



Managing a Cross-Cultural Ketogenic Diet

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Objectives



At the end of this presentation, participants will be able to:

- Understand the premise of “Ethno-consciousness in MNT counseling”
- Provide examples of different KD initiation protocols used in other countries.
- Provide examples of how to prepare a KD for specific ethnic and cultural backgrounds including:
 - Mexico
 - Central & South America
 - India
 - Asia
 - United Kingdom



“Epilepsy spares no racial, cultural or national boundaries, affecting 100 million people worldwide.”



The ketogenic diet in theory has the potential advantage of being available everywhere at a lower cost than the newer AED's.

However, often significant religious and cultural issues involve food not only in its provisions but also its withdrawal (fasting).

KD is offered worldwide but many countries still do not offer it or have centers (Southeast Asia, some countries in Africa, the Caribbean)

KD goes Global – 2015!



Adapted from Kossoff EH. *Keto News*. <http://www.epilepsy.com/article/2014/8/diet-goes-global>.

Ethno consciousness in Medical Nutrition Therapy (MNT) counseling



Ethno consciousness:

Race and ethnic consciousness refers to the awareness of membership in a racial or ethnic group by both group members and the larger society in which they reside. The concept embodies both popular and social scientific understandings of classification and membership.

Culturally sensitive MNT



By being more sensitive to and aware of our clients' ethnic backgrounds and customs around food we can increase compliance, adherence, adaptability and response to MNT efficacy.

Providing educational material in the client's language may be very helpful in explaining ketogenic diet guidelines but this may not be enough to guarantee patient agreement to start the ketogenic diet nor full compliance while on the ketogenic diet.



Points to Ponder



- Do all patients “fit” and do well on an American Diet especially if it is a strictly controlled, medical nutrition therapy (MNT)?
- How do other countries manage the KD for their patients?
- Can we mimic and provide ethnically sensitive recipes that may increase adherence and acceptability?

Many ways to start the diet



- Abstracts mentioned at the 4th Global symposium on ketogenic diets in Liverpool 2014.
- Canada : a “low and slow” start with a low ratio and increase slowly.
- Other abstracts mentioned:
 - gradually increasing calories,
 - no fasting,
 - using different formulas, etc.

Brazilian Example



An article by Rizzutti et al looked at using a “pre-diet” of a 2:1 ketogenic diet for 10 days prior to hospitalization instead of fasting. The aim was to reduce the length of stay and the period of fasting necessary to reach ketosis

Results:

- Pre-diet led to a shorter fasting period of a mean 18.3 hours compared with the group without pre-diet (41.3 hours)
- Better adaptation to the diet and acceptance to the proposal of introducing the ketogenic diet were observed

Many ways to start the diet



In conclusion, it's up to the center!

One meal at
a time

Increasing
by ratio or
fat
percentages
weekly

Inpatient vs.
outpatient
protocols

But are there minimum requirements keto centers around the globe should offer?



According to the International League Against Epilepsy (ILAE) task force:

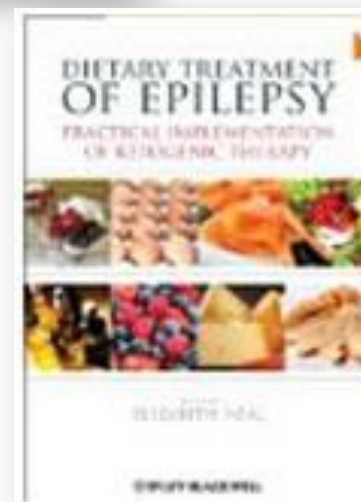
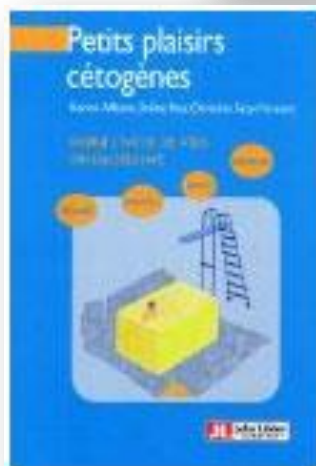
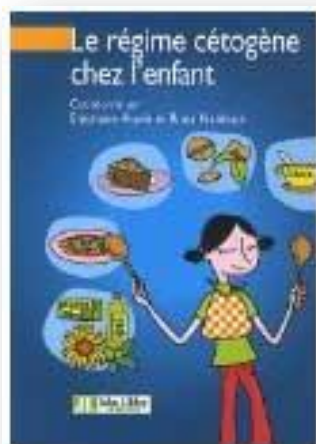
- Belief that KD center should be at least familiar with all 4 basic KD therapies (Classic, MCT, LGIT and MAD)
- Be comfortable in treating patients aged 2-15 years old with no major comorbidities

But are there minimum requirements keto centers around the globe should offer?



- Ability to provide a ketogenic liquid formulation (commercial or created with modulars) for infants should be mandatory.
- Supplementation a must
- Education and written materials in the patients or caregiver's primary language (internet for recipes)

A variety of resources available online, but still limited!



KD in United States



- North America: birthplace of the cKD(1921), MAD (2003) and LGIT(2005).
- America “a melting pot of cultures”
- Fitting a typical American Diet into the ketogenic diet may not work for everyone.
- **Many other cultures non-English speaking or “un-adapted” to American Culture therefore requiring specific ethnic foods as part of their daily well-being.**
- Advantage of KD in USA: variety of foods available, many imported ethnic foods easily accessible.

KD in United States



- **Advantage of KD in USA:** many KD centers, ~130 throughout the US and Puerto Rico
- **Disadvantage:** \$\$ financial factor. It may be an expensive diet for many families.
 - not all insurance plans will cover costs.

For most part most KD meal plans/recipes can be used for any ethnic background but may have it's limitations so opt for the option that fits the desired food most. Can it be made keto-style?

Ex. Kids wanting pizza, have keto pizza. Kids wanting rice, cauli-rice, some other ethnic foods can also be keto-friendly.



THE CHARLIE FOUNDATION
for Ketogenic Therapies



- Offers information
- Support
- Recipes
- Videos
- Guides
- And more
- Spanish/English education materials available

Mexico and the KD



- Only about 1-2 KD centers in Mexico (newer).
- Some less educated or indigenous cultures associate epilepsy with being cursed or “possessed” by evil spirits.
- Spanish main language. Even most indigenous backgrounds speak Spanish as their 2nd language.
- Religion: mainly Catholic or Christian
- Social class disparity/social inequality (income, education, occupational prestige).

Mexico and KD



- Hispanics comprise the largest minority in the US.
- Mexicans largest minority group in some states like CA and TX.
- Not all Latino/Hispanic foods/cultures are the same.

Mexican KD



- Advantage: most have adapted and do well on a typical American KD.
- Disadvantage: not many education materials in Spanish are readily available.
 - support resources in Spanish also very limited.
- Staple foods: beans, rice, corn, tortillas; all high CHO. Tomatoes, peppers and onions, avocado, nopales; lower CHO foods
- Common fats: lard, butter, cheeses, margarine, corn or vegetable oil.

Preparing a KD for a Mexican family

- Many recipes are already low carb and even gluten free.
- Many recipes are well accepted with added or extra fats.
- Chile rellenos, chicken in salsa or chipotle cream sauce, ceviche, nopales or hotdog egg scramble, nut cream sauces (pepita or nogada sauce) or bacon wrapped hot dogs or shrimp.
- For tortillas: La Tortilla Factory®: low carb high fiber tortilla (only 3 g net carb for a 10")
- Cauliflower is a great swap in place of rice or potatoes



Crossing Borders: Choosing a KD for a Mexican family



- Consider a MAD or MCT oil diet for some of these families as may be easier to prepare, no need for a scale, can use household measures.
- MCT oil diet allows for more carbs and protein.
- MAD may be limited in carbs, but may allow for more fats and protein rich foods like avocado, crema, cheese, chicken, pork or beef.
 - Ex: bacon wrapped hot dogs
 - Avocado and bacon fat bombs





Central/South America and the KD

- Keep in mind that **not** all “hispanic or latino” cultures are the same.
- 17 centers listed in ILAE.org
- **Honduras:** hosts a very small KD practice, mostly MAD pts. Dr. Duron and E. Martinez, dietitian.
- Larger centers in Brazil and Argentina
- In Argentina, predominant religion is Catholicism, therefore references to Bible and fasting has helped convince patients of its value.

Central/South America and the KD



Advantage

- Brazil and Argentina export KetoCal® to some South American and Central American countries.
- Information website: www.dietaparaepilepsia.com.ar
 - Classic and MAD

Disadvantage

- Many countries still do not have commercial keto formulas and must rely on home blended formulations or there are no KD centers at all.
- Resources in Spanish and Latin languages are limited.

Preparation of a Central & South American KD



- Common Central or South American foods:
 - Plantains, pineapple, guava, papaya, mangos, black beans, rice, peppers, sweet potatoes, yams, cassava, quinoa, potatoes and seafood or beef.
 - Fats: olive oil, vegetable or palm oil, manteca (lard)
- Rice and many of the higher carb foods may be a challenge for most.
- Terms for certain words/foods are different: Avocado i.e. Aguacate, Palta



Crossing Borders: Choosing a KD for a patient from Central or South America

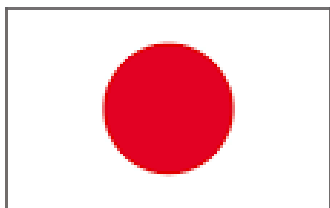


- MCT oil diet or LGIT allows more carb and protein: consider these diets for these patients
- Classic KD easy to implement as KetoCal® available.
- Some friendly recipes on ilae.org
 - Pizza crust made from bran and lard
 - Avocado , tuna and cream cheese wrapped in Nori-seaweed
 - Recipes by Dr. Julia Alberti and Lic . Rocio Viollaz (Hospital Sor Maria Ludovica-La Plata)

KD in Asia



- “Since carbohydrates are considered to be a main dietary composition of Asians, there has been some limitation on the rapid adaptation of KD.”
- The KD is generally thought intolerable to Asians given the high fat according to this article.
- In Japan, KD mostly used for GLUT-1 and PDHD



Kossoff EH, et al. *Epilepsy Res.* 2012;100:205-9.
Seo JH, et al. *Epilepsia.* 2008;49 Suppl 8:50-2.



- *Conclusion from a Korean KD study:* The KD is a safe and effective alternative for intractable childhood epilepsy in Korea, although the customary diet contains substantially less fat than traditional Western diets...tolerability to the high fat KD was observed.
- Improving tolerability and efficacy has been critical in order to make the KD successful despite this cultural resistance.
- Classic KD used in Korean multicenters
 - use of a KD Liquid milk 180ml=216 kcals (Ketonia)
 - breaking tradition has made KD difficult to adhere to or easily accepted.

KD in Asian Cultures



- Food staples: rice, noodles, beef, chicken, fish, vegetables, corn starch.
- Common fats: vegetable oil, Sesame seed oil, peanut oil, or natural fat from meats.
- Typically lower in fat than the typical American (Western) diet.
- Most dishes are vegetable based.



KD in Asian Cultures



- Challenges
 - Main staple is rice or high carb food.
 - Education material in many Asian languages is very difficult to obtain.
- Formulas
 - China: Qitong liquid, 4:1 and 2:1[®] (Zenica)
 - soy and casein, and soy with 30% MCT
 - Korea: Ketonia Liquid (Namyang)
 - contains olive oil and is low lactose. Intended for infant to adult

Crossing Borders: Choosing a KD for the Asian patient



- Consider an individualized approach: Asian-Americans may accept and adapt better to an MCT oil KD.
 - MCT oil Diet allows for more carb and protein than the traditional classic KD.
 - May also allow for less dietary fat in KD as a higher % fat added as MCT oil or even addition of coconut oil
 - The LGIT also may provide more room for more vegetables and low GI fruits and various meats.

Crossing Borders: Choosing a KD for the Asian patient



- Some examples: Miracle noodles® vs. rice noodles or pasta dishes.
 - Asian noodle stir fries
 - High fat meats and pork with lower carb veggie
 - Lettuce cups drizzled with sriracha mayo or oil
 - Quail eggs
 - Cauliflower



Alternate forms of the Classic and Modified Atkins may also fit as well depending on the diet prescription for your patient.



KD in India



- “Indianization” of the classic ketogenic diet has been implemented according to the cultural differences of various regions in India and also according to the likes and dislikes of patients.
- The use of ready-to-eat or ready-to-make foods is restricted in this diet.



Cervenka MC, et al. *J Child Neurol.* 2013;28:1034-40.

KD in India



- NO fasting protocols
 - A low carb diet before KD initiation to elevate ketones (4+)
- Lower ratio ketogenic diet
- KD initiated as outpatient basis
- Per Dr. Janak Nathan “The KD is not a new therapy, it is as old as Ayurveda”



Table 1. Patient Retention Rates Among Adolescents and Adults on the Classic Ketogenic Diet in India.

Retention rate, mo	Adults (n = 27)		Adolescents (n = 17)	
	Too restrictive	Inadequate response	Too restrictive	Inadequate response
0-6			1	
6-12	2		3	
12-18	4	2	1	
18-24	3	3	(1 died)	
24-36	1	1		
36-48	1		2	
48-60	1			
60-72			1	
72-78				
78-84				
84-90			1	
90-96			1	
118				

In a study by Dr. Nathan, 27 adults and 17 adolescents with uncontrolled epilepsy were tx with classic KD. Tolerability, compliance, and side effects were noted at every follow-up. Compliance was graded as good, fair, average, and poor depending on the urine ketone levels checked 3 to 4 times daily.

Preparing an Indian KD



- In some cultures in India it is believed that ayurveda and yoga may cure epilepsy.
- Fasting has both medical and religious significance in India.
- Food staples: onion, garlic, spices, root vegetables, paneer (Cheese) and rice or naan (bread).
- Common fats: ghee, coconut milk/oil
- Any of the 4 Keto Diets can work well!

Typical KD meal plan:

34 g chicken

40 g onion

93 g tomato

1g ginger

1g garlic

34 g ghee (fat)

Added in negligible quantities: clove, bay leaf, green chili, red chili powder

(394 kcal, 1.8:1 ratio)



Crossing Borders: Choosing a KD for the Indian patient



Consider:

- Liberal ratios, lower ratio diet with MCT oil.
- MAD or LGIT
- may use coconut oil in many of the recipes.
- Great source for more information
- www.ketogenicdietindia.org



KD in the UK



- In children, the KD in UK has been widely used (both MCT oil and Classic KD have been used and now MAD with growing popularity)
- There has been more difficulty in its acceptance in adults, despite MAD being offered.
- “Melting pot” of cultures, so a variety of foods and ketogenic commercial formulas are available.
- Many resources available for all keto diet types, can choose from MAD, Classic, LGIT or MCT
- Language= English, not typically a barrier

Increasing awareness and outreach: Matthews Friends: Canada and New Zealand



The screenshot shows the homepage of the Matthew's Friends website. At the top, there is a navigation bar with the following links: Home, About Us, Medical Section, Keto News, Keto Therapies, Keto Kitchen, Shop, Contact Us, and a search icon. Below the navigation bar, there is a large hero section featuring a close-up image of a roasted eggplant filled with a mixture of ground meat, cheese, and herbs, topped with pine nuts. The text "Eating for Health and Wellbeing" is overlaid on the image, followed by the subtitle "How to safely alter your diet to a healthier way of eating to make you" and a green button labeled "More Details". To the right of the hero section, there is a text block that reads: "Matthew's Friends are a UK registered charity (since 2004) specialising exclusively in medical Ketogenic Dietary Therapies. We support patients, families and professionals by providing information, training, research and grants to develop Ketogenic services and support systems for drug resistant (refractory) epilepsy as well as other neurological and metabolic disorders and emerging cancer types. Our charity is supported by key medical experts in these fields so as to ensure the safety and efficacy of our information. Please watch our introduction video by clicking here." Below the hero section, there are three columns, each with an icon and a title: "Ketogenic Therapies" (icon of a fork and knife), "Keto Kitchen" (icon of a stove), and "Keto Events" (icon of a calendar). Each column has a brief description and a blue button labeled "Read More".

Matthew's Friends
Ketogenic Dietary Therapies
Information • Training • Research • Support

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Eating for Health and Wellbeing
How to safely alter your diet to a healthier way of eating to make you [More Details](#)

Matthew's Friends are a UK registered charity (since 2004) specialising exclusively in medical Ketogenic Dietary Therapies.

We support patients, families and professionals by providing information, training, research and grants to develop Ketogenic services and support systems for drug resistant (refractory) epilepsy as well as other neurological and metabolic disorders and emerging cancer types.

Our charity is supported by key medical experts in these fields so as to ensure the safety and efficacy of our information.

Please watch our introduction video by clicking here.

Ketogenic Therapies
Information on all types of Ketogenic Therapy, who can use them and how to prepare yourself and your family for treatment.. [Read More](#)

Keto Kitchen
Watch our cooking channel and download recipes and useful information. [Read More](#)

Keto Events
Meet others in your situation and find out what Keto events are happening in your area. [Read More](#)

Preparing a KD for a British, Irish or Scottish patient



- A few different foods that are not the same as in North American vocabulary.
- Ex: jelly is not jam it is gelatin.

Common KD friendly foods: Eggs, mince, back bacon, double cream, cheddar cheese, pepperami and use of Quorn™.



Crossing Borders: Choosing a KD for a British, Irish or Scottish patient



- Classic KD, Mad or LGIT fit well
- MCT oil diet has been widely used there for many years. (pure MCT oil or Liquigen[®])
- www.matthewsfriends.org
- Ketocooking channel videos
 - Try the Full English Breakfast with MCT (45%)
 - Quiche with MCT



What about other countries?



- The International League Against Epilepsy has a comprehensive list of web links to KD sites and keto centers from around the world
- Keilah Foundation (South Africa)
 - <http://www.keilahfoundation.org/>
- CetoKesako (France)
- HealingYoungHearts.org (China)
- OliversMagicDiet.com (Israel)



In Summary



- The KD is now offered world-wide to many different cultures.
- There is a growing “melting pot” of keto diet foods, recipes and cultures
- One diet does not fit all
- Here in the US, we need to be more ethnic and culturally aware of each of our patient’s traditions and beliefs around food and tailor the KD as needed in order to increase compliance and success while still maintaining diet efficacy
- Provide educational material in the client’s language may be very helpful in explaining ketogenic diet guidelines but this may not be enough to guarantee patient agreement to start the ketogenic diet nor full compliance while on the ketogenic diet.
- Goal is for diet adherence and success

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