lipids page and click on Triglycerides.

   a. Describe triglyceride structure and general function.

   b. Nutritionally, where are triglycerides found?

13. Once again, return to the Lipids page. This time investigate Lipoproteins.

   a. Identify four lipoprotein functions:
      
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14. Return to the Lipids page one last time and research Phospholipids.

   a. Explain phospholipids polarity and its importance.

   b. Where (in the body) are phospholipids located?
15. Good work, you are finished with lipids. Roll back to the main Nutrients page and investigate your last molecular nutrient group, Minerals and Electrolytes.

a. Briefly describe the function for each of the following:

i. sodium

ii. potassium

iii. chloride

iv. bicarbonate

v. phosphate

vi. calcium

vii. magnesium

viii. sulfur

ix. trace elements