

KetoCal 3:1 Calculations

Age: 15 months

Protein requirement: 1.1 g/kg = 10.2 g/d

Calories/day: 915

Actual Weight: 9.35 kg

Steps:

1. Calorie Prescription = 915 kcals/d

2. Dietary Units:

3:1 = 31 kcal/dietary unit

$$\frac{915}{31} \text{ total kcal per day} = \underline{29.5} \text{ dietary units per day}$$

kcal per dietary unit

3. Fat Allowance:

$$\underline{29.5} \text{ # of dietary units per day} \times \underline{3} \text{ units of fat} = \underline{88.5} \text{ g of fat per day}$$

(ie 3:1 ratio)

4. KetoCal Prescription Based on Fat:

Calculate the amount of KetoCal needed to provide 88.5 g of fat

100 g KetoCal = 72 g of fat

$$\underline{88.5} \text{ g of fat per day is supplied by } \underline{123} \text{ g of KetoCal per day}$$

5. Calories from KetoCal:

100 g KetoCal = 720 kcal

$$\underline{123} \text{ g of KetoCal per day provides } \underline{885.6} \text{ kcal per day}$$

Add a protein or carbohydrate source to decrease the ratio from 4:1 to 3:1

*This example uses **unsweetened prune juice : 100 g = 71 kcal , 0.61 g protein , 17.45 g CHO***

6. Calories from Carbohydrate Source :

$$\underline{915} \text{ kcal (allowance per day)} - \underline{885.6} \text{ kcal (calories from KetoCal)} = \underline{29.4} \text{ kcal from prune juice}$$

7. Grams of CHO (prune juice):

100 g prune juice = 71 kcal

$$\underline{29.4} \text{ kcal (allowance from CHO source) of prune juice is supplied by } \underline{41.4} \text{ g of prune juice}$$

Steps continued: (Note: Carbohydrate from medications can be included in calculations in Step 8.)

8. Total Carbohydrate per day (from KetoCal, prune juice and medications):

100 g KetoCal = 3 g CHO

100 g prune juice = 17.45 g CHO

a) 123 g of KetoCal supplies 3.69 g of CHO per day

41.4 g of prune juice supplies 7.2 g of CHO per day

b) 7.2 g of CHO from prune juice + 3.69 g of CHO from KetoCal = 10.9 g of CHO per day

9. Total Protein per day (from KetoCal and prune juice):

100 g KetoCal = 15 g protein

100 g prune juice = 0.61 g protein

a) 123 g of Ketocal provides 18.45 g of protein per day

41.4 g of prune juice supplies 0.25 g of protein per day

b) 0.25 g of protein from prune juice + 18.45 g of protein from KetoCal = 18.7 g of protein per day

10. Protein per kg of body weight:

$\frac{18.7 \text{ g}}{9.35 \text{ kg}} = \frac{\text{g protein per day}}{\text{body weight (kg)}} = 2.0 \text{ g of protein per kg of body weight}$

11. Carbohydrate + Protein:

18.7 g of protein per day + 10.9 g of CHO per day = 29.6 g of protein & CHO

12. Final Ratio Calculation:

$\frac{88.5 \text{ g}}{29.6 \text{ g}} = \frac{\text{g of fat}}{\text{g (CHO + protein)}} = 3:1 \text{ ratio}$

¹Freeman, J.M. *The Ketogenic Diet, A Treatment for Epilepsy*. 3rd Edition, New York: Demos Medical Publishing, Inc. 2000.