

Some plant-based steaks and cold cuts are lacking in protein, researchers find

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Meat products (top left, veal; bottom left, bresaola) tend to contain more proteins and amino acids than their plant-based alternatives (right). Credit: Adapted from *Journal of Agricultural and Food Chemistry* 2024, DOI: 10.1021/acs.jafc.3c08956

Many plant-based meats have seemingly done the impossible by

recreating animal products ranging from beef to seafood. But beyond just the taste and texture, how do these products compare to the real thing in nutritional value? A small-scale study [published](#) in *Journal of Agricultural and Food Chemistry* shows that while some "plant steaks" and "plant cold cuts" might be comparable to meats on some fronts, their amino acid content and protein digestibility fall short.

Meat-free burgers or ground beef mimics might come to mind first, but the options for plant-based alternatives have expanded to include whole cuts of meat resembling steaks and chicken breasts, as well as sliced cold cuts like salami or bresaola—a type of cured beef. While these newer products haven't been studied as extensively as burger-style products, they are becoming more widespread and popular among consumers.

As a result, it's important to understand how they differ nutritionally from the meats they aim to replicate and replace. In other words, how well do our bodies digest and gain nutrition from these foods? Tullia Tedeschi and colleagues wanted to answer that question by comparing the protein quality, integrity and digestibility of a set of plant-based steaks and cold cuts to their meat counterparts.

The team, based in Italy, collected three different plant-based steaks and three different plant-based cold cuts. Veal steaks were used as a comparison point for the plant steaks, whereas ham and beef cold cuts were compared to their respective plant-based substitutes. The fat, salt and [protein content](#) of each was measured, then the samples underwent a simulated digestion in the lab to understand how well the proteins break down in a human's digestive tract.

- The plant-based products contained more carbohydrates, less protein and reduced amino [acid](#) content than their meat-based

counterparts.

- Plant steaks and the veal samples were comparable in terms of essential amino acid content and digestibility.
- Plant cold cuts generally had less salt than the meats and contained fewer essential amino acids. Different products also showed differing levels of digestibility due to the variety of ingredients they contain.

Overall, the [nutritional value](#) of the plant-based products depended greatly on the plants used to create them, causing wide variation in their amino acid content and the digestibility of their proteins. In contrast, all the samples within a particular meat type showed comparable nutritional profiles.

The researchers say that this work helps demonstrate that careful consideration should be taken when replacing [meat products](#) with plant-based alternatives, and that these differences in nutritional profile should be communicated to consumers to allow for informed decisions.

More information: Sara Cutroneo et al, Assessment of Protein Quality and Digestibility in Plant-Based Meat Analogues, *Journal of Agricultural and Food Chemistry* (2024). [DOI: 10.1021/acs.jafc.3c08956](https://doi.org/10.1021/acs.jafc.3c08956)

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