

So, What's for Breakfast?

The body requires a variety of nutrients and water in a continuous supply to provide for its activities, growth, and repair. The three major types of nutrients required in the body are carbohydrates, proteins, and lipids, but the main sources of fuel (energy) are largely carbohydrates and lipids.

Carbohydrates are organic compounds comprised of carbon, hydrogen, and oxygen in a ratio of 1 to 2 to 1 atoms respectively and range from very simple (monosaccharides) to very complex (polysaccharides). Monosaccharide molecules contain from two to seven carbon atoms and cannot be split by hydrolysis (broken into smaller units by the uptake of water), thus they are referred to as "simple sugars" or "single sugar units" and are classified as either polyhydroxy aldehydes (linking of carbon atoms to OH group) or ketones (linking of carbon atoms to CO group), depending on molecular structure. The six-carbon sugars, glucose, galactose, and fructose are the simple sugars processed through the liver (galactose and fructose are converted into glucose) and delivered to the blood for energy use.

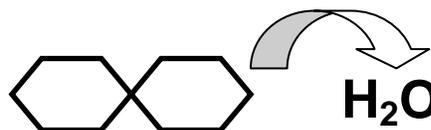
Monosaccharide structure:



Disaccharides (part of the oligo-saccharide grouping of two to ten monosaccharides) are molecular sugar structures comprised of two simple sugars (minus water), as in the following examples:

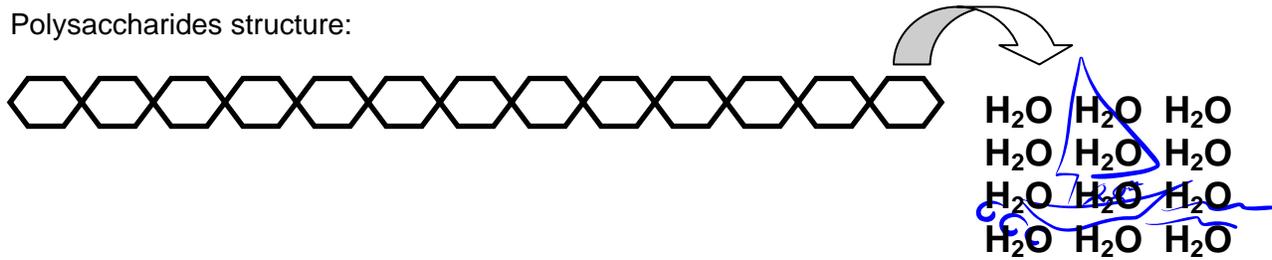


Disaccharide structure:



A polysaccharide is a polymer chain of more than ten monosaccharides synthesized by glycosol bonds (throwing off a water molecule for each bond). These are very complex sugars (such as the starches found in rice, bread, and potatoes).

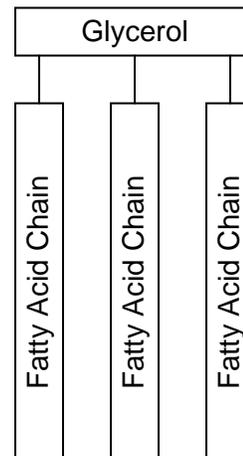
Polysaccharides structure:



Disaccharides and polysaccharides are broken down during the digestive process into simple sugars for absorption in the small intestine and are eventually transported to the liver for further processing and delivery to the body cells as glucose.

Lipids (fats) are of two types: fuel fats (triglycerides) and structural fats (cholesterol and phospholipids). As a source of energy, we are concerned with triglycerides, which are comprised of glycerol and three fatty acids. Depending upon their length and the type and number of carbon bonds (single or double) and number of hydrogen atoms, they are defined as fats (solids at room temperature) or oils (or mostly liquid at room temperature). Saturated fats all have single carbon bonds, and unsaturated fats have one or more double carbon bonds. The balance of carbon, hydrogen, and oxygen define the difference between lipids and carbohydrates (lipids have much less oxygen).

General lipid structure:



So, then...what's for breakfast? It can be argued that a woman office worker and a woman who is breastfeeding really should have the same balance of nutrition (20% protein, 20% fat, and 60% carbohydrate, as a guideline) for breakfast and that only calorie intake should differ, depending upon the metabolic needs of the two women (physical activity is one of the key

factor in metabolic rate). The office worker is likely on the run in the morning to get to work after getting the kids off to school, but then perhaps settles down at a desk for the better part of a day (unless she is off fetching files, making copies, running to meetings, directing in the boardroom, or strategically planning the hostile takeover of her company's largest competitor.). She is using her mind a great deal, perhaps, balancing the books, generating ideas, or preparing criminal court cases. She may exercise regularly on top of her active home and work life.

The lactating woman may or may not have a life style wholly at home (perhaps she is a lactating office worker!). In addition to needing energy for similar functions and activities as the office worker (getting her other kids off to school, cleaning up the house, running errands, exercising, remodeling the basement, or working outside the home), she has the additional energy requirement of making milk for her baby (and thus passing balanced nutrition on to the child). In her case, it is typically recommended she consume about 900 kcal more than a woman of her activity level who is not lactating. Essentially, though, both women should achieve a balanced intake that does not exceed or fall short of their individual metabolic requirements.

A daily balanced diet should come from 6 to 11 servings from the "complex carbohydrates" group of foods (rice, bread, cereal, pasta, and potatoes), at least 5 servings from the "fruit-vegetable" group, 2 to 3 servings from the dairy group, and 2 to 3 servings from the "proteins" group (animal or plant sources).¹

My recommendation for both women at breakfast is:

- 1 poached egg (prepared in water only)
- 1 slice whole-grain bread (best if unbuttered)
- 1 serving cereal (with no or spare sugar)
- 1 serving milk for cereal²
- 1 serving fresh whole fruit (not juice).

¹ It is important to note that a recommended serving size is quite specific. A deliciously grilled 16oz T-bone cut is actually equivalent to eight 2-ounce servings from the protein group (and don't forget to add up the calories for the marinade or other sauces used in preparation).

² Or cereal-milk alternative of: 1 serving plain yogurt sprinkled with 1 serving granola.

1 glass of water

This breakfast brings the two women's intake to:

1 serving protein

1 serving fruit-vegetable

1 serving dairy

2 servings complex-carbohydrate

Hydration

Either woman could choose to spread her daily intake of food into smaller meals more often throughout the day and in particular the lactating woman and her baby may benefit from this depending on how often the baby is feeding. This woman should include (proportionally applying the 20%, 20%, 60% guidelines for the food groups) additional servings or half-servings (*depending on her needs*) to ensure she is receiving enough to sustain her and that the baby is getting mother's milk rich in the necessary nutrients for a growing infant.³

Finally, the quality of food consumed is a key factor in the quality of nutrition received from it. Foods that are pre-packaged, processed, overly cooked, supplemented with coloring and preserving agents, chemically created (such as artificial sweeteners) or those that come from unhealthy sources (such as being treated with pesticides, artificial or additive growth hormones and supplementation, chemical fertilizers, as so forth) can introduce unwanted and sometimes serious influences in the body.

³ It is additionally important for this woman to "eat properly for one for the feeding of two" rather than having the idea that she is "eating for two."

Bibliography

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