Appendix B: Potential Exam Questions

Please describe the current most commonly, accepted theory as to why heart attacks occur.

Please describe an alternative theory that we discussed in class as to why heart attacks occur.

What are the symptoms of atherosclerosis, and when do they begin to occur?

What are the risk factors of a heart disease?

What are preventative measures that can be taken to reduce risk of atherosclerosis?

What is the microbiome?

How does the immune system relate to chronic disease? And what is microbiome's relationship with the immune system?

Based on our readings in class, why is the calories in/calories out model over-simplified. Use evidence from 10% Human and the article we read on blood sugar response to food.

What is the Metabolic Syndrome?

How can chronic sympathetic nerve activity lead to both weight gain and insulin resistance?

An overactive immune system seems to underlie many chronic conditions. How does the microbiome regulate immune function and thus risk of chronic disease?

Many diseases are said to be partially genetic, and now, we understand that factors outside the DNA can influence DNA (epigenetics). Please explain DNA, genes, and epigenetics to someone who asks you about it.

Please describe the various fat depots in the human body. Also, explain how each of these different fat depots are different in their relationship with disease risk. (Be sure to include a discussion of insulin as well as the immune system).

When bacteria in the microbiome consume fiber, they release specific compounds. What are these? Provide two examples from your reading of what these can do in relation to the immune system and fat cells.

Based on recent research, why is individualized nutrition so important for disease prevention? Be sure to include an explanation of postprandial hyperglycemia.

Please explain the current, most commonly-accepted theory as to how cancer comes about and how it affects the body.

Please explain how normal metabolism works. What is different about metabolism in cancer cells?

Please explain the mitochondrial theory of aging.

Please explain how caloric restriction and over-consumption decrease and increase the rate of aging.

What are the primary treatments for cancer, and broadly, how do they function to treat cancer?

Please explain the metabolic theory of cancer. That is, what happens to result in cancer?

What is understood about the pathophysiology of Parkinson’s disease?

What is the difference in how cancer begins within the somatic mutation theory of cancer and the metabolic theory of cancer? Please explain the experiment where researchers transferred cell parts and which theory this supports and why.

What are the signature physiological signs of Alzheimer's disease within the brain? Please describe them including what they normally do and what is seen among individuals with Alzheimer’s disease.

Please explain the metabolic pathology found in AD and why a ketogenic diet or ketone ester administration may be beneficial to slow or halt the disease progression.

Given what you know about the proposed pathophysiology of major chronic diseases including atherosclerosis, type 2 diabetes, central adiposity, cancer, and Alzheimer's disease, what type of eating pattern is most likely to prevent chronic disease and why? Please be sure to explain your suggestion as it relates to each chronic disease listed above.

Given what you know about the proposed pathophysiology of the major chronic diseases including atherosclerosis, type 2 diabetes, central adiposity, cancer, and Alzheimer's disease, why does exercise aid in the prevention of chronic disease?