

The dictate there
being no anabolic
advantage to

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The aim of the study was to discover the effect of Spread vs. Bolus essential amino acid (EAA) feeding on muscle anabolism in young men. They hypothesised “ that the onset of a dose-dependent muscle-full state would dictate there being no anabolic advantage to providing EAAs as Bolus vs. Spread, despite marked differences in plasma aminoacidemia, insulinemia, and anabolic signaling profiles,” (1). The study comprised of 16 young healthy men (who were recreationally active). 15g of mixed EAA were taken as a single dose (Bolus; n= 8) or as four portions at 45-minute intervals (Spread; n= 8).

ELISA and ion-exchange chromatography were used to assess plasma insulin and EAA concentrations, Doppler ultrasound determined limb blood flow and intermittent muscle biopsies were taken to determine muscle protein synthesis. Rapid insulinemia, aminoacidemia and capillary recruitment were observed in the Bolus feeding group. This compared to the Spread group where there was a reduced insulin response, a steady-low-amplitude aminoacidemia and no visible capillary recruitment. However, despite these disparities, the same anabolic results were observed across both feeding groups.

It took at least 90 minutes in both Spread and Bolus feeding methods before an increase in MPS was apparent. Correspondingly, MPS restored to its fasting rate within 180 minutes of both Bolus and Spread feeding despite an increase in circulating EAAs. In terms of possible weaknesses of the study, the conclusions derived may only be applicable to a young healthy population at rest who receive an adequate, or maximal, high-quality diet. The variance between young and old may be effected by the ingested dose

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of EAAs (2, 3), emphasizing that separate feeding profiles should be considered in elderly or sarcopenic individuals. The invasive nature of multiple biopsies in this study prevented a “crossover” design and forced cessation before spread plasma EAA and leucine were able to return to basal concentrations. This could contribute to lower incremental AUC's in that group. Older studies have highlighted that the rate of EAA development affecting anabolism varied depending on differing compositions e. g Soy or casein vs.

whey (4, 5). Finally and perhaps the most significant limitation, is that recent studies that support the idea that profile delivery impacts MPS measured anabolism of nutrition alongside resistance exercise (6, 7) or fast growth. Therefore, the varying regulators of protein synthesis to feeding are taken in phases of net muscle mass accretion. Along with the limitations highlighted there are also strengths to this study. All participants were studied after an overnight fast and were told to refrain from any heavy exercise 48 hours before the study. This ensured that the data-collection was more standardized which is a positive as minimizes site-specific error, interexaminer bias, and eliminates other factors that may effect the results, improving the validity of the data. Also ELISA, ion-exchange chromatography, the Doppler ultrasound and muscle biopsies are all objective measures of muscle anabolism.

Objective measures are generally more reliable, egalitarian and valid then subjective measures (8). To conclude the findings in this study do not support that EAA delivery profile is an important determinant of muscle anabolism in young men at rest, as well as rapid aminoacidemia/leucinemia
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as being a key influence in maximizing MPS. Therefore the study accepted its null hypothesis.