Guidance notes for using the classical ketogenic diet (CKD) calculator

1. Brief overview of the CKD

In the CKD, a ratio expresses the proportion of fat to protein plus carbohydrate combined, e.g. a 3 to 1 CKD shows that for every 3g of fat there is 1g of protein and carbohydrate combined.

Daily energy and protein requirements are central to the dietary prescription. A dietitian calculates a CKD on a specific basis to meet the unique dietary needs of an individual.

2. Using the CKD calculator

- ***Screen One – Enter this information, specific to the individual***

  1. Daily energy requirement (kcal)
  2. Current weight (kg)
  3. The amount of protein per kg body weight needed (typically, 1 – 1.5g per kg per day is given, depending on age)

- **Press 'proceed'**

- ***Screen Two***

  4. Choose the required ketogenic ratio from the list, which is then displayed in the top blue box.
  5. The calculator generates daily amounts, in grams, of fat, protein and carbohydrate.

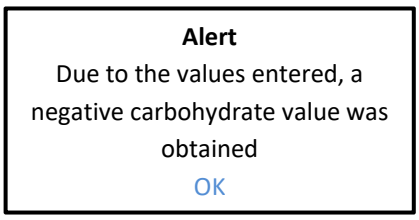
Your next steps…..

- **Devise the daily meal plan**
  Ensure the ketogenic ratio remains consistent throughout the day by evenly and proportionately distributing the grams of fat, protein and carbohydrate into the required number of meals and snacks.
- **Visit www.myketogenicdiet.com** for ideas and recipes for meals, snacks and drinks for the CKD.

3. Troubleshooting

The CKD calculator generates the amounts of fat, protein and carbohydrate in grams (g) on an individual basis depending on the data entered for daily energy (kcal) and protein requirements (g per kg body weight), and the chosen ketogenic ratio.

However, using the calculator to plan a CKD for some individuals generates this 'pop-up' message:



This occurs because of the method of calculation of the CKD and macronutrients being in ratio to one another. Certain factors specific to the individual (outlined below) also influence the result. In order that some carbohydrate can be included in the daily meal plan, one or more of these may need consideration and the associated data entered revised. However, adjustments should only be made if feasible and the specific dietary needs of the individual can still be adequately met.

Factors involved, singly or in combination, that produce the alert message

Protein requirements

Traditionally, the CKD includes 1g per kg body weight per day for children and adults. For periods of rapid growth, e.g. younger children, up to 1.5g per kg may be required. Alternatively, recommendations for minimum safe levels of protein intake are available (WHO 2007; EFSA 2012).

N.B. The range of entry for the calculator is set from 0.8 and up to 1.5g protein per kg per day to reflect this.

Daily energy requirements

If these are low relative to body weight, e.g. an older child or adult with reduced mobility.

Body weight

The individual has a higher body weight, e.g. older child, adult.

Ketogenic ratio

The chosen ratio, especially if it is higher, e.g. 3.5 or 4 to 1.

Alternatively, the alert indicates the CKD is inappropriate for the individual because of their unique dietary requirements. As the **medium chain triglyceride or modified versions of the ketogenic diet** permit greater flexibility with daily macronutrient and energy intakes, one of these options may be more suitable for them instead.

4. Practical dietetic references for the CKD

Fitzsimmons G & Sewell M (2015). Ketogenic diets. Chapter 16 in 'Clinical Paediatric Dietetics. 4th Edition. Editor: Vanessa Shaw. John Wiley & Sons Ltd, Chichester UK. ISBN: 978-0-470-65998-4

Kossoff E et al (2009). Optimal clinical management of children receiving the ketogenic diet; recommendations of the International Ketogenic Diet Study Group. Epilepsia. 50 (2): 304-317.

Kossoff EH et al (2016). The Ketogenic and Modified Atkins diets. Treatments for epilepsy and other disorders. 6th Edition. Demos Medical Publishing, New York, USA. ISBN: 978-1-936303-94-6.

Neal E (2012). Dietary treatment of epilepsy – practical implementation of ketogenic therapy. Editor: Elizabeth Neal. Wiley-Blackwell, Oxford UK. ISBN 978-0-470-67041-5.