WINTERILLNESSON KETOGENIC DIETARY TREATMENT (KDT)



WRITTEN BY VAL ALDRIDGE MF FAMILY SUPPORT

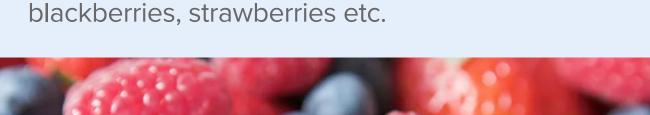
Despite promising research emerging about the protective properties of KDT (view here). Sadly, it does not stop everyone from developing the usual, coughs, colds & tummy upsets common at this time of year!

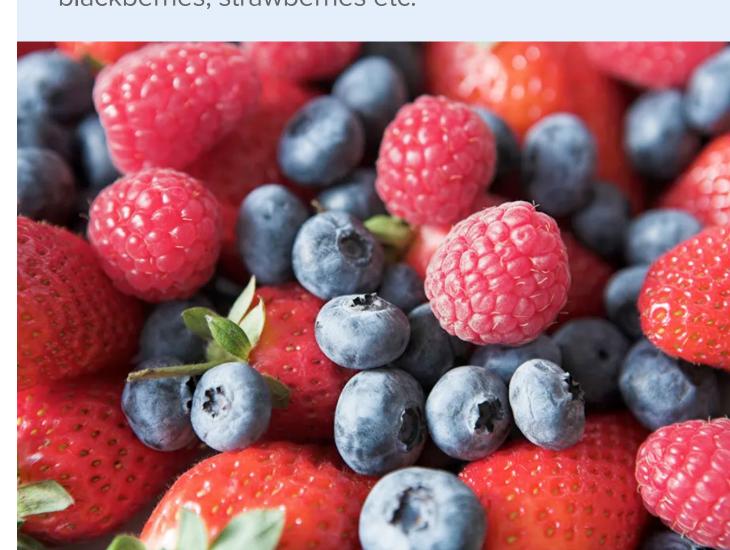
GUT FRIENDLY FIBRES

Our gut bacteria play a crucial part in our immune systems, and they thrive on the fibre in our foods. So, a good variety of fibre sources can help to keep them more healthy, happy and balanced.

Here are a few keto-friendly fibre sources for you to consider:

- Nuts (eg. almonds, walnuts, macadamia) & seeds (eg flax seeds, sesame seeds)
- Psyllium husk (a handy ingredient for keto breads) & Konjac root (eg noodles)
- Vegetables such as kale, spinach, broccoli, cauliflower, leeks, salad leaves, tomatoes, celery, peppers etc.
- Fruits such as avocado, rhubarb, raspberries,





FLUIDS

Keeping hydrated in Winter is often forgotten when we don't feel so thirsty in the colder weather. It is important to keep hydrated. Constipation & kidney stones, both possible risk factors on KDT are less likely to occur with a decent fluid intake!

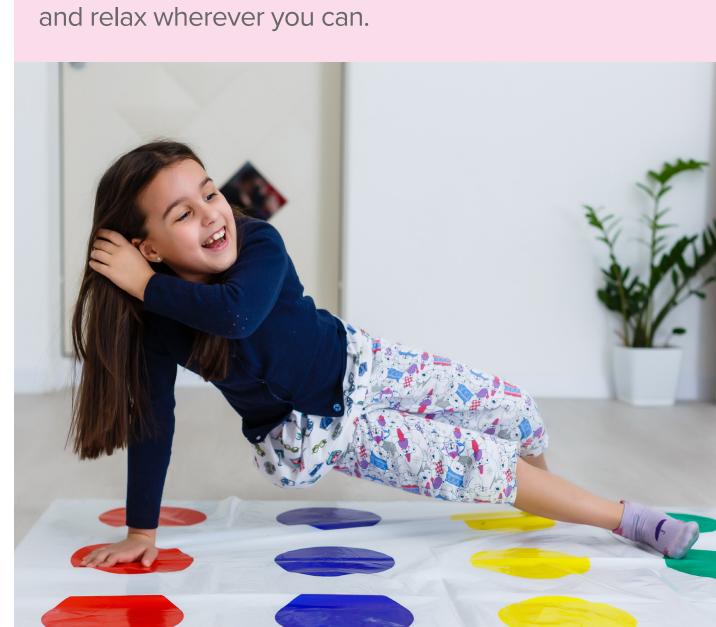
Try adding lemon slices to water or flavour with sugar free squash. Warm drinks, tea with low CHO milk, coffee



ACTIVITY

Changes in activity can affect ketone levels. So, despite the cold try to maintain levels of activity. It may have to be restricted to indoors, but any movement will help from yoga & dancing to morphing the dinner table into a table tennis court or having a go at twister. (Preferably before all those greens!).

Christmas is an exciting time but can mean an increase in seizure triggers for some! Less sleep increases in stress and anxiety. Don't forget to take time out to chill



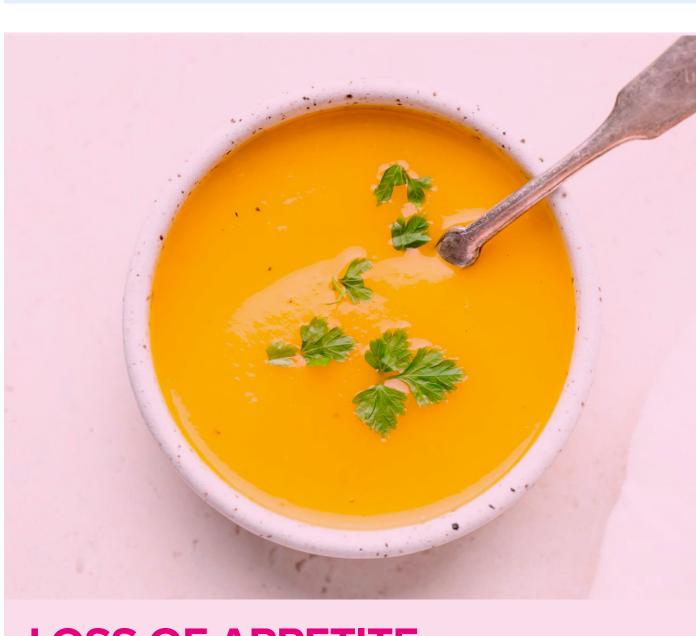
MEDICATIONS

All medications need to be as far as possible CHO free. Often sugar free medication contains sugar alcohols like sorbitol or maltitol, small amounts that most tolerate. If CHO free options are not available, the CHO content will need to be included in your dietary prescription which will then need adjusting by your dietitian to allow for the extra.

Carbohydrate Content of Medications - Matthews Friends (view here) or check with your pharmacist.

Check the MF medications list for CHO contents

	ONLY USE	CONTENT D MEDICI		Kottopinic Didary Therapins planeauser (section) = America's America supplied Observ Str. 158814		Matthew's Friend Keto Colle	
Drug	& ANTIFUNGAL Brand name	& ANTIVIRAL Manufacturer	Form	Strength	Excipients	Carbohydrate conten	
Amoxicillin	N/A	Kent pharmaceuticals	Oral suspension sugar free	125mg/5ml	Sorbitol 800mg/5ml	800mg/5ml	
				250mg/5ml	Sorbitol 800mg/5ml	800mg/5ml *contains trace carbohydrate	
Amoxicillin	N/A	Brown & Burk UK Ltd	Sugar free suspension	125mg/5ml	Sorbitol 295mg/5ml	295mg/5ml	
				250mg/5ml	Sorbitol 590mg/5ml	590mg/5ml	
Azithromycin	N/A	Brown & Burk UK Ltd	Powder for oral suspension	200mg/5ml	3.7g sucrose/5ml	3.7g/5ml	
Azithromycin	N/A	Accord-UK Ltd	Film-coated Tablets	250mg	60mg lactose Microcrystalline cellulose	60mg / tablet	
Clarithromycin	Klaricid	Mylan	Paediatric Suspension	125mg/5ml	Sucrose 550mg/ml Maltodextrin Hypromellose phthalate	Undisclosed	
				250mg/5ml	Sucrose 455mg/ml Maltodextrin Hypromellose phthalate	Undisclosed	
Clarithromycin	N/A	Accord Healthcare Ltd	Tablet	250mg	Mycrocrystalline cellulose	N/A	
Co-amoxiclav	Augmentin Duo	GSK UK	Powder for oral suspension	400/57mg In 5mL	43.32mg/5ml Carmellose sodium 26.0mg/5ml Maltodextrin base	Est carb. content up to 64.92mg/5ml (est. 82.5 % of flavours are carbohydrate)	
Co-amoxiclav	Augmentin	GSK UK	Suspension	125/31mg in 5ml 250/62mg in 5ml	Maltodextrin/gum arabic base 72.5mg Methocel (plant derived starch) 150mg	222.5mg/5ml 312mg/5ml	
Flucloxacillin	N/A	Accord-UK Ltd	Sugar-free powder for oral solution	125mg/5ml	Sorbitol 698mg/5ml	698mg/5ml	
Flucloxacillin	N/A	Accord-UK Ltd	Sugar-Free powder for oral solution	250mg/5ml	Sorbitol 1000mg/5ml	1000mg/5ml	
Fluclonazole	Diflucan	Pfizer Ltd	Powder for oral	10mg/ml	Sucrose 580mg/ml Sucrose 550mg/ml	580mg/ml	



LOSS OF APPETITE All-in-one meals shakes, soups, muffins. Batching up

things like soup & muffins when you are feeling well or have more time will hopefully make life easier!

Easy to eat egg custards made with fruit & cream (also all in one). Puddings may go down better whilst unwell too like Greek yogurt with fruit & cream. You could freeze this to make ice cream. Making meals as small as possible by using higher CHO

veg like potato ie with scrambled eggs made with butter & cream. The new low CHO breads toasted with plenty of butter/peanut butter, marmite may be an easy option too.

of fat, and got him eating again.

My go to with Greg was sausages because he loved

them, it made for a small meal, contained a good amount

SUPPLEMENTS

Make sure you are keeping up with your vitamin & mineral supplements.

They can start to feel like a chore, particularly if it's a battle to take them or they are not tolerated!

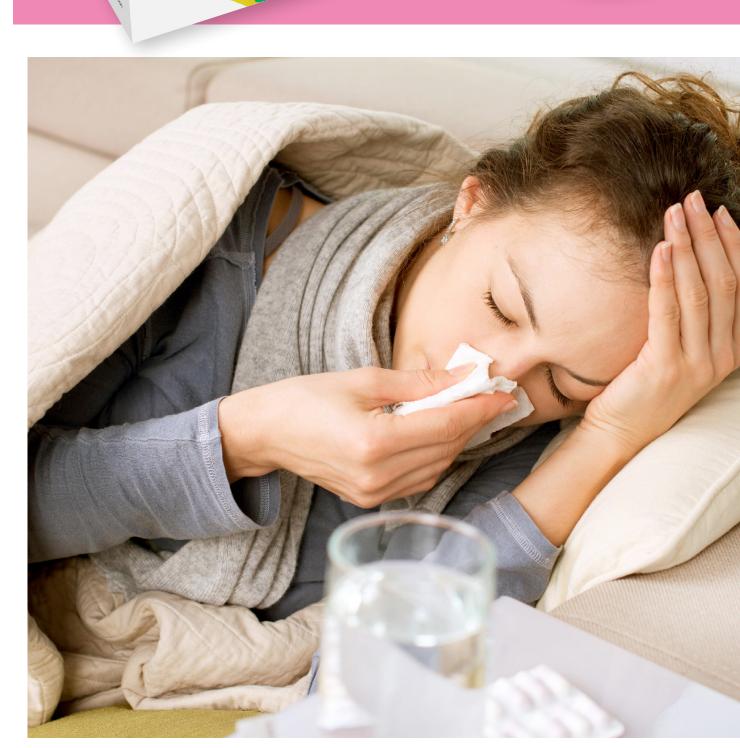
Supplements specific to KDT are available on prescription.

If you find that supplements are causing gastric upset like nausea, maybe look at when you are taking them. Supplements should always be given after food.

The time of day may be important for you too. Some cannot tolerate supplements early in the day but manage later, after dinner. Some people split dosages giving half after breakfast and half after dinner.

If the prescribed supplements are not tolerated at all, let your team know. You may need to buy alternative products over the counter from a pharmacy or the internet. Speak to your dietitian who will be able to advise you on the best combination of products for your individual needs.





GENERAL GUIDANCE DURING ILLNESS

Illness can for some go hand in hand with an increase in seizure activity especially when temperatures are high or there is difficulty maintaining KDT and medication regimes.

Limited food intake or fluids only for a couple of days, in terms of KDT (as essentially, KDT is mimicking starvation) is not so bad.

In general ketone levels tend to drop during illness and glucose levels may be slightly higher than usual.

However sometimes higher ketones may be experienced, and glucose may drop if you are not managing to eat full prescription. Even those who have been following KDT for a time and are well adapted should be alert for signs of excess ketones and hypoglycaemia (low glucose).

If ketones are higher than 5 -6 mmols/l, you may experience symptoms associated with excessive ketones such as lethargy, fatigue, irritability, facial flushing, vomiting and panting.

Adults do not tend to produce high levels of ketones as easily as children.

A normal blood glucose stays within the 3.5-6.5mmol/l. On KDT glucose generally becomes very stable often at the lower end of the normal range.

If the blood glucose drops to 3mmol/l or lower, you may observe symptoms associated with low glucose/ hypoglycaemia such as lethargy, fatigue, irritability, dizziness, sweating, pallor, confusion, cold and clammy skin. You will be given a plan by your team to treat high ketones or low glucose with carbohydrate (CHO), usually with 5g CHO choices like 100ml semi skimmed milk or 50ml orange/applejuice or maxijul/polycal 5g mixed in 50mls water.

The effect is usually quite quick in settling symptoms, though if not settling within half hour the process may be repeated.

COUGHS, COLDS & FLU With any illness for some people with

epilepsy the risk of seizures increases, especially when temperatures are high! A high temperature could cause vomiting, in which case try to give paracetamol ASAP.

It is important to give age-appropriate paracetamol regularly & if required nurofen in between to keep temperatures down.

As with all the medications, tablet form is the most keto friendly. Paracetamol is available in dispersible/ effervescent (over 10 -12 years) and suppository forms but they tend to be very expensive. Sugar free syrups like calpol or nurofen liquid for children are suitable for most children though they do contain maltitol. (A sugar alcohol).

Cough mixtures tend to be full of sugar so are not an option! Try sugar free ice pops, Keto icecream, sugar free jelly. Easy to eat, soothing for sore throats and keto friendly!

DIARRHOEA & VOMITING Miserable, bad enough when you are worrying about

medications not being absorbed, add the fact that on KDT, food has become your medicine & you will have the emergency meds out waiting for the inevitable seizures. Most bugs do settle within a couple of days. Initially it is best to avoid food and stop feeds.

To avoid dehydration, try to keep up sips of water or swap feed for water.

Once vomiting stops and water is tolerated, a gradual build up to eating can start. Not always easy on KDT as at this point you generally don't fancy eating high fat foods & appetites may need a boost! So, you could try 'all in one' options like keto shakes

or soup. You may need to start with quarter or half the normal meal portion, adding more water if this improves acceptance. This means that the balance of protein CHO and fat remains the same as the prescription but you just get less of it.

Similarly with feeds start with water & gradually build up, for example. 1/4 strength or 1/2 strength feed mixed with water, until full strength is tolerated again.

give dioralyte or similar rehydration powder to balance electrolytes. Always keep in touch with your team.

If symptoms continue beyond 24 hours it is advisable to

If diarrhoea persists you may find that including a probiotic such as saccharomyces boulardii (available in pharmacies) may be helpful to rebalance your gut.

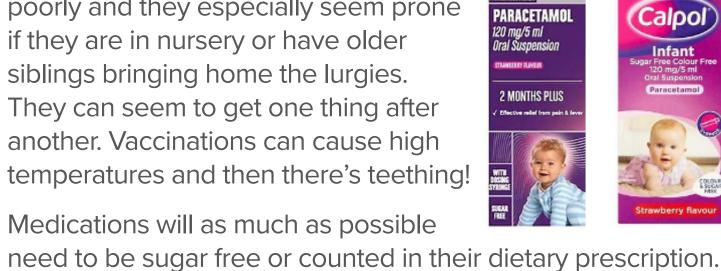
However please be guided by your team and if symptoms persist, please seek a medical opinion.



Wishing you all a healthy and happy winter season!

ILLNESS IN INFANTS ON KDT It's always scary when little ones are

poorly and they especially seem prone if they are in nursery or have older siblings bringing home the lurgies. They can seem to get one thing after another. Vaccinations can cause high temperatures and then there's teething! Medications will as much as possible



Calpol is available in a 2months plus version. Before 2 months you will need medical guidance.

Vomiting and diarrhoea is common in infants. Please see the article in the link below.

VIEW DIARRHOEA AND VOMITING IN BABIES (3) Guidance generally in older children is to give clear fluid

only initially and gradually build up to full diet. Dioralyte is recommended after 24 hours if symptoms are not settling. Infants on KDT are advised to continue with milk feeds as tolerated and even as appropriate, to be offered meals. It's likely that they won't have much of an appetite, so don't

worry if full meals are not eaten initially. Dioralyte is not recommended under 3 months and under 1 year should only be used with dietetic/medical guidance. If a toddler only wants to eat dry snacks at least we now have keto bread available to make or to buy for soldiers with butter

and Marmite/Bovril or peanut butter, pieces of chicken or cheese! Be guided by your little one and of course your team. Reflux can be another cause of vomiting and can be a side effect of KDT. Some of the general information online like positioning of baby whilst feeding and after feeds, signs of

allergies can be helpful, again alongside your team. **VIEW COMMON CONCERNS/WHAT BABY REFLUX**

SYMPTOMS AND SUPPORT (3) During illness glucose and ketones levels will likely be affected. You may need to check levels more frequently and will need to watch out for symptoms of low glucose and or

high ketones.

MONITORING INFANTS ON KDT Monitoring of ketones and glucose in young babies will likely

be more frequent because of the higher risk of low glucose and high ketones. Blood ketone/glucose testing via finger, toe or heel prick is the preferred way to test because it is a more accurate measure. Urine testing can be an alternative, but is less accurate and can be difficult, though not impossible, getting samples from nappies, see how to in the infant guidance, page 31. **Symptoms of High/excess Symptoms of Low blood**

Ketones - Hyperketosis	sugar – Hypoglycaemia				
Rapid breathing and increased heart rate	Jittery				
Facial flushing	Poor body tone				
Irritability	Lethargy				
Vomiting	Pallor				
Lethargy	Poor feeding				
Poor feeding	Low temperature				
	Cold/clammy				
	Looking blue (cyanosis)				
From the infant guidelines					

VIEW KETOGENIC GUIDELINES FOR INFANTS (3)

General guidance suggests aiming for ketone levels of 2 – 5mmols. However, evidence suggests caution with neonates. The most beneficial ketone levels as the infant grows will be very individual and some may find benefits come with slightly higher ketones. The lowest level of ketosis that controls

High ketones that cause symptoms need to be treated. The infant will feel grim! If the symptoms are happening frequently,

fine tuning of the dietary prescription will be needed. Glucose levels should be treated under 2.5mmols or if symptomatic.

seizures the better.

Treatment for excess ketones and hypoglycaemia are the same. Give some carbohydrate. Your team will give you a protocol to follow depending on your child's age. Likely CHO = 2 - 4g as breast milk, standard milk formula or juice if appropriate. Rechecking levels and repeating the process if

not settling. Seek medical advice if symptoms continue.