

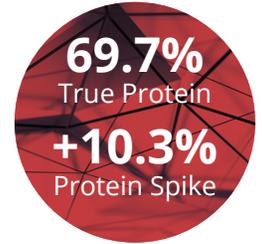
THE PROBLEM: PROTEIN SPIKING

Protein Spiking is an economically motivated process of adding nitrogen containing non-protein compounds into the product to manipulate the well-known deficiencies of the existing methods and artificially boost the nitrogen content. Kjeldahl and Dumas methods, which are the most well-known and frequently used methods for nitrogen determination, don't have the specificity to effectively screen whether the protein is spiked or not. The spiked proteins are adulterated, dangerous, and low quality products. Consumers are demanding more detailed information and transparency.

*What you think
you're getting:*



*What you
really get:*



“

It's all about consumer confidence. If your customers can't trust your brand, they'll find one they can.

– Jeff Reynolds, CEO, Dyad Labs



HOW DO YOU TEST FOR A PROTEIN?

To properly test your protein product, a variety of test methods and options can be used. While each method has its perks, due to its extreme sensitivity and specificity, the LC-MS/MS based methods, combined with the proven Dumas method, are the preferred choice at Dyad Labs.

“A growing number of companies are accused of selling workout supplements spiked with cheap fillers that they're passing off as protein.”

—Forbes Magazine 2015

THREE DIMENSIONS OF PROTEIN TESTING

Identification. Which proteins are present? Protein comes from a variety of animal and plant sources. The ideal tests will allow us to identify specific proteins in each sample.

Adulteration. When there's more inside your protein than you asked for. Because additional compounds may be present in a sample, the ideal test will allow us to detect those additional compounds in a protein sample.

Quantitation. Knowing how much whole protein exist in each sample is key. The ideal test will allow us to accurately quantify True Protein in a nitrogen-filled sample.



LC/MS/MS

- ⊙ Identify specific protein of interest
- ⊙ Detect Adulteration within powder
- ⊙ Quantify amount of protein (The Dumas method is used today, while we develop quantitation methods via LC-MS/MS)
- ⊙ Detect nitrogen-spiked compounds



DNA TESTING

- ⊙ Identify specific protein of interest
- ✗ Only works if genetic material is present
- ✗ Spiked compounds typically don't have DNA
- ✗ Samples may be adulterated with target DNA



KJELDAHL OR DUMAS METHODS

- ⊙ Measures total Nitrogen (doesn't measure True Protein)
- ✗ Older method
- ✗ Cannot differentiate between protein and non-protein nitrogen containing ingredients w/o additional testing (thus the need for LC-MS/MS)
- ✗ Very easy to add nitrogen-spiked compounds