

Habitual dietary protein intake among young people with cerebral palsy

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Introduction

Young people with cerebral palsy (CP) have reduced muscle volumes in their lower limbs. This is worrisome, as muscle volume is related to physical performance.

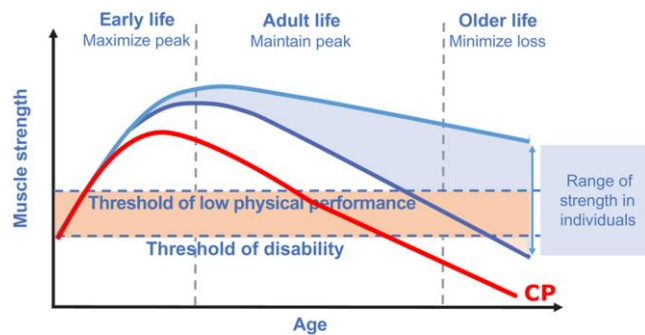


Figure based on Shortland A. DMCN 2009,51(suppl.4):59-63

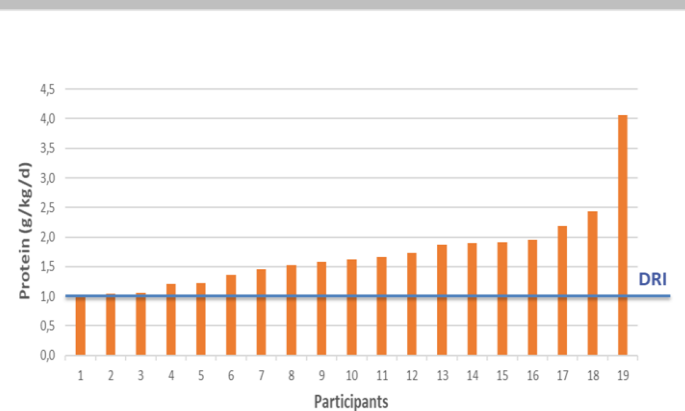
In addition to physical training, adequate protein intake is a key factor in the prevention and treatment of loss of muscle volume. It is crucial that a regular dietary intake of high-quality protein is achieved to allow for muscle preservation and growth.

In this observational study we describe the dose, timing and source of dietary protein intake in children with CP.

Patients and method

Dietary intake was assessed in 19 children with CP (Gross Motor Function Classification System levels I–V; Eating and Drinking Classification System levels I–V; 10 males, 9 females; mean [SD] age 11y 2mo [3y 3mo]) using a 3-day food-diary.

Daily protein intake, the protein intake at breakfast, lunch and dinner and the contribution of animal- and plant-based proteins to daily protein intake were calculated.

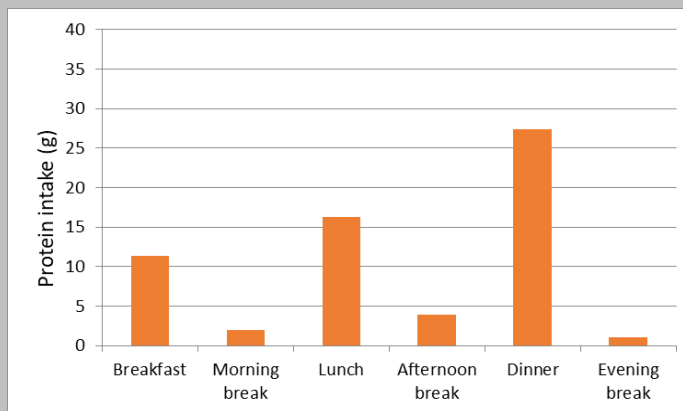


Dose of protein intake during the day.



Average 3-day protein intake (62.1g [27.9g]) was within the recommended boundaries with a minimum of 1.0 g/kg body weight/day and a maximum of 4.1 g/kg body weight/day.

However, it is unclear whether children with CP have similar protein requirements as typically developing children. Many children with CP participate in intensive (strengthening) exercise programmes. Since exercise causes muscle micro-damage, it is important to replace and rebuild this tissue to allow for hypertrophy and strength increases. Therefore, it may be argued that for children with CP there is even a higher need for proteins than for children without CP.



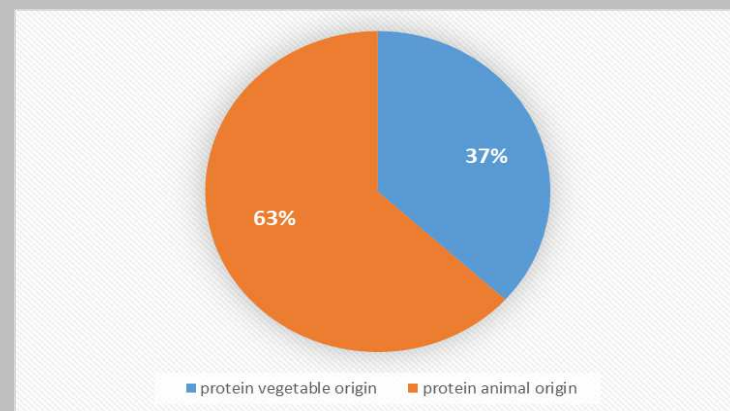
Timing of protein intake during the day.



Timing of total protein intake is skewed to the evening meal within the study population.

The habitual low-protein intake at breakfast and lunch may prevent maximal muscle protein synthesis.

This needs attention, since consuming a balanced distribution of protein throughout the day, has been suggested to be important to maximize post-prandial muscle protein synthesis rates.



Source of protein intake (%) during the day.



The main food groups that contributed to protein intake were 'milk and milk products', 'meat, meat products and poultry' and 'bread'.

Participants in the current study consumed protein from both plant and animal-based sources. It is likely that their diet provides all essential amino acids.



Scan for more details

Conclusion

The distribution of dietary protein intake throughout the day seen in this study suggests room for optimizing protein intake in children with CP to better support skeletal muscle growth and development.

