

Poster

Digestible indispensable amino acid scores (DIAAS) for egg and plant proteins

Natalia dos Santos Fanelli,^{*1} Juliana Carolina Florencio Ravagnani Martins,² Hans Henrik Stein^{1,2}

¹ Division of Nutritional Sciences, University of Illinois at Urbana-Champaign, U.S.A

² Department of Animal Sciences, University of Illinois at Urbana-Champaign, U.S.A

* Corresponding author. Email: nataliad@illinois.edu

Abstract:

The digestible indispensable amino acid score (DIAAS) has not been determined for cooked eggs and, therefore, the objective of this experiment was to test the hypothesis that protein quality in eggs is greater than in plant proteins. Six protein sources (fried egg, boiled egg, scrambled egg, English muffin, Texas toast, and hash browns) were each included as the sole protein source in a meal, and three combined meals of fried eggs and English muffin, boiled eggs and Texas toast, or scrambled egg and hash brown were also prepared. The meals were fed to nine ileal cannulated gilts [51.1 ± 6.0kg] and ileal digesta were collected from pigs fed each meal. The DIAAS % was calculated for the individual foods and for the combined meals for children from 6 to 36 months and for older individuals. The three eggs had DIAAS of 110 or greater for children from 6 to 36 months, and 135 or greater for older individuals. These values were much greater ($P \leq 0.05$) compared with English muffin and Texas toast, which had DIAAS of 25 and 26 for children from 6 to 36 months and 30 and 31 for older individuals. Hash browns had DIAAS that were less ($P \leq 0.05$) than in the three eggs, but greater ($P \leq 0.05$) than in the other foods (73 and 86 for the two age groups, respectively). When eggs were combined with English muffin or Texas toast, DIAAS was around 80 and 95 for children from 6 to 36 months and older individuals, respectively, but if eggs were combined with hash browns, DIAAS for the two age groups were 104 and 123, respectively. These data demonstrate that eggs have greater DIAAS than plant proteins, but the low quality of plant proteins can be compensated for if they are consumed in combination with eggs.