



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

## SUPPORTING PATIENTS ON A KETOGENIC DIET

# THE FACTS



## DRUG-RESISTANT EPILEPSY



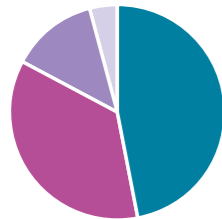
**600,000** people in the UK diagnosed with epilepsy and receive anti-epileptic drug (AED) treatment; that's 1 in every 103 people<sup>1</sup>



**Drug-resistant epilepsy** is the failure of 2 or more appropriately chosen AEDs to achieve seizure freedom<sup>2</sup>



**36%** of epilepsy patients have inadequate control of seizures with AEDs<sup>2</sup>



**Chances of AED success diminishes after every failure<sup>5</sup>**

- 47% seizure free 1<sup>st</sup> AED
- 13% seizure free 2<sup>nd</sup> AED
- 4% seizure free 3<sup>rd</sup> or multiple AEDs
- 36% Not seizure free

N=470 previously untreated epilepsy patients treated with AEDs



**Uncontrolled epilepsy** can increase the risk of injury, hospital visits, depression, anxiety and SUDEP<sup>3</sup>



**AEDs** are commonly associated with side-effects such as drowsiness, blurred vision, dizziness, nausea and vomiting<sup>4</sup>

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**Drug-resistant epilepsy may require an alternative management option**

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## KETOGENIC DIETARY THERAPY (KDT) CAN BE A VIABLE ALTERNATIVE FOR DRUG-RESISTANT EPILEPSY

- The 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 been shown to be successful in managing drug-resistant epilepsy with the following benefits:
  - Seizure control<sup>6,7</sup>
  - Reduction in the use of medications<sup>8</sup>
  - Improved alertness, responsiveness, cognition and social adaptation<sup>8,9</sup>
  - Fewer side effects than AEDs<sup>10</sup>

## THERE ARE DIFFERENT TYPES OF KDT TO MEET THE NEEDS OF DIFFERENT PATIENTS:

### CLASSICAL

Currently the most commonly used of the ketogenic diets with the largest amount of information and research. The diet is determined by a ratio of grams of fat to carbohydrate and protein. Typically ratios of 4:1 or 3:1 are used where the fat content consists of long chain triglycerides (LCT).

### MCT

In the medium chain tryglyceride (MCT) diet, 30-60% of the energy is derived from MCT fat in the form of oil such as Liquigen or MCT oil. The remainder of dietary energy is derived from LCT fat, protein and carbohydrate.

### MKD

The modified ketogenic diet was developed by the John Hopkins Center in the USA. The diet is managed without protein or calorie restriction alongside high fat and low carbohydrate food choices.

**Nutricia produces a range of recipe books to support each variation of KDT.**



# THE EVIDENCE



## AEDS

Up to 30% of children with epilepsy are believed to continue to have seizures despite the appropriate use of multiple anticonvulsants<sup>11</sup>. Polypharmacy and dose escalation threaten childhood development: sedation, confusion and cognitive development<sup>6</sup>



## PAEDIATRIC EPILEPSY

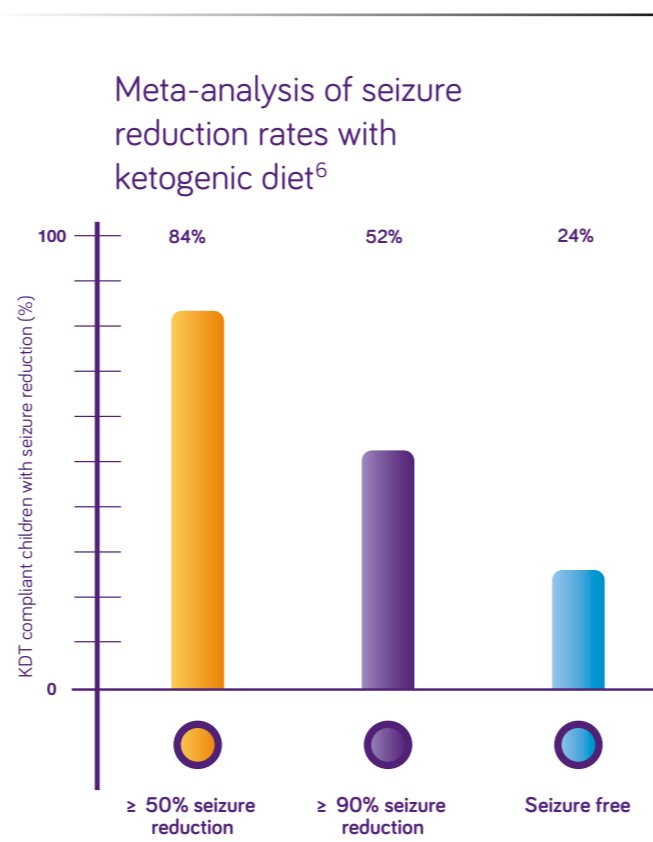
KDT offers proven effective seizure control without the burden of AED related cognitive side effects<sup>7,12</sup>

A meta-analysis has shown that the majority of children compliant to KDT achieved seizure control<sup>6</sup>

- 84% of children compliant to KDT responded with at least 50% seizure reduction
- 1 in 4 children compliant to KDT achieved complete seizure freedom

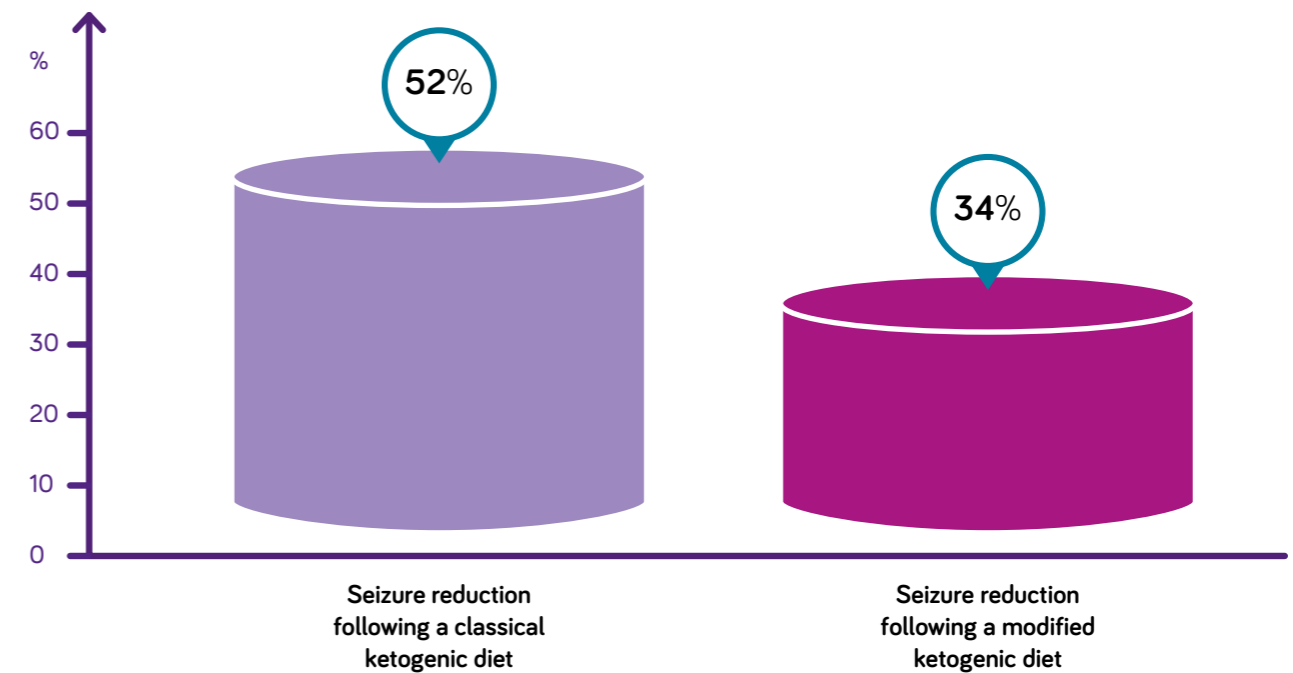
### NICE Guidance 2012:

Refer children with epilepsy whose seizures have not improved on appropriate AEDs to a tertiary paediatric specialist for consultation on the use of KDT<sup>13</sup>



## EFFICACY FOR KDT IN ADOLESCENTS AND ADULTS

Adult patients achieving a >50% reduction in seizures



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.<sup>14</sup>
- Approximately half of all adolescents and adults that commence KDT can expect at least a 50% reduction in seizures.<sup>15,16</sup>
- Modified KDT is often tolerated better in adults and adherence can be high where seizure reduction benefits are seen.<sup>17</sup>

# OUR PORTFOLIO



## INTRODUCING THE KETOCAL PORTFOLIO

A range of products to support all forms of the ketogenic diet helping improve seizure control and dietary compliance<sup>18,19,20</sup>

### KETOCAL 4:1 POWDER

A nutritionally complete powder, available in the classic 4:1 ketogenic ratio

- 300g tins
- Vanilla and unflavoured presentations



### KETOCAL 4:1 LQ

A nutritionally complete ready-to-drink liquid, available in the classic 4:1 ketogenic ratio

- 200ml cartons
- Vanilla and unflavoured presentations



### KETOCAL 3:1 POWDER

A nutritionally complete unflavoured powder, available in the classic 3:1 ketogenic ratio

- 300g tins
- Can be used from birth



### KETOCAL 2.5:1

A nutritionally complete ready-to-drink liquid, available in a 2.5:1 ketogenic ratio

- 200ml cartons
- Suitable for adults

## ALSO IN OUR KETOGENIC PORTFOLIO

### LIQUIGEN

A 50% MCT fat emulsion

- 250ml resealable bottles
- Suitable for all ages
- Can be easily flavoured

### MCT OIL

A 100% MCT fat emulsion

- 500ml resealable plastic bottle
- Suitable for cooking (see the Nutricia range of recipe books for meal ideas)

### CALOGEN

A high energy LCT fat emulsion

- Available in 200ml and 500ml presentations
- Neutral, banana and strawberry flavours
- Use as a milk substitute or cooking ingredient

### PROTIFAR

A high protein powder

- 225g tins
- Neutral flavour

### PHLEXY VITS

An unflavoured powder

- 7g sachets
- Provides vitamins, minerals and trace elements
- Suitable from 11 years +

### MAXIJUL SUPER SOLUBLE

A carbohydrate energy source

- 2.5kg tub, 200g tins or 132g sachets
- Neutral flavour



## FEATURES AND BENEFITS

	Suitable as the sole source of nutrition	Can be used in all forms of ketogenic diet (Classical, MCT and MKD)	Can be easily adapted to different ketogenic ratios	Quicker and easier preparation of ketogenic meals: as a drink, in meals or as a tube feed	Advanced fat profile - reduced saturated fat and inclusion of EFAs and DHA	Contains 6 different fibres to help maintain bowel function as fibre intake is reduced on a KDT <sup>28-33</sup>	Great as a bed time drink	Easily incorporated into a range of recipes to help aid compliance	Ideal for using as a supplement to boost ketosis	Can use from birth	>50% fat emulsion so low volumes needed to achieve requirements
KETOCAL 4:1	✓	✓	✓	✓	✓	✓		✓			
Ketocal 4:1 LQ	✓	✓	✓	✓	✓	✓	✓		✓		
KETOCAL 3:1	✓	✓	✓	✓	✓			✓		✓	
KETOCAL 2.5:1	✓	✓	✓	✓	✓	✓	✓	✓	✓		
MCT OIL		✓						✓	✓	✓	✓
LIQUIGEN		✓					✓		✓	✓	✓

# SUPPORTING PATIENTS FOR OVER 15 YEARS



## KETOCAL CAN HELP IMPROVE ADHERENCE

- Quicker and easier preparation of KDT: as a drink, in meals or as a tube feed<sup>12</sup>
- Great tasting products in a variety of presentations and easily incorporated into a range of recipes to help aid compliance<sup>19</sup>
- See the Nutricia range of recipe books for some fantastic meal ideas!

## RECIPE BOOKS

A range of five ketogenic recipe books:

- MCT diet
- Modified ketogenic diet
- Classical 4:1 diet
- Classical 3:1 diet
- Weaning on the ketogenic diet
- Around the World recipe book



## EDUCATION

Nutricia invest in both patient and HCP education programs. This includes the prestigious annual KetoConference.

## SPECIALIST CHEFS

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

**NUTRICIA**  
KetoConference



**Toad in the Hole**  
(taken from the MCT recipe book)



**Cheese and Herb Muffins**  
(taken from the Classical 3:1 recipe book)



**Raspberry Crumble**  
(taken from the Classical 3:1 recipe book)

# 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](http://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 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.





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