

HEADS UP Addendum

November 5, 2008

Several corrections have been made to certain HEADS UP Classroom Activities. Please replace any versions you are currently using with the attached revised versions. Please also make note of updates that pertain to the Diabetes videos.

HEADS UP materials are currently under review. Should other errors or content updates be made, additional notices will be provided.

If you have any questions/comments, feel free to contact us.

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GENES, HEALTH & YOU

Corrections

Video 1

- Cells are not found in viruses.
- It is now estimated that there are 20,000-25,000 genes.

For more details about The Human Genome Project, visit:

www.ornl.gov/sci/techresources/Human_Genome/faq/genenumber.shtml

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NUTRITION/PHYSICAL ACTIVITY

Correction

Food Fights! Classroom Activity - Shredded Wheat vs. Low-fat Granola

Answer Sheet

In the table for Question 1, the saturated fat for Granola should be **.5g** instead of 5g

Corrections

BMI Classroom Activity - Answer Sheet

3. $[210 \div 72 \div 72] \times 703 = 28.5$ Overweight
4. $[120 \div 70 \div 70] \times 703 = 17.2$ Underweight
5. $[287 \div 69 \div 69] \times 703 = 42.4$ Obese
6. $[135 \div 65 \div 65] \times 703 = 22.5$ Healthy
7. $[207 \div 77 \div 77] \times 703 = 24.5$ Healthy

Addition

BMI Classroom Activity - formula explanation

$$\text{BMI Formula} = \left[\frac{\text{weight in pounds}}{\text{height in inches} \times \text{height in inches}} \right] \times 703$$

Example

An adult weighing 165 pounds and 5 feet 10 inches tall would have a BMI = 165 pounds divided by 4,900 inches (5 ft 10 in = 70 inches; 70 x 70 = 4,900) multiplied by 703 = 23.7

Weight in pounds = 165

Height in inches = 5 feet X 12 inches per foot = 60 + 10 = 70 inches

$$[165 \div (70 \times 70)] \times 703 = 165 \div 4,900 \times 703 = 23.7$$

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DIABETES/CARDIOVASCULAR DISEASE

Several scientific advances in distinguishing the types of diabetes and genetic susceptibility to the disease have been made since production of the HEADS UP videos in 2003. Please share the updates (listed below) with your students as the videos themselves have not been updated. The updates have also been added to the Diabetes Video Worksheets. Please replace any versions you are currently using with the attached revised versions.

Updates

Diabetes Video 1

- In Type 2, beta cells do not fail immediately; actually “ramp up” first and produce more insulin. Then after a period of hyperinsulinemia they begin to fail.
- In Type 1 regarding twin studies, there is actually a strong genetic component with a high sibling risk.
- For Type 1, pancreas transplantation is not the only option. There are also Islet transplants and other options now available.

Updates

Diabetes Video 2

- It's important to take care of yourself whether or not there is a complete understanding of diseases such as diabetes.
- **Pre-diabetes** is now defined as having a fasting blood sugar level between 100 and 125 mg/dL or a 2-hour post-load glucose level of 140 to 199. **Diabetes** is now defined as having a fasting blood sugar level of 126 mg/dL or above. Another factor is not metabolizing blood sugar properly.
- Everyone has a genetic susceptibility to diabetes – the key is that we can manipulate the environment to alter this genetic predisposition.

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ADVANCED GENETICS

Changes for definitions that appear in the glossaries, Lab Notebook, and/or Word-spot Worksheets

blastocyst: in humans, a 5 to 6 day old embryo; in mice, a 3 to 4 day old embryo

genetic engineering: human manipulation of an organism's genotype by inserting or removing new genes into an existing cell

microinjection: technique of injecting DNA or stem cells into a fertilized egg using an extremely small needle

pronucleus: the nucleus of a sperm or an egg... (delete: "prior to fertilization")

stem cell therapy: technique of injecting stem cells into an organism to replace damaged cells (delete: "or lessen an immune response after a transplant")

Note about "Embryos-R-Us" Classroom Activity for Unit 5

Although presented hypothetically, in "real life" it would be unethical/illegal for the couple to be offered financial compensation for research purposes.