INTRODUCTION
Proteins provide calories as fuel for the human body. However, not only are they a caloric source, they also provide building blocks for growth and maintenance of body tissue. During digestion, proteins are broken down into smaller peptides and amino acids. Amino acids are necessary for the creation of numerous building blocks for muscles as well as co-enzymes, neurotransmitters, and many other compounds essential in life. Nine amino acids have been identified as “essential” to humans to prevent protein-energy malnutrition. An adequate proportion of all nine essential amino acids must be present in a source of protein for it to be considered a complete protein.

Not all protein sources are equal when it comes to providing the adequate proportion of all nine essential amino acids to a diet. Generally, proteins found in plants can only provide enough of the essential amino acids through consumption of a variety of plant sources. Proteins from animal sources, with a few exceptions, are considered complete as is.

An example of a complete animal source protein is chicken. Chicken is an excellent source of protein through its abundance in production as well as efficiency in growth per feed consumed. Despite trailing in third place far behind beef and pork in 1960, chicken has become the most consumed animal protein per capita according to the 2015 data from the National Chicken Council, which can be viewed on the following link (http://www.nationalchickencouncil.org/about-the-industry/statistics/per-capita-consumption-of-poultry-and-livestock-1965-to-estimated-2012-in-pounds/). While chicken is consumed as a whole bird, pieces, chunks, strips, tenders, and in numerous other forms, it is also newly available in a convenient, shelf-stable, chicken protein isolate powder.

CHICKEN PROTEIN ISOLATE POWDER: A Popular Protein in a New Form
Chicken protein isolate powder is a natural ingredient made from fresh, USDA-inspected chicken that has been minimally processed, cooked, defatted, and dehydrated by spray drying into a fine powder. The chicken protein isolate powder can be used as an ingredient in a USDA facility or an FDA facility following established guidelines. If the chicken protein isolate powder is used as part of another USDA-inspected product, it can be used at any percentage desired and would use a “Nutrition Facts” label. Use in an FDA-manufactured product limits its use to less than 3 percent raw meat or less than 2 percent cooked meat when using a “Nutrition Facts” label. An exception is available if a “Supplement Facts” label is used where less than 100% can be used in an FDA-manufactured product. There are other limiting information guidelines on labeling that must be followed.
NOT ALL PROTEIN IS CREATED EQUAL

Chicken protein isolate powder is a convenient way to fortify products with its high-quality protein. While some other common protein sources like whey, soy, pea, and rice do not entirely contribute to the protein daily value (DV), all of the chicken protein isolate powder is considered eligible to be credited to the protein DV. In other words, it takes more protein by weight from those sources to equate to the same %DV provided by the chicken protein isolate powder. A low-scoring protein like pea or corn might only qualify a third of the protein toward the %DV.

USE LESS CHICKEN PROTEIN ISOLATE POWDER TO MEET YOUR DAILY VALUE:

<table>
<thead>
<tr>
<th>Protein Source</th>
<th>USE A SMALLER SERVING TO MEET DAILY VALUE</th>
<th>COMPARED TO INCOMPLETE PROTEIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken Protein Isolate</td>
<td>39</td>
<td>76</td>
</tr>
<tr>
<td>Casein</td>
<td>41</td>
<td>86</td>
</tr>
<tr>
<td>Soy Protein Isolate</td>
<td>58</td>
<td>65</td>
</tr>
<tr>
<td>Whey Protein Isolate</td>
<td>62</td>
<td></td>
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<tr>
<td>Whey Protein Concentrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Egg White</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Pea Isolate</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>Sprouted Rice Protein</td>
<td>91</td>
<td></td>
</tr>
</tbody>
</table>

LESS IS MORE:

Another characteristic of chicken protein isolate powder is absence of carbohydrates, or “zero carbs.” This is not true of other concentrated forms of proteins in the marketplace.

Approximate carbohydrate level in other protein sources:
- Whey concentrate – 14%
- Whey isolate – 6%
- Soy protein isolate – 1-3%
- Pea protein isolate – 3.8%
- Rice protein isolate – 20%
- Corn protein concentrate – 8.4%
- Potato protein isolate – 9.25%

For those consumers searching for a concentrated protein source that also minimizes the presence of carbohydrates, chicken protein isolate powder would make an ideal choice.

The Food Allergen Labeling and Consumer Protection Act of 2004 (FALCPA) (http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/Allergens/ucm106187.htm) states that an estimated 2 percent of adults and 5 percent of infants and young children in the United States suffer from food allergies. The FALCPA further estimates that 8 major food groups – milk, fish, eggs, crustacean shellfish, tree nuts, peanuts, wheat, and soybeans – account for 90% of food allergies for which there is no cure, and that a food-allergic consumer must avoid the food to which they are allergic. Chicken protein isolate powder is free of the common allergens listed above and is free of any sugars including lactose, which, although not considered an allergen, can create uncomfortable symptoms if ingested.
LESS IS MORE:

Chicken protein isolate powder is a versatile ingredient that can be used to add protein to the diet as well as to make a protein claim. If a protein claim is made, then the Nutrition Facts (or Supplement Facts) must include the % Daily Value from protein based on the protein-digestibility corrected amino acid score (PDCAAS). The Code of Federal Regulations 21CFR101.54 Nutrient content claims for “good source,” “high,” “more,” and “high potency” (http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=101.54) define the amount of a nutrient that meets the Daily Reference Value that must be present for a nutrient-content claim to be made. The FDA has established the Daily Value for protein for adults and children four or more years of age to be 50 grams based on a caloric intake of 2,000 calories. As in the case previously discussed, all of the protein in chicken protein isolate powder qualifies for the %DV, so all of that protein can also count toward a nutrient claim for protein. As an example, if a serving of soup contains just under 5 grams of DV-qualified protein, any additional amount of chicken protein isolate powder added could push the total DV-qualified protein up to more than 5 grams. At 5 grams, or 10% of the DV, a claim of “good source” of protein can be made. At 10 grams, 20% of the DV is attained, which qualifies as an “excellent source” of protein. Not only can a protein claim be made, chicken flavor is also added.

CONVENIENCE AND VERSATILITY

Chicken protein isolate powder can be incorporated into numerous foods and now is allowed into supplement items to help provide quality protein in convenient and easy-to-consume forms. It can be added to gravies, sauces, and dressings to add savory chicken flavor as well as increase the level of quality protein. Some processors have added chicken to various items such as pizza crust, pie shells, and snack crackers. Depending on the usage level desired for flavor and/or protein claim, any amount from a few grams to enough to qualify as a good or excellent source of protein can be incorporated into a dough.

Another example could be use in sports-nutrition applications. A protein smoothie can incorporate chicken protein isolate powder as part of the dry mix for a high-value sports beverage. The smoothie mix can be used in a shaker bottle with water added at the gym or office. The chicken protein isolate powder does not provide much of its own mouthfeel to that of some smoothies, so the addition of fiber could be used to help reduce the level of fat while maintaining the consistency of a typical smoothie. Addition into protein bars is also a good means to quickly add chicken protein isolate powder in a quick and convenient form.

CONCLUSION

Interest in increased consumption of protein has prompted the exploration by manufacturers to discover new sources and develop ways to deliver traditional proteins in new forms. Chicken protein isolate powder provides high-quality protein in a convenient form that is free of common allergens and is easy to incorporate into numerous products. With chicken viewed as the number one per-capita meat protein of choice, formulation of chicken as an ingredient in different forms should see good consumer acceptance.