Study Objectives: Exam # 3
BIOLOGY OF AGING

The student should be able to....:

1. Describe, define and discuss the functions of the following: T cells (cytotoxic, helper, suppressor), B cells, antigen presenting cells, antibodies, antigens, self vs non-self recognition, humoral immuity, cellular immunity, passive immunization, active immunization, thymus.

2. Discuss the antibody types and relate how the following terms relate to how antibodies get rid of foreign antigens: opsonization, complement activation, blocking/neutralization.

3. Describe what is unique about each antibody type.

4. Discuss when and how and where specific immune response occurs: i.e., where do T and B cells learn self from non-self, is each B cell specific for a certain antigen and when does this specificity arise, what is tolerance, and what is clonal deltetion and suppression?

5. Show your ideas about how aging affects immune function (list some changes and describe these alterations, i.e., cancer, illness, autoimmune diseases, lack of response to vaccination, etc.....).

6. Discuss the Hayflick Theory as it relates to aging.

7. Outline the importance of DNA---->RNA----->PROTEIN (transcription and translation) and why gene action is important for regulating cell function (try to give some sort of an example for this).

8. Describe some of the ways that DNA might be affected during the aging process: breaks, mutations, enzyme access for repair, methylation.

9. What happens to proteins and protein synthesis during aging?

10. Explain how the generation of changed proteins might affect the immune system as related to cell killing and aging process.