

Authentic Assessments

Example of an authentic learning assignment for a college level biology course

Mueller, Jon (2016). Authentic Assessment Toolbox: Biology – College/University [Website]. Retrieved from http://jfmuller.faculty.noctrl.edu/toolbox/examples/tasks_college_biology.htm

Think Like a Nutritionist to the Stars

Case Study: Kenny has a family history of Type 1 diabetes. He is consulting you to help evaluate the strengths and weaknesses of his diet and its impact on his health. He brought you a body composition profile, a typical food intake pattern for a day, and some of the results of his blood work.



Body Profile

Name: Kenny C. **Gender:** Male **Age:** 39
Occupation: Singer; Entertainer
Height: 6'0" feet/in
Weight: 165 lbs
Abdominal circumference = 36 inches
Percent Body Fat = 12 %

Activity Level – Moderately active; jogs for 30 minutes on the treadmill 3-4 days a week

Blood sugar (fasting) = 105 mg/dL
Family history: Uncle had type 1 diabetes

Meal	Item	Amount	Cals	FatCal	SatFatCal	Prot (g)	Carbs (g)	Sugar (g)	Fiber (g)	Fat (g)	Chol (mg)	
Breakfast	Coffee, frappuccino, power,	3 cup	410	135	13.5	24	85	52	1	15	20	
	Cereal, Cocoa Krispies	2 cup	315	21.4	14.6	4.3	71.1	38.1	1.5	2.4	0	
	Banana, fresh, slices	1 cup	66.8	2.2	0.7	0.8	17.1	9.2	1.9	0.2	0	
Lunch	Salad, taco, w/salsa & shell	1 each	906.1	439.8	242.6	35.6	80.5	7.1	8	48.9	50.5	
	Soda, Coca Cola/Coke	32 oz	378.6	0	0	0	130.3	130.3	0	0	0	
Dinner	Mixed Drink, margarita	8 oz	499.7	2.2	0.2	0.1	34.7	69.6	0.2	0.2	0	
	Beef, porterhouse steak, brld,	8 oz	746.2	527.3	207.4	51	0	0	0	58.6	153.3	
	Beans, green, snap, fresh	1 cup	34.1	1.1	0.2	2	7.8	1.5	3.7	0.1	0	
	Dish, baked potato, w/sour cream	1 each	392.6	200.8	90.1	6.7	50	0	0	42.3	24.2	
Snack	Drink, protein, whey, Iso-Whey,	2 each	180	0	0	44	3	30	0	0	0	
	Apples, fresh, peeled, slices	1 cup	52.8	1.3	0.2	0.3	14	11.1	1.4	0.1	0	
	Beer, Budweiser	2 pint	390.7	0	0	3.4	28.3	0	0	0	0	
Day Total			--	4665.3	1653.3	651.6	188	565	342.6	17.8	183.7	296.5

1. Evaluation of Kenny's Dietary Patterns (14)

Evaluate Kenny's diet based on the Dietary Guidelines for Americans 2005. Use terms such as "within recommendations," "high," "low," "excessive." If high, identify foods from his diet that contribute to this. If low, suggest foods that would improve his diet quality.

	Dietary Guidelines Recommendations	Evaluation of Kenny's Diet: Strengths & Weaknesses
Energy	Energy Intake = Energy Output	Kenny expends 3150 cal/day and takes in 4665 cal HIGH - Alcohol + Salty steak <i>BMR = 1800 Act x 1.35 = 75% x 3150</i>
Carbohydrate	45-65% of total calories	Within Recommendation $\frac{2260}{4665} = 48\%$
Sugars	<25% of total calories	$\frac{1370}{4665} = 29\%$ HIGH - Coke
Fruits & Vegetables	5 servings/day	-Banana on low side -Salad 4 servings -Beans -Apples
Total Fat	20-35% of total calories	$\frac{1653}{4665} = 35\%$ on high side Within Recommendation
Saturated Fat	<7% of total calories	$\frac{657}{4665} = 14\%$ HIGH
Protein Intake	Meets requirements	$75\text{kg} \times 0.8 = 60\text{g/day}$ His intake is 188g! over 3x HIGH

2. Blood Lipid Profile (8 pts)

A. Predict Kenny's blood lipid profile by placing an X in either the "within normal range" or "above normal range" column. Credit is assigned based on your justification (6)

	Within Normal Range	Above Normal Range	Justification
Cholesterol	X		His cholesterol intake is just below recommendation of 300mg/day <i>steak only real animal source of chol.</i>
Triglycerides		X	High calories + sugars
LDL		X	High saturated fats

B. Which blood lipid is considered an indicator of low risk for cardiovascular disease when it is high? (1) **HDL's** are an indicator because they tend to recycle cholesterol from blood back to liver

C. True or false? The soluble fiber in oatmeal lowers cholesterol by inhibiting cholesterol production by the liver. (1) **False** Oatmeal's soluble fiber binds cholesterol that is a component of bile in the SI and inhibits its reabsorption back into blood and thus lowers cholesterol. Soluble fibers are never absorbed and thus cannot act on the liver.