

Abstract

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Nutritional status predicts primary subclasses of T cells and the lymphocyte proliferation response in healthy older women.

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BACKGROUND: Aging is often associated with a dysregulation in immune function, particularly in T-cell responses, even in the healthy elderly. Adequate nutrition is important for optimal immune function. The literature on the relation of nutritional status with immune function in the elderly offers mixed findings.

OBJECTIVE: Because several nutrients can influence immune response, and there are interactions among nutrients, examining the association of various nutrients measured simultaneously with tests of immune function is important.

METHODS: We examined the association of protein, iron, zinc, vitamin B-12, and folic acid with tests of acquired immunity in healthy older women (76.7 +/- 7.0 y; n = 130). Discriminant analysis was used to identify the predictive subset of nutrients that could correctly classify subjects into the lowest or highest quartiles (< or =25th or >75th percentile) on various immune function tests (T cells and subsets and lymphocyte proliferation in response to culture with mitogens).

RESULTS: Protein and iron status variables were identified in the predictive subset for all immune tests; in addition, zinc emerged in the predictive model for T cells and their subsets as well as for the proliferation response to concanavalin A. The probability of correctly classifying women into the lowest or highest quartiles of immune tests by the predictive subset of nutrition variables was high, i.e., 62.8-83.5% for T cells and their subsets, and 79.3-89.7% for the proliferation response to mitogens.

CONCLUSION: In conclusion, protein, iron, and zinc were significant predictors of immune function in older women. Adequate status of these nutrients may help maintain immunity in older adults.

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