MEDICATION ISN'T ALWAYS THE ANSWER

KETOCAL 2.5:1 LQ

KetoCal 2.5:1 LQ is a Food for Special Medical Purposes for the dietary management of drug-resistant epilepsy and other conditions where the ketogenic diet is indicated, and must be used under medical supervision. This booklet is intended for Healthcare Professionals only.

NUTRICIA
Ketogenics

Drug-Resistant Epilepsy

600,000 people in the UK diagnosed with epilepsy and receive anti-epileptic drug (AED) treatment; that's 1 in every 103 people[1]

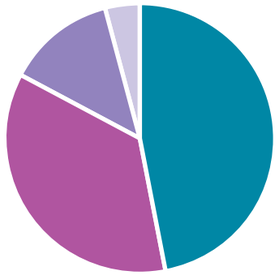
Drug-resistant epilepsy is the failure of 2 or more appropriately chosen AEDs to achieve seizure freedom[2]

36% of epilepsy patients have inadequate control of seizures with AEDs[2]

Uncontrolled epilepsy can increase the **risk of injury, hospital visits, depression, anxiety** and **SUDEP**[3]

Chances of AED success diminishes after every failure[5]

- **47%** seizure free 1st AED
- **13%** seizure free 2nd AED
- **4%** seizure free 3rd or multiple AEDs
- **36%** Not seizure free



N=470 previously untreated epilepsy patients treated with AED5

AEDs are commonly associated with **side-effects** such as drowsiness, blurred vision, dizziness, nausea and vomiting[4]

Drug-resistant epilepsy may require an alternative management option

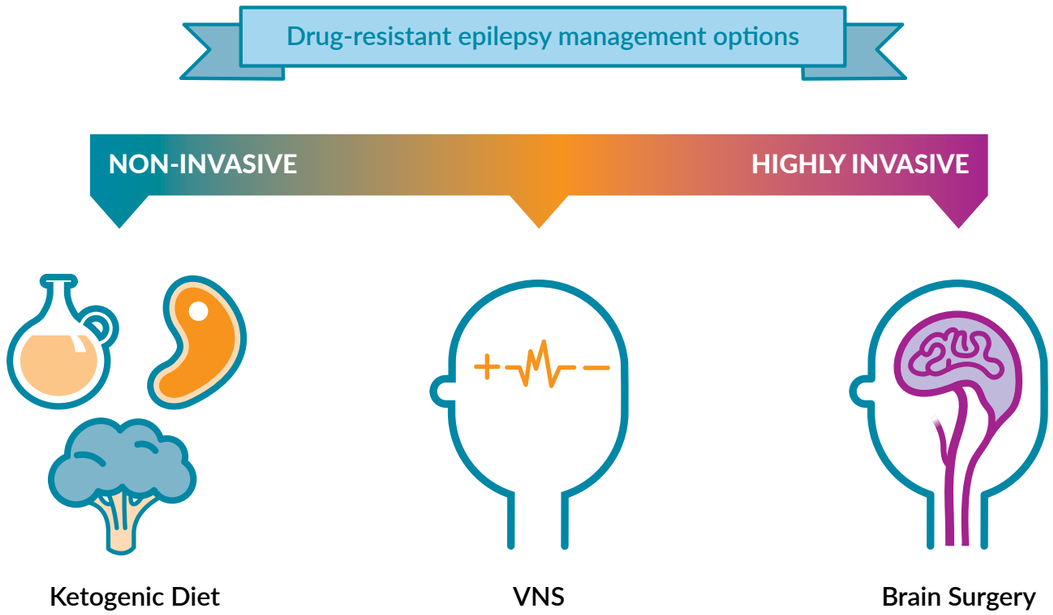
1. Joint Epilepsy Council (2011) *Epilepsy Prevalence, Incidence and Other Statistics*, Available at: http://www.jointepilepsycouncil.org.uk/ (Accessed: 16th April 2018).
2. Kwan, P., Arzimanoglou, A. and Berg, A (2010) 'Definition of Drug-resistant Epilepsy: Consensus Proposal by the Ad Hoc Task Force of the ILAE Commission on Therapeutic Strategies', *Epilepsia*, 51(6), pp. 1069–1077
3. Epilepsy Society (2018) *Risks with Epilepsy*, Available at: https://www.epilepsysociety.org.uk/risks-epilepsy#.W6DyWehKjIU (Accessed: 18th September 2018).
4. Epilepsy Foundation (2018) *Risks with Epilepsy*, Available at: https://www.epilepsysociety.org.uk/risks-epilepsy#.W6DyWehKjIU (Accessed: 18th September 2018).
5. Kwan, P. and Brodie, M.J (2000) 'Early identification of refractory epilepsy', *New England Journal of Medicine*, 342(5), pp. 314–319.

Matthew (24), Dravet Syndrome

"The ketogenic diet changed Matthew's life. It gave him a quality of life he'd never had before. It got rid of 90% of his seizures and life in between his seizures became more worthwhile and he still had lovely, delicious food; His life was enhanced."

(Emma Williams, Matthew's mum)

Ketogenic Diet Therapy (KDT) can be a Viable Option for Drug-Resistant Epilepsy in Adults and Adolescents



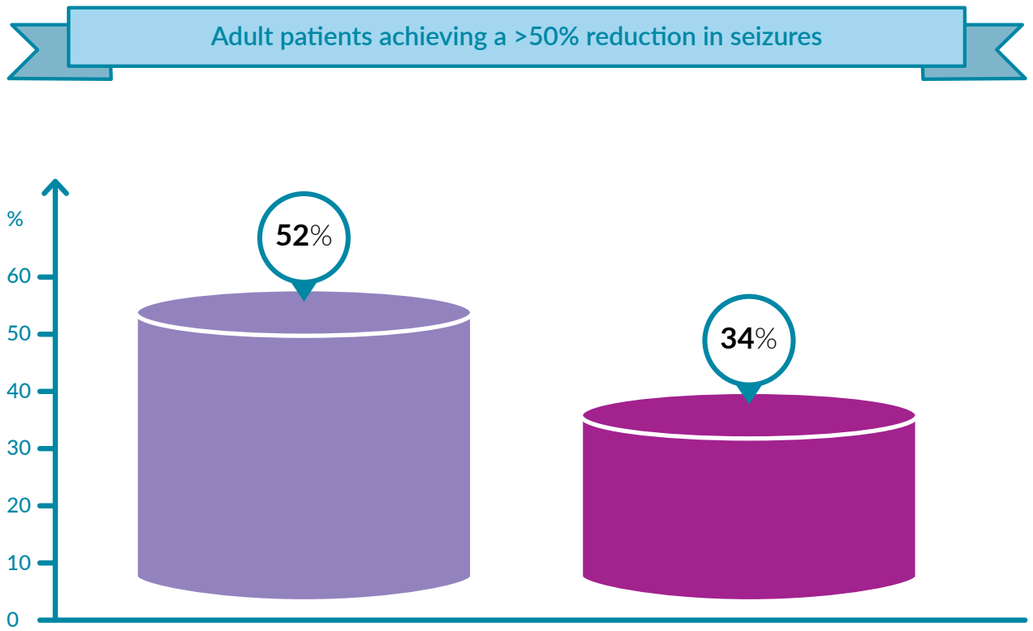
A ketogenic diet is a high fat, low carbohydrate and adequate protein diet that alters the body's metabolism from using glucose to ketones for energy.

First developed in the early 1920s, KDT has demonstrated numerous benefits in adolescents and adults with drug-resistant epilepsy:[1, 2]

- Seizure reduction
- Accelerated recovery from seizures
- Increased alertness and energy
- Improved concentration, well-being and fitness
- Enhanced quality of life

1. Payne, N.E., Cross, H.J. et al. (2011) 'The Ketogenic Diet and Related Diets in Adolescents and Adults – A Review', *Epilepsia*, 52(11), pp. 1941–1948.
2. Sirven, J. and Whedon, B. et al. (1999) 'The Ketogenic Diet for Intractable Epilepsy in Adults: Preliminary Results', *Epilepsia*, 40(12), pp. 1721–1726.

Efficacy for KDT in Adolescents and Adults

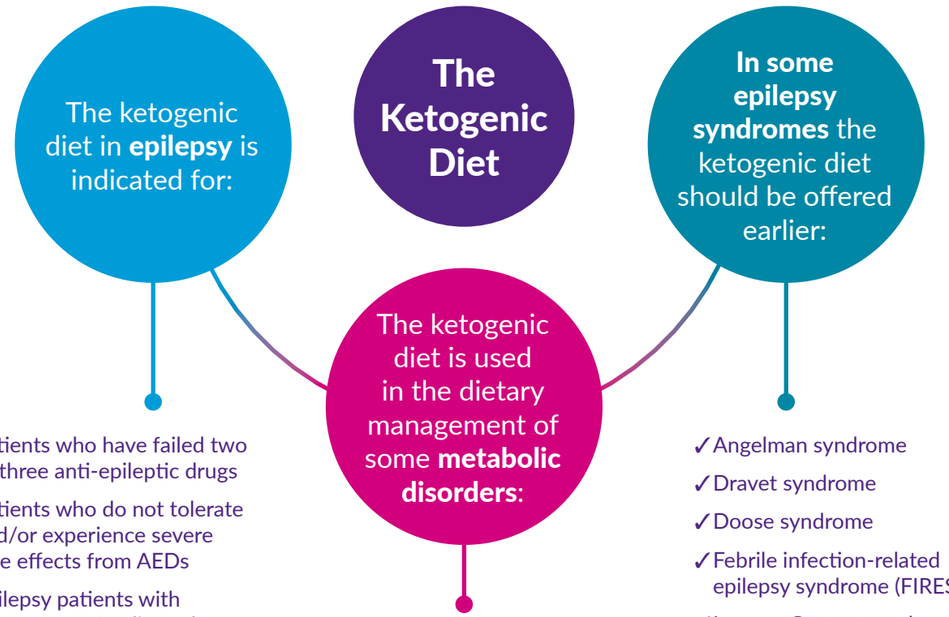


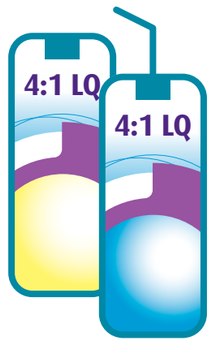
Meta-analysis indicating that KDT is an effective treatment in adults with drug-resistant epilepsy (n=270)

- Success rates up to 70% have been reported in adults using KDT.[1]
- Approximately half of all adolescents and adults that commence KDT can expect at least a 50% reduction in seizures.[2, 3]
- Modified KDT is often tolerated better in adults and adherence can be high where seizure reduction benefits are seen.[4]

1. Fang, Y., Xiao-Jai, L. et al. (2015) 'Efficacy of and Patient Compliance with a Ketogenic Diet in Adults with Intractable Epilepsy: A Meta-Analysis', *Journal of Clinical Neurology*, 11(1), pp. 26–31.
2. Kossoff, E.H. and Dorward, J.L. (2008) 'The Modified Atkins Diet', *Epilepsia*, 49(8), pp. 37–41.
3. McDonald, T.J.W., Henry-Barron, B.J. et al (2018) 'Improving Compliance in Adults with Epilepsy on a Modified Atkins Diet: A Randomized Trial', *Seizure*, 60(10), pp. 132–138.
4. Sirven, J. and Whedon, B et al. (1999) 'The Ketogenic Diet for Intractable Epilepsy in Adults: Preliminary Results', *Epilepsia*, 40(12), pp. 1721–1726

Patients Who May Benefit from a Ketogenic Diet[1]





Supplementing modified KDT with ketogenic formulae significantly increases long term compliance in adults with drug-resistant epilepsy.[2]

1. Kossoff, E. et al., Optimal Clinical Management of Children Receiving Dietary Therapies for Epilepsy: Updated Recommendations of the International Ketogenic Diet Study Group. *Epilepsia* Open: 1–18, 2018
2. McDonald, T.J.W., Henry-Barron, B.J. et al (2018) 'Improving Compliance in Adults with Epilepsy on a Modified Atkins Diet: A Randomized Trial', *Seizure*, 60(10), pp. 132–138.

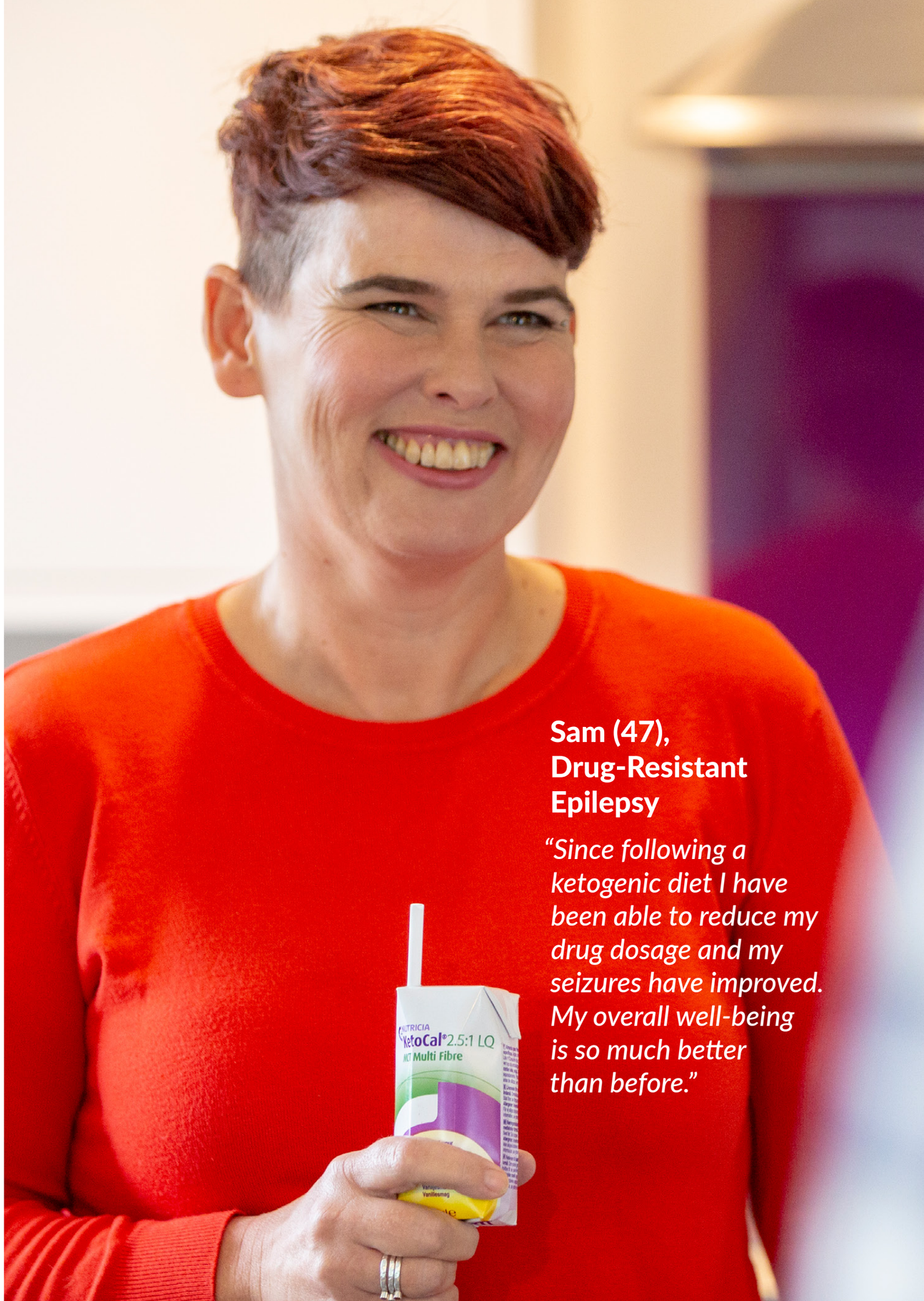
Introducing the First Ketogenic Diet Formula Specifically Designed for Adolescents and Adults

KetoCal 2.5:1 LQ provides a convenient way of administering KDT: as a drink, in meals or as a tube feed

KetoCal 2.5:1 LQ

A 2.5:1 ratio ready to drink liquid suitable as the sole source of nutrition or for supplementary feeding

- Available in 200ml cartons
- Great vanilla flavour
- Convenient and easy to use ready to drink liquid
- Can be used in all forms of KDT: Classical, MCT or MKD
- Contains unique MF6™ multi-fibre blend
- Balanced fatty acid profile
- Suitable for complete nutritional support from 8 years+

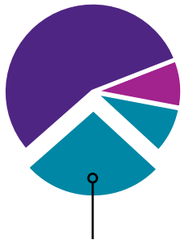


KetoCal 2.5:1 LQ Specifically Designed to Meet the Protein Requirements of Adolescents and Adults

Ketogenic regimen	Example 19 year old male (70kg): 2100 Kcal and 53g protein			
◯ = 1g Fat ◐ = 1g CHO + Protein	**Fat**	**Protein**	**CHO**	**Feasibility**
4:1 ◯◯◯◯◐	210g	53g	0g	Addition of carbohydrates not possible in order to meet protein needs making the diet impractical
3:1 ◯◯◯◐	203g	53g	15g	Possible to achieve stable ketosis but long term compliance less practical with low carbohydrate
2.5:1 ◯◯◔◐	198g	53g	27g	Sufficient protein, enough carbohydrate makes achieving stable ketosis more practical

A ketogenic ratio of 2.5:1 meets protein requirements and provides practical amounts of carbohydrate for adults following KDT

KetoCal 2.5:1 LQ has an Optimised Lipid Profile



MCT:
Medium Chain Fat

Approximately 20% energy is derived from MCT which yield more ketones per gram than LCT[1] allowing for higher protein content.

Higher amounts of PUFA to limit saturated fat content.

Balanced fatty acid profile may help keep lipid profile within a normal range.[2–4]

Contains DHA known to have beneficial effects on seizures in drug-resistant epilepsy.[5]

DHA serum levels are also known to be low in children with drug-resistant epilepsy.[5]

- **MUFA:** monounsaturated fatty acids
- **PUFA:** polyunsaturated fatty acids
- **SFA:** Saturated fatty acids

1. Krotkiewski, M. (2001) 'Value of VLCD Supplementation with Medium Chain Triglycerides', *International Journal of Obesity Related Metabolic Disorders*, 25(9), pp. 1393–1400.
2. Fuehrlein, B.S., Rutenberg, M.S. et al. (2004) 'Differential Metabolic Effects of Saturated Versus Polyunsaturated Fats in Ketogenic Diets', *Journal of Clinical Endocrinology Metabolism*, 89(4), pp. 1641–1645.
3. Dahlin M. Plasma phospholipid fatty acids are influenced by a ketogenic diet enriched with n-3 fatty acids in children with epilepsy. *Epilepsy Res*. 2007;73:199–207.
4. Kwiterovich P.O., Vining EPG, Pyzik P. et al. Effect of a High-Fat Ketogenic Diet on Plasma Levels of Lipids, Lipoproteins, and Apolipoproteins in Children. *Journal of American*.
5. Tejada, S., Martorell, M. et al (2016) 'Omega-3 Fatty Acids in the Management of Epilepsy', *Current Topics in Medical Chemistry*, 16(17), pp. 1897–1905.

KetoCal 2.5:1 LQ Supporting Gut Health

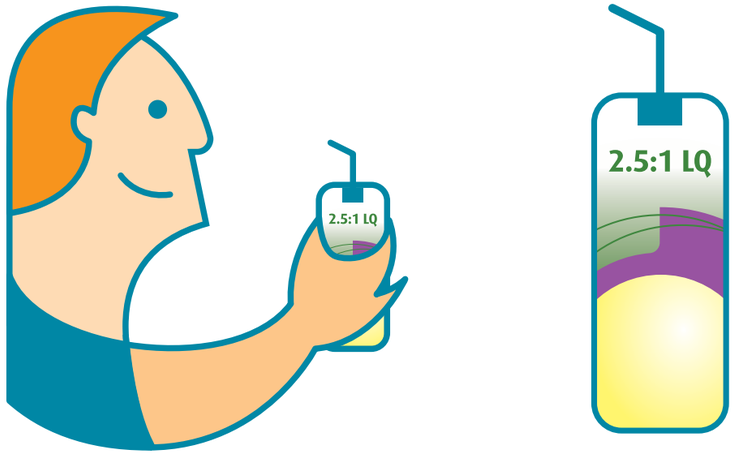
GI problems are common in the ketogenic diet because the diet lacks fibre and bulk. GI problems are seen in ¾ of all ketogenic diet patients.[1]

KetoCal 2.5:1 LQ contains a patented, multi-fibre blend (MF6) to help meet daily fibre needs and support gut health.[2–8]

A multi-fibre blend is better tolerated compared to a single fibre supplement.[9]

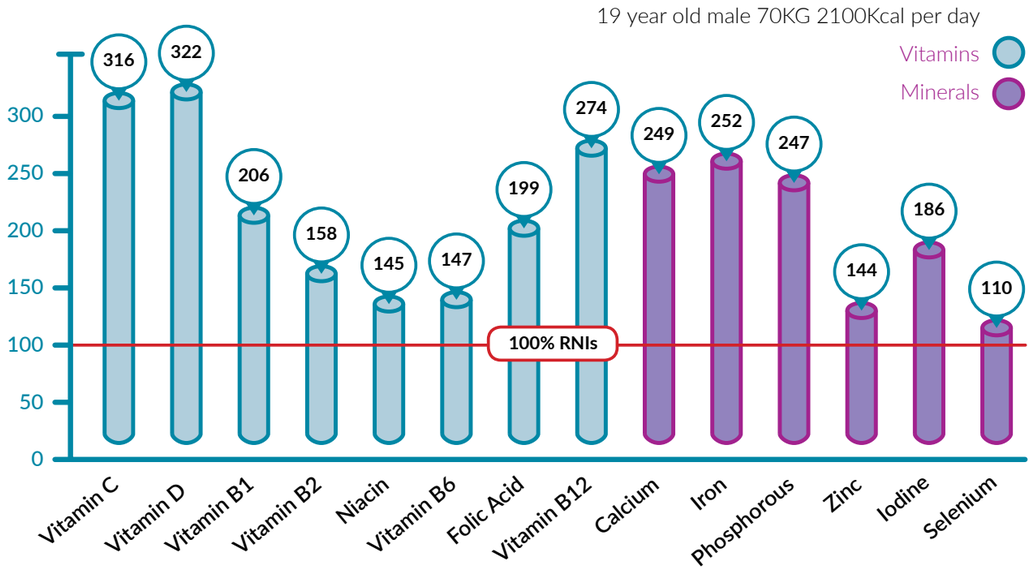
mf6™

Dietary fibre	Soluble	Insoluble
Cellulose		●
Inulin	●	
Oligofructose	●	
Acacia gum	●	
Resistant starch		●
Soy Polysaccharides		●



1. Bergqvist AG. Long-term monitoring of the ketogenic diet: Do's and Don'ts. Epilepsy Res. 2012;100(3):261–6.
2. Green, C.J. (2001) 'Fibre in Enteral Nutrition', *Clinical Nutrition*, 20(1), pp. 23–39.
3. Trier, E. et al. (1999) 'Effects of a Multifibre Supplemented Paediatric Enteral Feed on Gastrointestinal Function', *Journal of Paediatric Gastroenterology and Nutrition*, 28(5), pp. 595.
4. Evans, S. et al. (2009) *Journal of Human Nutrition and Dietetics*, 22, pp. 414–421.
5. Hofman, Z. et al. (2001) *Clinical Nutrition*, 20 (S3) pp. 63.
6. Daly, A. et al. (2004) *Journal of Human Nutrition and Dietetics*, 17, pp. 365–70.
7. Guimber, D. et al. (2007) *Journal of Paediatric Gastroenterology Nutrition*, 44 pp. 201.
8. Grogan, J. et al. (2006) *Journal of Human Nutrition and Dietetics*, 19 pp. 458–477.
9. Elia M., Engfer M.B. et al. (2008) 'Systematic Review and Meta-Analysis: the Clinical and Physiological Effects of Fibre-Containing Enteral Formulae' *Alimentary Pharmacology Therapeutics*, 27(2), pp. 120–145.

KetoCal 2.5:1 LQ Meets 100% of the RNIs for Adolescents and Adults



% RNI provided by KetoCal 2.5:1 LQ

A KetoCal 2.5:1 LQ Acceptability Study Found the Following:[1]

63% of orally fed patients enjoyed the taste of KetoCal 2.5:1 LQ.

96% compliance was seen among participants taking the prescribed amount of KetoCal 2.5:1 LQ.

74% of patients/parents/carers agreed that KetoCal 2.5:1 LQ was well tolerated.

90% of dietitians reported that KetoCal 2.5:1 LQ was well tolerated.

57% reported that KetoCal 2.5:1 LQ made it easier to follow ketogenic diet therapy.

KetoCal 2.5:1 LQ helps maintain stable seizure frequency and ketone levels.

1. Data on file

How KetoCal 2.5:1 LQ Differs to Meet the Increased Nutritional Requirements of Patients Aged 8+ years

Average contents	Per 200ml carton	Per 200ml carton
Energy	300Kcal	306Kcal
Energy density	1.5Kcal/ml	1.5Kcal/ml
Ketogenic ratio	4:1	2.5:1
Protein	6.2g	9g
Carbohydrate	1.2g	2.2g
Sugar	0.78g	1.6g
Fat	29.6g	28.6g
Saturates	4.4g	9.6g
Monounsaturates	16.6g	16g
Polyunsaturates	7.4g	3g
Docosahexaenoic acid (DHA)	110mg	116mg
LCT	100%	74.4%
MCT	0%	25.6% (7.2g)
Dietary Fibre	2.2g	2.2g
L-Carnitine	16.6mg	16.6 mg

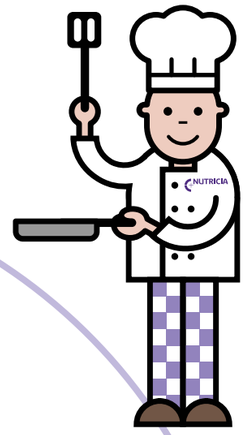
Supporting Patients on a Ketogenic Diet

Recipe Books

A range of recipe books to support various forms of the ketogenic diet.

MyKetoPlanner

An online resource to support the ketogenic community (*www.MyKetoPlanner.co.uk*). Create ketogenic recipes and share with other users. Search hundreds of ketogenic recipes and adapt to individual needs.



Specialist Chefs

Nutricia Metabolics have specialist chefs to help create a range of great ketogenic recipes. Additionally, ongoing cookery education sessions are provided for patients to gain confidence with ketogenic cooking skills.

Nutricia Homeward

A free home delivery service available across the UK. There are no tie-ins and no minimum contract. The service is supported by a team of customer care coordinators who look after all KetoCal product prescription and delivery needs.

Sample Packs

Nutricia provides cookery support items for every new patient started on a ketogenic diet.

The products shown are Foods for Special Medical Purposes and must be used under medical supervision.

Sam, 47

Mother of one, yoga and baking enthusiast. Has been following a modified ketogenic diet for two years and regrets not starting sooner.

"I now have significantly fewer seizures than before and the ones I do have are nowhere near as severe."

Emma, 27

Enjoys singing, musicals and going to the theatre.

"Go for it without expecting to be 100% seizure free. It will have a positive impact, changing seizures and energy levels and clarity of mind. All these factors that don't always get recognised. There is so much more the Keto Diet can offer."

Matthew, 24

Loves swimming. Started the ketogenic diet aged 7. The inspiration behind Matthew's Friends: *www.matthewsfriends.org*

"Everything he does in his life now he enjoys and he's aware of and can appreciate. All I ever wanted was for him to be happy and he is. The lasting effect of the KD. I don't want to think where he'd be without the diet. He would probably not even be here."

(Emma Williams, Matthew's mum)

www.MyKetoPlanner.co.uk

NOTES

FREE HOME DELIVERY SERVICE

COOKERY EDUCATION

CONTINUED INVESTMENT IN RESEARCH

www.MyKetoPlanner.co.uk
AN ONLINE TOOL TO SUPPORT THE KETOGENIC COMMUNITY

HELPING MAKE THE KETOGENIC DIET EASIER

RECIPE BOOKS AND SAMPLE PACKS

KETOCAL RANGE
PROVEN TO HELP AID ADHERENCE TO A KETOGENIC DIET

NUTRICIA Ketogenics

www.nutricia.co.uk

All the products shown are Foods for Special Medical Purposes and must be used under medical supervision.
This information is intended for Healthcare Professionals only.

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