



## **Age-Related Changes in Physiology Relevant to Use of Dietary Supplements**

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As dietary supplements are usually purchased over-the-counter, they may not be thought of as drugs that are absorbed and metabolized similar to prescription medications, and that may interact with these medications to cause side effects that may threaten health. This presentation will review the current data on factors associated with age that influence drug absorption. This includes changes in physiology of the gut and disease prevalence that changes with age and affects absorption, achlorhydria, drug utilization that might increase with age and affect absorption, and the use of histamine blockers. Although many dietary supplements are water soluble, some may be stored or metabolized in body fat, and new data on body fat compartments suggest that old age may be associated with additional fat deposition, increasing the half-life of fat-soluble drugs even further. Lastly, changes in liver and renal metabolism with age will be discussed as these represent the two major pathways by which drug excretion occurs. Decline in renal function with age is well-documented, and is related to past health status and control of conditions such as hypertension. Clinical algorithms exist that allow for quick estimation of renal function. Liver function change with age is not as well understood, particularly as older people may be more susceptible to non-alcoholic fatty liver disease. In addition, for the particular target organs to be discussed with reference to specific dietary supplements, data will be reviewed regarding organ-specific changes that might impair the uptake and utilization of the dietary supplements in the target tissues.

Research needs:

- Metabolism of major classes of dietary supplements
- Interaction of dietary supplements with major groups of drugs taken for chronic diseases common in old age.

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