

Better analysis methods for vitamin D

March 27 2012, By Rosalie Marion Bliss



Chemists Craig Byrdwell (foreground) and James Harnly, with the Beltsville Human Nutrition Research Center, review data from one of the liquid chromatography/mass spectrometry machines used in a process called “triple-parallel mass spectrometry.” They use this procedure to analyze the amount of vitamin D in milk, orange juice, and dietary supplements. Credit: Stephen Ausmus

U.S. Department of Agriculture (USDA) researchers with the Beltsville Human Nutrition Research Center in Beltsville, Md., design, develop and improve analytical methods for measuring nutritional components in the food supply. The Beltsville center is part of the Agricultural Research Service (ARS), USDA's principal intramural scientific research agency.

As featured in a three-part series in the March 2012 issue of [Agricultural Research](#) magazine, the Beltsville center's [Food](#) Composition and Methods Development Laboratory is using new spectrometry methods to

discover compounds in foods that have never before been documented.

Accurate data on the amount of vitamins and minerals in the U.S. food supply is critical to accurately assessing the intakes of these nutrients in the U.S. population. At the Beltsville center, chemist Craig Byrdwell has pioneered new, highly precise methods for analyzing vitamin D in foods and dietary supplements.

Byrdwell found that there are many ways in which multiple instruments that measure molecules can be used in parallel to provide much more information about food samples than single instruments used alone. These molecular mass-measuring instruments are called "mass spectrometers." One of Byrdwell's techniques is "triple-parallel mass spectrometry," in which three mass spectrometers, operating in different modes, are used in parallel.

Byrdwell's experiments also have shown that two systems for separating molecules (liquid chromatographs) can be used in combination to analyze complex [food samples](#) for vitamin D and its metabolites. Byrdwell authored a book chapter describing his [vitamin D](#) analysis methods, which appears in [Extreme Chromatography](#), published by AOCS Press in Champaign, Ill. Byrdwell is also a coeditor of the book, which was published in May 2011.

[Read more](#) about the ARS national program for human nutrition monitoring in *Agricultural Research* magazine's March 2012 issue.

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