**Contribution of protein intake and physical activity to disability in the UK**

Nuno Mendonça, Antoneta Granic, Tom R. Hill, Mario Siervo, John C. Mathers, Andrew Kingston, Carol Jagger

European Journal of Nutrition (EJON)

We aimed to determine the contribution of protein intake, and the interaction between protein intake and physical activity, to the transition between disability free and disability using the Newcastle 85+ Study. We included more than 700 older adults living in the community and turning 85 in 2006/2007 and we followed them until 90 years of age. Protein intake was estimated with a 24-hour multiple pass recall (people were asked what foods and drinks were consumed in the past 24 hours) on two different occasions in 2006/2007. Study participants were also asked about their ability to perform 17 activities of daily living (ADL) (able to get in and out of a chair, cut own toenails, manage own medications, etc.) in 2006/2007, and after 18, 36 and 60 months. A simple score was derived by summing the number of ADLs that the participant had difficulty with and a score >1 was considered as disability. We found that an increase in protein intake, especially ≥0.8 or 1g of protein per kg of adjusted body weight per day (g/kg aBW/d) decreased the likelihood of developing disability. An average 85-year-old with protein intake <1g/kg aBW/d was expected to spend 0.86 years disability free and 3.63 years disabled over 5 years while another participant with ≥1.0 g/kg aBW/d was expected to spend 1.58 years disability free and 3.01 years disabled. We also found that those physically active and with a good protein intake were less likely to transition from disability-free to disability than those within the same physical activity level but with worse protein intake. This means that higher protein intake, especially in combination with higher physical activity may delay the incidence of disability in very old adults.