

Bits of Biochemistry!

The inner workings of life.

1. What causes hiccups?
 - a. Not enough oxygen
 - b. Too many fluids
 - c. Muscle spasm in the diaphragm
 - d. Adrenaline rush
 2. We revolutionized human nutrition for the whole world in 1913 when UW biochemist Elmer B. McCollum discovered:
 - a. Bubble Gum
 - b. Vitamin A
 - c. Nutri-Sweet
 - d. Calcium
 3. When a farmer's cows started dying from spoiled sweet clover, what did biochemists discover?
 - a. Warfarin, the most widely used rat poison in the world
 - b. Coumarin, the most widely used blood thinner to treat heart patients
 - c. Coumadin, a brand name for a chemical that prevents blood clotting
 - d. These are all the same thing.
 4. Cholesterol is bad for our bodies.
 - a. True
 - b. False
 5. UW-Madison's biochemists developed iodized salt. What is it used for?
 - a. Salting roads
 - b. Fuel additive
 - c. Treating goiters
 - d. Sculpting with metal
 6. What fluid helps chemicals move around in our bodies?
 - a. Blood
 - b. Sweat
 - c. Tears
 - d. Blisters
 - e. all of these
 7. We depend on bacteria that live in our large intestine to help us break down certain foods. What vitamin does E. coli bacteria help us digest?
 - a. Vitamin K
 - b. Vitamin A
 - c. Vitamin B
 - d. Vitamin D
 8. Which disease did research at UW-Madison help eliminate?
 - a. Pellegra
 - b. Anemia
 - c. Rickets
 - d. All of them
 9. Where did we first discover Vitamin B?
 - a. Fish
 - b. Oysters
 - c. Milk Whey
 - d. All of them
 10. Since most plant leaves are green, why do they turn red, yellow, and orange in the fall?
 - a. They are infected with bacteria.
 - b. The sun bleaches out the green.
 - c. They store their chlorophyll.
 - d. They don't get enough water.
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How did you do?

1. We don't know what actually triggers hiccups; however, we do know that when something irritates the diaphragm, a biochemical reaction causes a **muscle spasm**--- a hiccup!
2. Elmer B. McCollum discovered **Vitamin A** in butterfat and cod liver oil while doing research with the University's rat colony.
3. **Warfarin, Coumarin, and Coumadin are all the same thing.** Spoiled sweet clover has Vitamin K, which prevents blood from clotting. The synthetic modification of Vitamin K is what led to: Warfarin, a brand name for rat poison; Coumarin, the chemical name; and Coumadin, the brand name for human use. Warfarin was named after the Wisconsin Alumni Research Foundation (WARF).
4. **False.** Cholesterol is a waxy substance found in all parts of our bodies. Since it is essential in making cell membranes, we can't live without it! If we don't have enough, our bodies make it. But there are two forms of cholesterol protein. Low density (LDL) is the bad kind that can build up plaque in the bloodstream and cause heart disease. High density (HDL) is the good kind that removes plaque from arteries.
5. Iodized salt **prevents goiters**, an enlargement of the thyroid gland in your neck. Because some soils are deficient in iodine, our food did not contain enough so we added it to the salt that flavors our food.
6. **All of these** fluids travel paths that send chemicals to different parts of our bodies.
7. **Vitamin K**, found in broccoli and _____, helps us to _____. E. coli and other bacteria are necessary to help us digest food. Though some, like one strain of E. coli, do cause illness, most bacteria are very helpful!
8. **All of these.** UW biochemistry discoveries of vitamins and minerals have eliminated all of these diseases: pellegra, a nervous and digestive system disorder; anemia, low numbers of red blood cells; and rickets, softening and weakening of bones.
9. The Vitamin B complex was discovered at UW-Madison in **milk whey**. Vitamin B has _____ profound influences on human health care.
10. Biochemical reactions are in plants as well as animals and humans. In the fall, temperature and light changes tell plants to **remove and store their green chlorophyll**, exposing the brightly colored minerals, which all plants have. Biochemistry also adds beauty to our lives!

Rate your knowledge!				
Number Correct	9-10	7-9	4-6	0-3
	Wizard	Whiz	Expert	Apprentice

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