Name _____

Aging and the Immune System: A Tale of Change

Open-Ended Response Answer Key

1. The thymus gland gradually shrinks in size and becomes less efficient at producing new T cells as we age. This decline in thymic function leads to a decrease in the diversity and effectiveness of our T cell repertoire, making it harder for our immune system to respond to new threats.
2. Inflammaging is a state of chronic low-grade inflammation associated with aging, characterized by elevated levels of pro-inflammatory markers. It is linked to various age-related diseases, including cardiovascular disease, diabetes, and neurodegenerative disorders, and contributes to overall decline in health and well-being in older adults.
3. Lifestyle factors such as diet, exercise, and sleep can influence immune function in aging individuals by promoting overall health and reducing inflammation. Regular exercise helps maintain cardiovascular health and strengthens the immune system, while a balanced diet provides essential nutrients needed for immune function. Adequate sleep is also important for immune function, as it allows the body to repair and regenerate cells involved in the immune response.
4. Immunosenescence refers to the gradual deterioration of immune function that occurs with age. This process is characterized by a decline in the ability of immune cells to communicate and coordinate their responses effectively, leading to a less efficient immune response. Immunosenescence can make older adults more susceptible to infections and less able to mount robust defenses against pathogens, contributing to increased vulnerability to illness and disease.

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