

BEYOND **KE TO**

Pioneering the New Frontier in Athletic Performance, Fitness & Health with the OFM Paradigm



Super Soldier, Chief Warrant Officer, Darryl Peterson USMC, completing the 2017 Moab 240 Mile Trail Race, the third of four 200+ Mile competitions within a 4 month period. Darryl not only completed all four events but got STRONGER as he progressed while his body composition and blood work remained unchanged.

Two weeks after completing the Bigfoot 200 in August he ran a Personal Best in the Mile, 5K and 10K.

Just 5 days after completing the Moab 240 in October he ran a 3H:21M Marathon for a 23 minute Personal Best.

Just one sleep cycle (~32 hours) after completing the 250 Mile Okinawa Survival Run he performed and completed the Marine Corps PT Test with a perfect score of 300!

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Roxanne Woodhouse, at age 54, on her to becoming the 2016 Tahoe Rim Trail 100 Mile Female Champion. Seven weeks later she went on to finish as the Female Champion at the Tahoe 200 Mile Ultra.

DISCLAIMER:

Information: The content, ideas, concepts and opinions contained in this e-book are for informational purposes only and are not a substitute for the advice of a qualified healthcare professional. It is imperative before beginning any diet or exercise program, including any and all aspects of dietary and exercise methodologies you receive full medical clearance from a licensed physician. VESPA/VESPA Power Products, LLC claim no responsibility to any person or entity liability, loss, or damage caused or alleged to be caused directly or indirectly as a result of the use, application, and/or interpretation of said information. You agree to these Terms & Conditions and understand you are taking full responsibility for your decisions and actions and agree to hold harmless VESPA/VESPA Power Products LLC and any persons affiliated with it of any legal liability.

Preface/Introduction

Nutritional Ketosis (NK), popularly known as keto-adaptation or “keto,” is a trendy topic. The emerging science is no fad. “NK is real and here to stay, however, with the ascendancy of keto there is no shortage of well intended “keto” information which is often out of context and tends toward hyperbole. This can lead to misconception and subsequent mis-application.

So how do you, the consumer, sift through the vastness of the “ketosphere”? Whom do you turn to and trust for guidance?

If your keto goals are other than athletic fitness & performance I highly suggest reading the book [“The Art & Science of Low Carbohydrate Living”](#). In my opinion nobody knows more in both the research and clinical spheres of Low Carbohydrate Nutrition and Nutritional Ketosis than Drs. Phinney and Volek. Their non-athletic program offered through [Virta Health](#) provides everything necessary to succeed at Nutritional Ketosis.

However, if you are athletic consider looking “Beyond Keto” to Optimized Fat Metabolism (OFM™). This is the program Drs. Phinney & Volek profiled in their book, “The Art and Science of Low Carbohydrate Performance” and the program most of the Low Carb Cohort in the ground-breaking FASTER Study follow in the real world of training and competition. Not only did we pioneer fat based performance but we continue to innovate. Most of all OFM™ yields results!

It doesn’t matter if you are an elite athlete, active individual or just getting off the couch OFM™ works across the spectrum to yield “Real People, Real Results” for athletes just like you. This ebook is written to give you the sound foundational information you need to help navigate your personal journey amidst the vast sea of information.

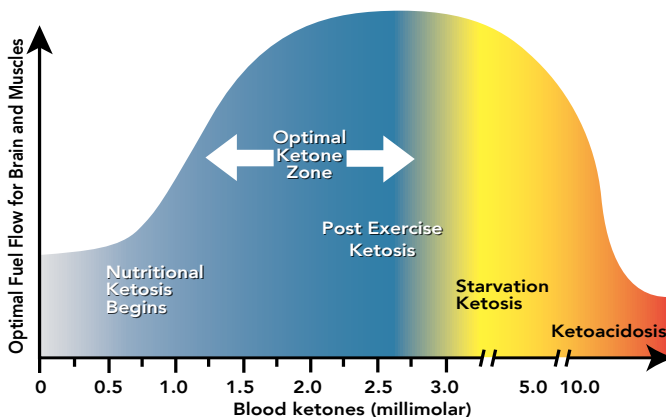
Ketosis Primer

Prior to moving beyond keto to OFM™ it's critical to have a fundamental and correct understanding of Nutritional Ketosis (NK) as NK is an important foundational tool of OFM™. Let's start with the basics.

What is Ketosis ?

- Clinically speaking, Ketosis is the **hepatic** synthesis of Beta-Hydroxybutyrate (BOHB) ketone bodies which occurs either during starvation, fasting, prolonged exercise or when on a very low carbohydrate diet. The current reference of ketosis or "Keto" is Nutritional Ketosis (NK) as defined by Stephen Phinney MD/PhD and Jeff Volek RD/PhD. NK is a safe and healthy physiological state when done properly and is achieved through carbohydrate restriction.
- On the other hand many in the medical community still view ketosis as dangerous. This view is a result of the physiological states of "Starvation Ketosis" or "Keto-acidosis" both of which require immediate intervention.
- Technically and clinically, Nutritional Ketosis is simply the measurement of BOHB in the blood (serum) or urine as a result of carbohydrate restriction.

What Level of Ketosis is Optimal?



Where does ketosis take place ?

- Ketones are produced by [mitochondria](#) dense cells, however, practically speaking, the ketone bodies which are measured in the blood and urine are produced by the liver.
- Liver cells lack an enzyme* necessary to metabolize ketones for energy so they produce excess BOHB ketones which then are sent throughout the body for energy and signalling purposes when conditions are right.

*(b-ketoacyl-CoA transferase also known as " 3-ketoacyl-CoA thiolase")

How is ketosis triggered ?

- Ketosis is triggered by hormonal signaling. One of the principle signals for ketone synthesis is a low basal insulin level and high insulin sensitivity. Many other hormonal shifts are also in play including lower cortisol levels so stress management is as important as carbohydrate consumption.

What do ketones do?

- Ketones have three principal roles. First, as an easily metabolized energy source primarily for brain and nervous system cells similar to glucose. For aerobic metabolism ketones are not a secondary, substitute or complimentary energy source to glucose but one that is interchangeable and, under certain conditions, preferred.
- Second, as a signalling mechanism for a variety of metabolic functions.
- Third, ketones serve as a precursor for cholesterol synthesis, something nobody is talking about! Ketones are an important precursor of cholesterol for lactation, however, the bombshell is ketones can be a precursor of cholesterol for hepatic cholesterol synthesis when serum glucose is elevated due to excessive carbohydrate intake!

Do I always need to be in ketosis?

- The short answer is no. The more complex answer is contextual.

Do you need to be in ketosis to burn fat ?

- No, a healthy human, especially an aerobically fit human, is burning some level of fat all the time even if ketones are not detectable at clinical levels in the blood or urine.

How do you burn fat ?

- Through beta-oxidation in the [mitochondria](#). Beta-oxidation is actually responsible for ketone synthesis. Cells with large and dense populations of mitochondria have a huge capacity to burn fat and synthesize ketones in the process.
- Beta-oxidation is the 4 step breakdown of fatty acids and conversion to the Krebs cycle intermediate, Acetyl-CoA, which is the starting block for the Krebs cycle. The Krebs cycle occurs in the mitochondria and is the multi-step process of aerobic respiration that produces ATP your principle energy source. Carbohydrate restriction triggers a shift of the ratio of energy substrates metabolized toward greater fat burn via beta-oxidation.

Why is there an assumption today that you need to be in NK in order to burn fat ?

- Because ketones are what we can measure and build data upon so this is what is currently studied. Additionally, the body of science to date is based upon relatively sedentary subjects rather than aerobically fit athletic subjects. This places the focus on ketosis instead of actual fat metabolism.

Does the fat burning pathway operate without being in NK ?

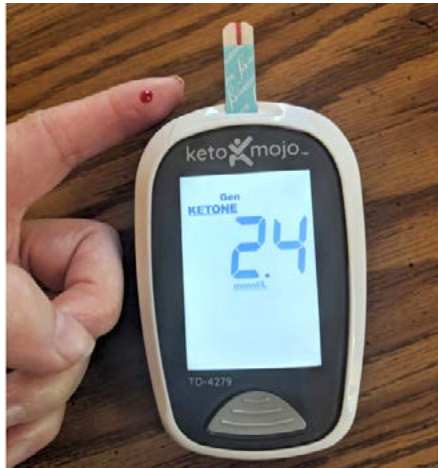
- Ironically, ketosis occurs as a result of fat burning and not fat burning as a result of ketosis. You do not have to be in clinical NK to be burning fat. An OFM™ athlete can burn a tremendous amount of fat via beta-oxidation and produce and metabolize large amounts of ketones without being in clinical NK.

Is Ketosis a natural energy pathway we have always had and, if so, why is it now ?

- Ketosis is part of our natural evolutionary physiology which prefers metabolizing fat over glucose, however, because modern science has evolved concurrently with the modern diet the basis of study and what is considered “normal” has been based upon fundamentally flawed assumptions.
- It is ironic how situations have to become critical before people are ready to consider an alternative. It took 30 years of recommending a high carb/low fat diet to create the plethora of health issues we are facing today to put the spotlight on NK as an alternative to what we now are realizing was wrong.
- OFM™ is based upon the evolutionary pressures which shaped us as humans. Even the Paleo Diet was based upon the assumption that “Your Brain needs exogenous glucose” thus failing to have an understanding of fat adaption.
- The vast majority of textbook Krebs Cycle diagrams and descriptions only depict the glucose pathway and not the fatty acid pathway.

#beyondketo

KETO FICTION:



Before taking you "Beyond Keto" there exists a lot of misguided information on "keto" so we need to set the record straight by dispelling some persistent keto fiction which many are led to believe as fact...

- ***"Ketones are the main source of energy when in ketosis."*** This is the most common mis-conception out there. It is patently wrong. While an important and vital energy source, ketones are far from being the main energy source from fat. The physiological state of ketosis is really a proxy for a much greater fat based energy production pathway: [Beta-oxidation](#).
- ***"Eating keto won't make me fat."*** Not quite. Once keto-adapted, you can still gain weight if you are consuming more calories than you are expending (i.e. "calories in, calories out"), however, the rate of weight gain tends to be much less than a hyper-caloric carbohydrate based diet.
- ***"Keto is a cure-all for so many diseases."*** While there is little doubt Nutritional Ketosis confers a host of benefits and can play a major role in disease prevention, treatment and reversal there are many other factors involved.

- ***“According to the keto experts I can perform as well, potentially better, on keto.”*** Certainly, there are instances of incredible feats of endurance exercise and [body recomposition](#) being performed on a ketogenic diet, however, going strict keto impairs performance. This is clear both in the scientific literature and the real world of athletic performance. The degree of impact is highly variable between individuals and type of physical activity. [Keto is a great foundation](#) for an athlete but it is just that; a foundation. It is also important to note many of the keto-athletes popularized in current media are actually using the OFM™ model which includes [Strategic Carbohydrates](#) and use of [Vespa](#).
- ***“Even if I lose my top end performance there are no risks to going keto for athletic performance.”*** With the rise of keto and, with it, the mis-guided information and hyperbole, we have seen and worked with a number of athletes who are struggling with adrenal stress and other issues because they are strict keto and trying to exercise at too high an intensity and/or volume.
- ***“I only need to do resistance/strength and HITT type exercise. Cardio is not necessary.”*** This is what the current body of “science” suggests and what many people doing keto follow. When keto/fat adapted developing your cardiovascular potential is crucial to achieve overall health, fitness and performance. Like keto, [cardio is a key foundational tool of OFM™](#).
- ***“I am raising my children on keto.”*** This is a big mistake in most cases. While we don’t advocate raising children on a high carb, processed food diet raising children on a strict ketogenic diet, unless necessary for a medical condition, will generally result in stunted growth. This is because insulin is highly anabolic in a metabolically healthy child thus necessary for a healthy child to reach their genetic growth potential until puberty kicks in.

#beyondketo

- **“Exogenous ketones & MCT Oil will jump start my ketosis.”** This is not as black & white as the “science” promoting exogenous ketones & MCT Oils as the fast track to ketosis nirvana suggests. While ingesting exogenous ketones or MCT oil will raise serum ketones, which can have a beneficial signaling effect, this artificial increase actually signals your liver to turn down natural hepatic ketone synthesis as there are sufficient ketones in circulation. In other words exogenous ketones “trick” your body to think its in ketosis. So, while this “tricking” has benefits in terms of metabolic signaling it also has “unintended consequences.” The “take-home?”...while there are applications for exogenous ketones these applications are much more limited than the hype suggests.



Diane Cridennda (left), at age 61, winning her Age Group at the St. George IronMan 70.3. Diane recently took 3rd Overall in her Age Group (F65-69) at the 2018 Ironman 70.3 World Championships in South Africa. Diane firmly believes *Vespa* & *OFM* were the factors that have led to her success.

KETO Summarized:

Now that we have answered some basic questions and dispelled many of the myths/hyperbole that abounds in the ketosphere let's distill keto to the facts relevant to you, the reader.

- For the most part the "keto" movement pertains to Nutritional Ketosis (NK) which induces "ketosis" via your diet. While the macros vary from person to person generally carbohydrate remains between 0 and 15% of food intake, protein between 15-30%, while fat is generally north of 70%.
- Ketone bodies produced by the liver, like glucose, are necessary for specific tissues like the brain and nervous system which have limited to no capacity for beta-oxidation. Ketone bodies are as easily metabolized in place of glucose when keto-adapted for aerobic energy production.
- Unlike adipose tissue (fat) and glycogen (glucose) ketones are relatively unstable and cannot be stored so are produced (as BOHB) on an "on-demand" basis by the liver (see graphics).
- From a medical standpoint ketosis means ketones in the form of beta-hydroxybutyrate (BOHB), a relatively stable form of a ketone body which circulates in your blood. BOHB is measurable in the blood which is why BOHB is utilized as the basis for ketosis. The approximate range is 1 mmol to 3 mmol.
- Acetoacetate is the ketone which is actually metabolized for energy, however, because acetoacetate is highly unstable it is difficult to measure.

- Ketones are produced from fat when dietary carbohydrates are severely restricted to a level much lower than the modern “healthy” diet.
- The modern “healthy” diet prevents NK because it contains too much carbohydrate.
- Carbohydrate restriction results in a corresponding drop of insulin secretion and insulin levels in the blood. One of insulin’s roles as a signaling mechanism for hepatic (liver) BOHB ketone synthesis. Higher levels subdue ketosis while low levels signal the liver to increase production. No insulin triggers the liver to overproduce ketones resulting in ketoacidosis, a potentially fatal condition found in Type 1 diabetics.
- Prior to the rise of the Low Carb & Keto Movements the only states of ketosis doctors were exposed to were “Starvation Ketosis” and “Ketoacidosis” both of which require immediate medical intervention and why many medical professionals still view Ketosis with skepticism and fear.
- Serum ketones (BOHB) are not only an energy source but an important signaling mechanism for a variety of physiological pathways.
- A strict “keto” diet limits performance.
- Most of the peer-reviewed published literature on ketogenic diets to date is on relatively sedentary subjects and many on metabolically compromised subjects (T2 Diabetes, Metabolic Syndrome, Cancer) rather than metabolically fit athletes.
- The current keto movement is based upon a body of science which has been building over the past 2 decades led by Drs. Volek and Phinney. (Dr. Phinney actually started his research on ketogenic diets 40 years ago). Now that this body of science has built to this level of credibility it is also profitable to jump in. It’s the “Keto Gold Rush!”

What this means to you:

- Ketosis/keto is NOT the driver of performance fat metabolism.
- Ketones, while an important energy source, are really a proxy for beta-oxidation which provides the “base load” of energy needed to perform on fat.
- Clinical ketosis as measured in the blood or urine is NOT required for performance levels of fat metabolism.
- Hepatic ketones and glucose, along with glycogen, not only supply the brain and nervous system with a rapidly metabolized energy substrate but also skeletal muscles for surges into higher intensities.
- When fat metabolism is optimized glucose can be produced by the liver (apart from glycogen) without catabolizing protein to meet the metabolic needs.
- Beta-oxidation via the Krebs cycle also produces ketone precursors which are immediately converted to ketones and metabolized for energy inside the mitochondria or utilized as a substrate for cholesterol synthesis. These are what we call the “invisible ketones”.
- The body of science on ketosis to date uses relatively sedentary subjects not athletic ones. Only a few studies are published with well adapted athletes creating a huge void in the science to date.
- Now that “Keto” is legitimized and popular it has also become profitable and reached an almost religious/cult status thus hyperbole and contextual mis-information abound.

Energy Substrate Basics

Preface: While every athlete recognizes their performance is based on energy delivery hardly anyone truly understands how it really works. The science is complex and most often oversimplified or broken down into its various pieces without tying each piece to the whole.

Various parties with vested interests use their version of “science” by funding studies which push their agenda or perspective. Because science has become so sophisticated most researchers simply cannot see beyond their narrow scope of research. Adding to the complexity of the science is the pervasiveness of confirmational bias which has resulted in a polarized environment of the conventional high carb camp and the keto/Low Carb camp.

For the athlete the primary goal should be optimizing our own endogenous energy stores as our foundational physiology rather than a reliance on a continuous feed of exogenous calories. In other words, **YOU** contain the energy and ability to tap into your performance potential with a lot less supplemental calories than you have been led to believe!

Unfortunately, athletes have been conditioned to believe they need exogenous fuel sources to power their workouts and competitions. In the case of the high carb diet the physiological dependence created by a diet high in concentrated forms of carbohydrates physiologically entrenches this belief.

While there is no doubt we need to eat for both nutrition and energy this fact has been hijacked to sell us products. This keeps us ignorant of our robust evolutionary heritage which allows us to perform optimally on very little. Whether you are being told or sold a maltodextrin gel, a fat bomb gel or anything else for that kick of energy bear in mind if you don't [develop your internal energy systems first](#) and foremost you are subverting your performance potential!

To help the athlete better understand this we have developed a series of graphics to illustrate how the body partitions energy substrates under a High Carbohydrate Diet, A Keto Diet and OFM.

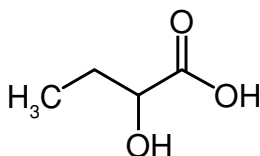
We have done our best to remain true to the science yet simplify our explanation so the layman can get a sense of how our bodies "can" and "do" partition energy and "how" you can optimize your fueling using your own fat stores.



Former Special Forces Operator, Dan Lenz, running to a 2nd Overall at the 2015 Umstead 100 Mile in a time of 15H, 13M. Dan consumed less than 600 calories in race and didn't eat until the next day. Learn how you can burn [fat for fuel](#) like Dan from the pioneers in fat adapted performance.

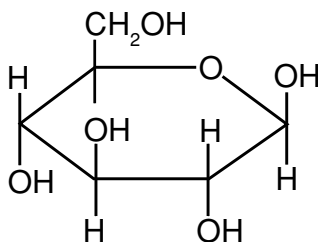
Energy: "All Roads Lead to Acetyl-CoA"

The majority of our energy is derived via ATP generation in the Citric Acid / Krebs Cycle. Acetyl-CoA is the molecule which enters the Citric Acid/Krebs Cycle to generate ATP energy and is mainly generated from 3 energy substrates; Ketones, Glucose, Fatty Acids.



Ketones (BOHB*)
22 ATP

*BOHB = beta-hydroxybutyrate

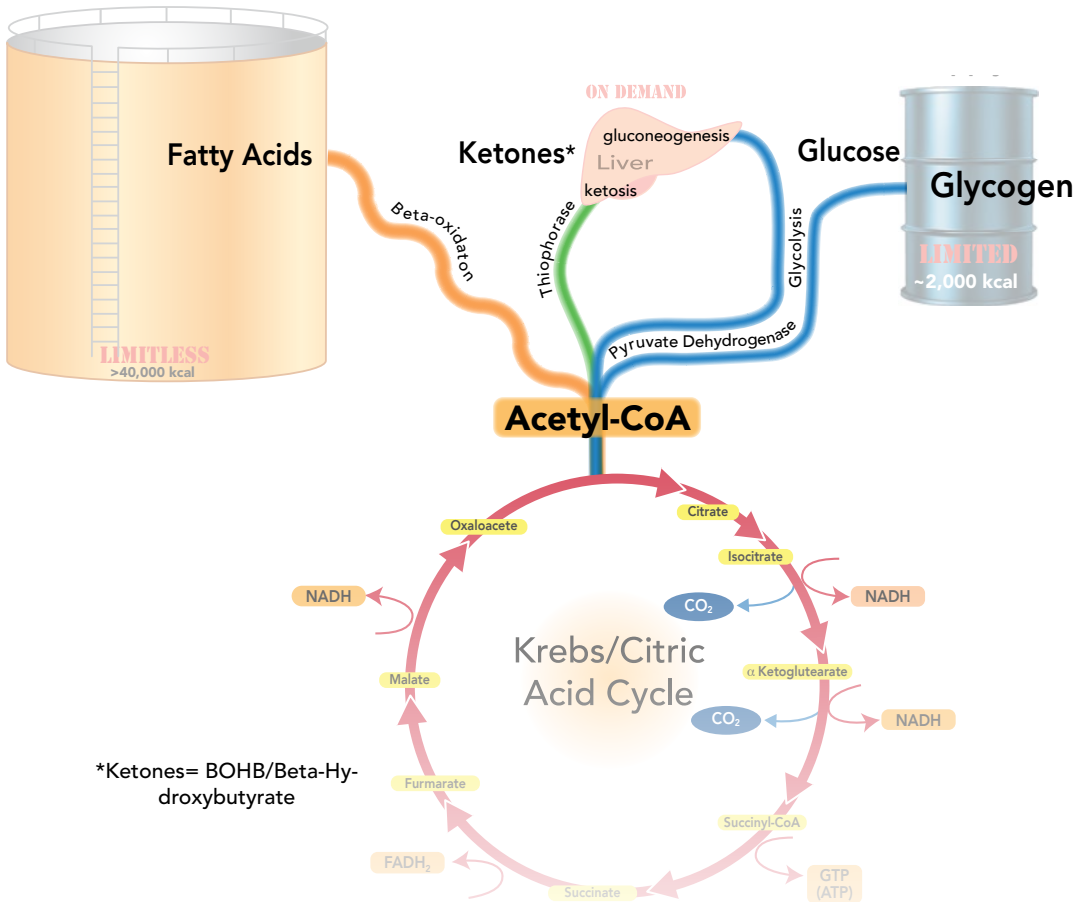


Glucose
29 ATP



Fatty Acids / Palmitic Acid
129 ATP

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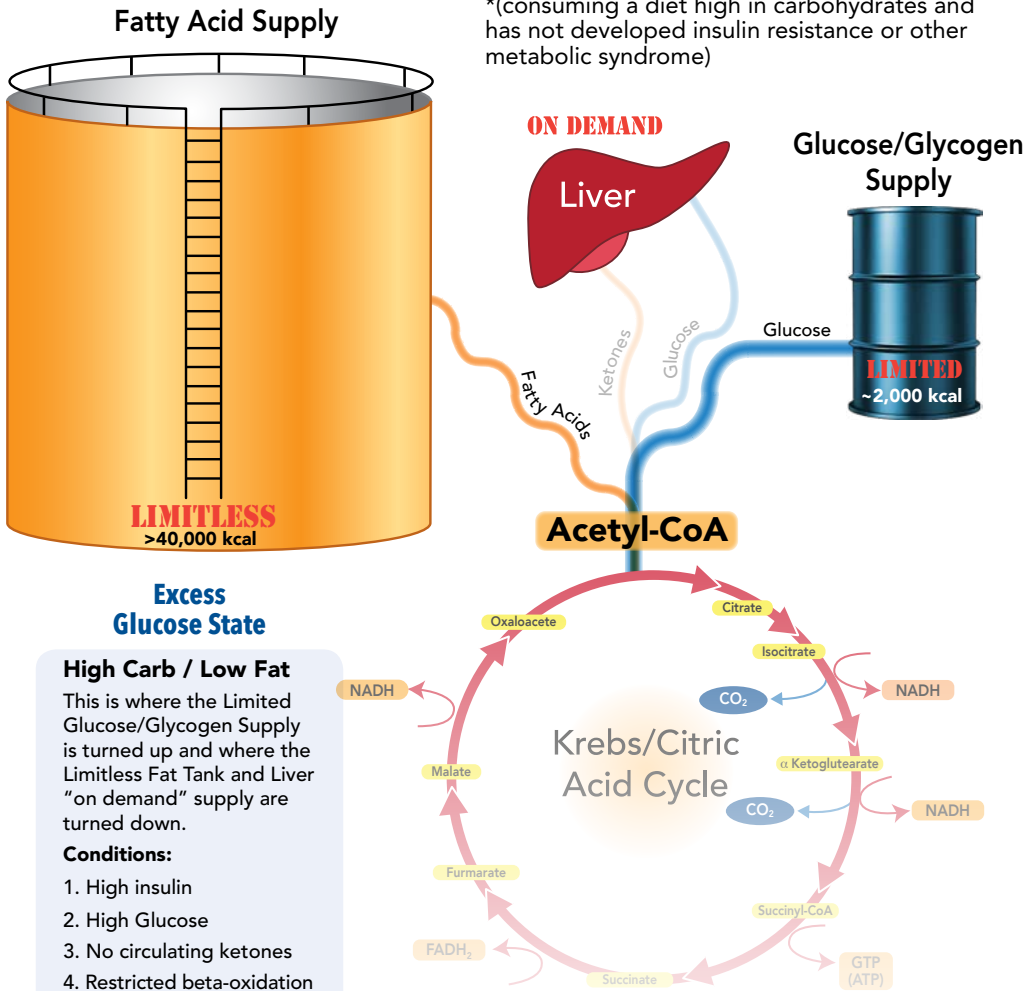
Complex hormonal signalling determines which energy substrates are prioritized and upregulates the enzymatic reactions accordingly. Each energy substrate uses specific enzymatic reactions to convert to Acetyl-CoA and feed the Citric Acid/Krebs Cycle

1. Fatty Acids via Beta-Oxidation (see graphic)
2. Glucose via Glycolysis & Pyruvate dehydrogenase (see graphic)
3. Ketones (principally BOHB) via Thiophorase (see graphic)

#beyondketo

High Carb State: The first condition is that of a relatively healthy High Carb Athlete*. The hormonal signalling is primarily driven by insulin to prioritize the use of glucose as a major energy source for Acetyl-CoA generation. At the same time, insulin also signals to the liver there is excess glucose energy in circulation thus shutting down or sharply curtailing hepatic generation of BOHB ketones and glucose. As serum glucose is fed into the Citric Acid/Krebs Cycle for energy, glucose is mobilized from glycogen stores in the liver and skeletal muscles to maintain both energy delivery and serum glucose levels.

*(consuming a diet high in carbohydrates and has not developed insulin resistance or other metabolic syndrome)



*Ketones= BOHB/Beta-Hydroxybutyrate

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Ironically, in the vast majority of physiology textbooks glucose is the **ONLY** substrate shown feeding the Citric Acid/Krebs Cycle hence the overwhelming bias toward carbohydrate based diets and the notion “eating fat makes you fat”.

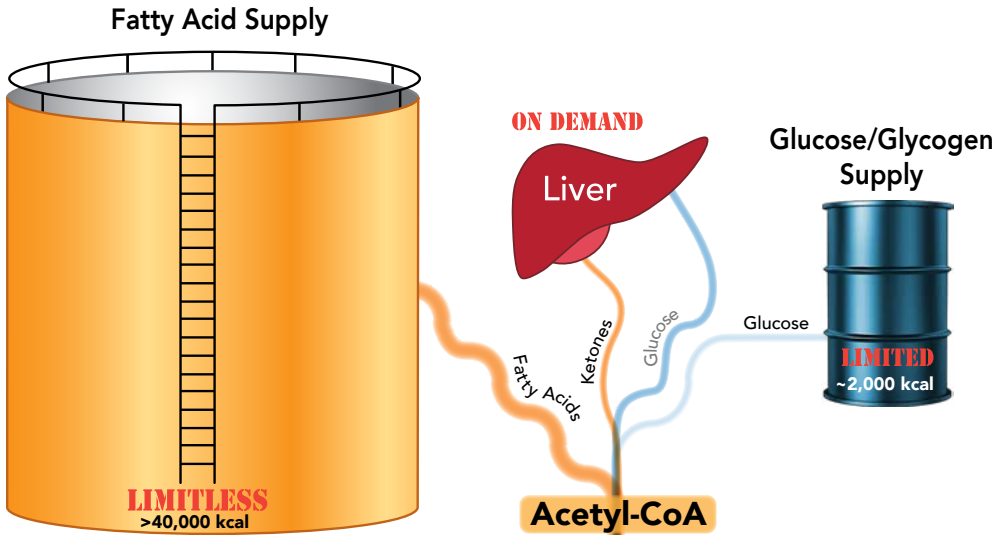
The high carb state is actually considered “normal” when it really is an occasional and conditional state in terms of human evolution. In other words, The High Carb State is **NOT** normal! The **REALITY** is Fatty Acids via Beta-Oxidation are what our bodies are designed to use as the main energy substrate for Acetyl-CoA generation, however, in the High Carb State the body is impaired in it’s ability to access fat for fuel.



Jenny Capel on her way to winning the 2012 Dick Collins 50 Mile Ultra. In her own words: “My nausea is gone; my body is leaner; and my recovery times are faster. Best part is being able to run the strongest and fastest I have in 10 years!” Reach your health & performance potential like Jenny with [Vespa](#) & [OFM](#).

#beyondketo

Keto State: The second physiological condition illustrates what most have come to know as “keto”. This is the condition of Nutritional Ketosis (NK) and, in the context of this ebook, NOT the conditions of “Starvation Ketosis” or “Ketoacidosis” both of which require immediate intervention.



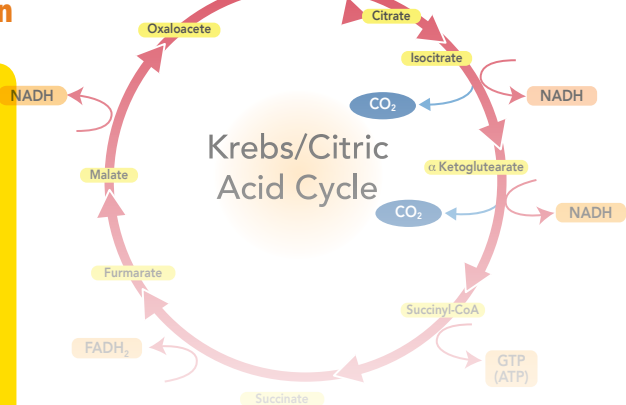
Efficiency/Conservation State

Deep Ketosis

Limitless tank is turned up and so is “on demand” delivery of ketones.

Conditions:

1. Low insulin
2. High insulin sensitivity
3. Clinical blood ketone levels
4. Lower circulating glucose/blood sugar
5. Impaired Pyruvate Dehydrogenase for glucose sparing effect, which also limits high intensity performance.



*Ketones= BOHB/Beta-Hydroxybutyrate

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#beyondketo

NK is a state of high efficiency and conservation particularly with regards to glucose/glycogen thus impairs performance at higher intensities. Because ketones become the preferred energy source for brain and nervous system, the need for glucose can be supplied "on demand" by the liver however, due to downregulation of the Pyruvate Dehydrogenase enzyme during prolonged NK the ability to rapidly mobilize and convert glucose to energy is notably impaired thus impairing performance. This reality is the basis for going "[Beyond Keto](#)".



Michele Graglia WINNING the 2018 Badwater 135 Mile Ultra where temperatures soared to 128 degrees, the hottest in the history of the race. 8 weeks after Badwater Michele set a record for the 975 Km (~575 Miles) crossing of the Atacama Desert in Chile in 8 days, 12 hours & 50 minutes averaging 67.5 miles per day. Aside from Michele's attitude & talent, he's a huge advocate of [Vespa](#) & embodies the [OFM lifestyle!](#)



Beyond Keto: The OFM™ Paradigm

"You guys are leading the science." -Jeff Volek RD/PhD

Preface: As described in 2012 in "The Art & Science of Low Carbohydrate Performance" OFM™ was a pioneering force in the realm of fat based athletic performance. This is backed up by the emerging science. Innovation usually occurs a decade or more before being recognized as "innovative" by the early majority of pragmatists.

When innovating or "leading the science" clinging to the established science and/or published studies, does not work by definition. Nor does science directly apply to achieving results in the real world. This is because new scientific discovery evolves from observation and innovation which leads to formal studies.

The [FASTER Study \(Volek et.al.\)](#) evolved from OFM™'s innovation and leadership in developing consistent winning results in the real world of competition. In fact, the vast majority of the [LCD Cohort in FASTER](#) (where OFM & Vespa were not used) follow the OFM™ Protocol and use Vespa in their real world training

and competitions rather than the straight keto used in the study. In the OFM™ paradigm NK/Keto is a foundational tool for performance and health.

Innovation is a continuum. We didn't stop at keto nor did we co-opt it when it became popular. We continue to go "beyond keto" with results-based performance.

OFM™ represents a complete paradigm-shift. It's not another diet or "diet & exercise" program. OFM™ is a comprehensive, **INDIVIDUALIZED** and real-world based program. This is how to achieve [real-world results](#).

Ironically, science has reached religious proportions with internet diet, health and fitness gurus "preaching" to the masses in much the same way as a religious leader would give a Sunday sermon using "cherry picked" science which meet their bias and agenda. The point here is not that science or religion are the problem but they become subverted to serve a confirmational bias and/or a belief system. This entrenches us in beliefs rather than objective thought and an openness to alternatives. Science, religion or politics then become subverted to serve a confirmational bias and belief system.

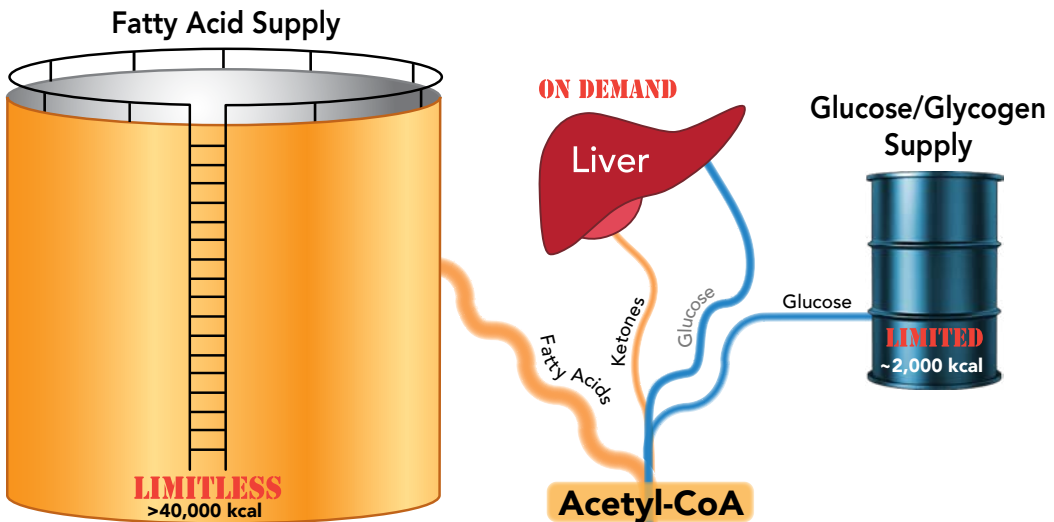
While OFM™ utilizes impeccable science to guide our innovative results, science is only one facet of our approach. If you are an athlete looking at keto to improve your performance, body composition, fitness and health it's critical to consider these two points:

- Most of the peer-reviewed published literature on ketogenic diets to date is on relatively sedentary subjects and many studies on metabolically compromised subjects (i.e.: T2 Diabetes, Metabolic Syndrome, Cancer) rather than metabolically fit athletes.
- The peer-reviewed published literature to date on well keto-adapted athletes is very limited. Most such studies use subjects which are only a week to a month into NK which, based upon studies and observation is not enough time for full keto-adaptation..

#beyondketo

The OFM State: The OFM State derives and delivers energy from all available endogenous energy sources. In this state the athlete not only can metabolize fat at a higher rate but does so at much higher intensity levels without impeding glucose utilization. Even glucose is produced from fat without catabolizing muscle protein.

*The OFM state should not be confused with "Metabolic Flexibility", an oversimplistic term commonly tossed around which suggests use of one energy source or another.



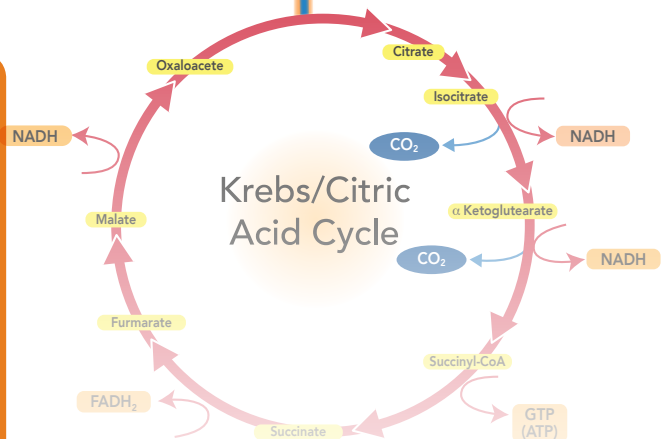
Performance State

OFM

All three energy sources are available and upregulated.

Conditions:

1. Low insulin
2. High Insulin sensitivity
3. Low, sub-clinical ketones most of the time
4. Normal to high normal blood glucose most of time
5. Liver can produce both ketones and glucose "on demand" to meet the metabolic need of physical performance
6. Glycogen replenishment post exercise

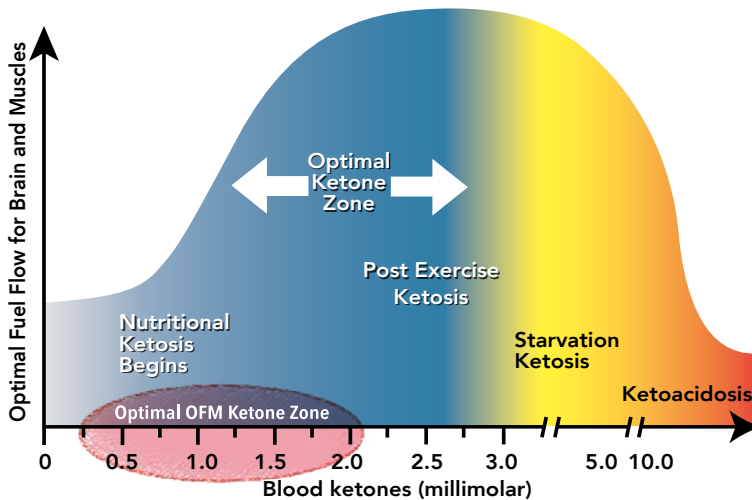


*Ketones= BOHB/Beta-Hydroxybutyrate

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Our experience and observation tell us athletes who optimize their fat metabolism are very different. This means many of the established conventional physiologically and health markers simply don't apply to the athlete seeking to perform on fat.

Serum Ketone levels are a great example. Most OFM™ athletes tend to run low serum ketones that put them out of clinical ketosis levels in spite of the fact they are clearly in a fat adapted state when it comes to other markers like performance, exogenous caloric needs and recovery.



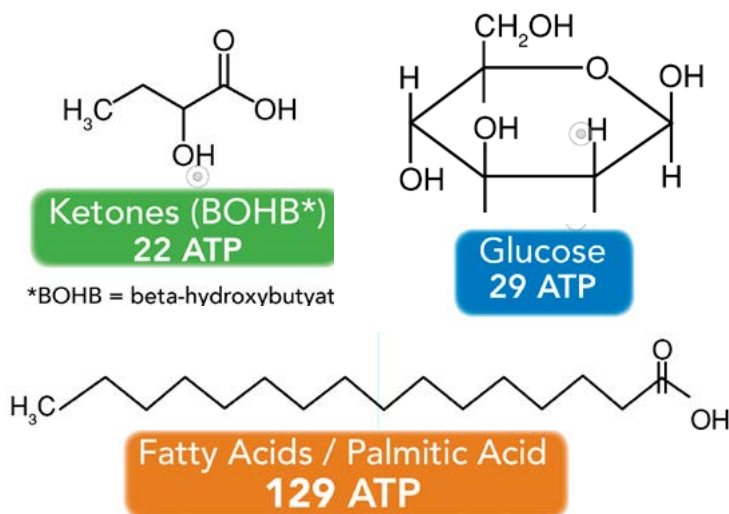
The OFM™ Paradigm

The OFM™ paradigm is based upon 7 very simple tenets.

- 1.** First and foremost you are an INDIVIDUAL and an N=1! Diet, while very important, is not the sole focus. There are multiple variables, many dynamic. This reality counters scientific methodology. Enter OFM™, a comprehensive, integrated program tailored to the real world and your unique situation.
- 2.** The evolutionary pressures which shaped us as humans made us robust in every way while our modern man-made environment has taken us far afield of this robustness. Several studies have suggested “primitive” man was as strong, fit and healthy as today’s modern elite athlete...if not more so.
- 3.** Humans are meant to metabolize body fat for their aerobic energy source (and much more!) while glucose is our “Fight or Flight” fuel. This is why we have virtually unlimited energy stored as fat and limited yet adequate stores of glucose (as glycogen). Even the leanest athlete has enough available fat stores to complete an Ironman Triathlon or a 100 Mile run. It is tapping into this plentiful and powerful energy source that is key and what OFM™ focuses on.
- 4.** Humans are meant to move...a LOT! This is why OFM™ focuses on highly active/athletic individuals and not relatively sedentary ones. Regular aerobic physical activity interspersed with high intensity surges are key components of OFM™.

#beyondketo

5. Do the Math! Ketones produce 22 ATP. Glucose 29 ATP. Fat via beta oxidation 129 ATP! Which energy source do you really want to develop?



6. "Less is more..." Humans are incredibly efficient and operate optimally when given the proper inputs. This is especially true with regards to OFM™ and why we focus on "Nutrition NOT Calories".
7. "Strategic" use of carbohydrates. In the OFM™ paradigm we don't eschew Concentrated forms of Carbohydrates but, rather, view them as a "Legal PED" to be used "Strategically"

As a starting point for this complex subject read through the OFM™ Mental Roadmap.

#beyondketo

Benefits of OFM™ vs.Keto:

- Individualized. This is why OFM™ offers individualized [coaching](#) and not cookie-cutter content for the masses.
- Developed in the real world with real results.
- OFM™'s focus is on "Optimizing Fat Metabolism" which encompasses energy needs, hormone & enzyme production/balance, muscle synthesis, mitochondrial & cell health which minimizes oxidative stress & lactate load. This includes ketone metabolism as well as enhancing carbohydrate use for performance.
- Improved dietary and physiological efficiency due to our focus on "[Nutrition NOT Calories](#)" and cardiovascular development.
- Comprehensive integration of factors that affect fat metabolism, not just dietary aspects. OFM™ uses [keto](#) as one tool of many.
- Optimizes physical, mental and emotional stability and performance.
- Less dietary restriction, due to improved carbohydrate tolerance.
- "[Strategic Carbohydrates](#)" do play a role for performance!
- Sustainable long term. OFM™ becomes a way of life.



OFM Athlete, Jeff Browning, 2018 Hard Rock 100 Mile Champion at the age of 47. [Vespa](#) & [OFM](#) were the "secret sauce" that allowed Jeff to regain his Mojo in his mid-40's to compete, podium & win some of the toughest 100 Mile Mountain Ultras

#beyondketo

More than just energy

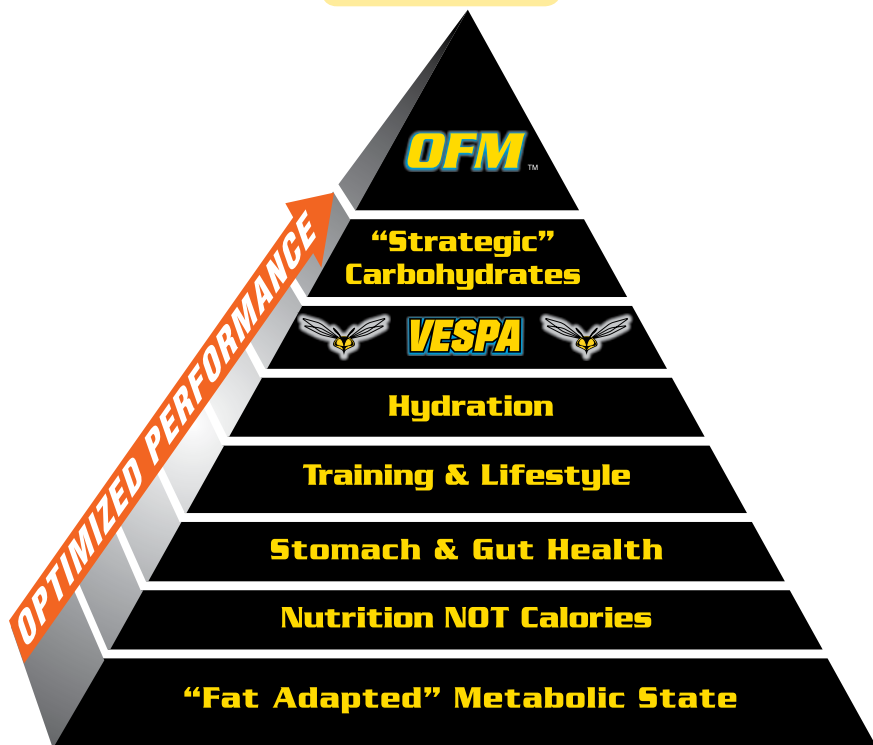
OFM™ is much more than tapping into your “fat as your fuel.” Fats, technically known as lipids, are critical carriers for proteins, minerals and fat-soluble vitamins to supply every cell in the body (fats+proteins=lipoproteins). This is why we focus on “Nutrition NOT Calories” in the OFM™ Program.

Only through addressing this critical foundation physiology can the athlete reach their health and performance potential. This includes optimizing the ability to use concentrated carbohydrates strategically for that last step performance edge.



Sergeant First Class, William Kocken, setting a Guinness Book of World Records for the Marathon carrying a 100 pound pack in a time of 6H, 27M, 59S! This incredible feat of strength, stamina and mental focus was powered by Vespa & OFM. Now it's your turn to reach your superhuman potential using [Nature's Catalyst for Optimizing Fat Metabolism](#).

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To help You achieve your Performance Potential we've created the **OFM™ Pyramid**. The Pyramid sections are composed of the principle aspects of optimizing fat metabolism which, in our extensive experience, are key to address to achieve your performance and health goals.

Within each section are sub-sections which systematically break each tier into more detailed sub-sections. Because your physiology and environment are far more complex and nuanced than words on paper or a video can begin to describe we remain mindful of how each piece is inextricably tied into your individualized and dynamic OFM™ matrix.

Our **results-driven experience** pioneering fat based performance in the new millenia is unparalleled and we look forward to helping you achieve you health & performance potential!

Knowledge is power. You now have the knowledge to move "beyond keto" into the realm of OFM™. **Welcome!**

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Deep heartfelt gratitude to all the Vespa/OFM athletes Peter Defty has had the honor to work with and who believe in Vespa & OFM. Their success was the driver to continue developing fat-based performance against the wall of skepticism & ridicule.

Medical/Research Professionals to thank: Bruce Labelle PhD, Ling-ru Chu PhD, Johnathan Edwards MD, Stephen Phinney MD/PhD, Jeff Volek RD/PhD, Larry Weiss MD/PhD, Catherine Dudick MD, Mark Cucuzzella MD and Craighton Chin MD. It is your guidance as professionals to keep me intellectually honest and have a scientific basis for innovation.

#beyondketo

About the Author

Peter Defty pioneered fat-based performance starting in 2001 which began immediately after completing his first marathon in December 2000. He carb-loaded and subsequently bonked!

This began a journey of discovery which merged Peter's affinity for trail running with progressively optimizing his fat metabolism. As a biologist (B.S. UC Davis) he possessed the skills to hypothesize then test his empirical results using a scientific basis.

In 2006 Peter ran the Western States 100 Mile Endurance Run and successfully completed it under 24 hours using his acquired strategies and the Vespa supplement. This convinced him of the merits of fat based fueling which completely countered the conventional wisdom of using carbohydrates as the principle energy source. This led Peter to become the General Manager and a principle of Vespa. It was in his supporting the Vespa product where he refined his experience to develop the Optimized Fat Metabolism (OFM) program with Vespa athletes.

During the early years experts and critics were not only skeptical of Vespa and OFM but many outright ridiculed the notion of Vespa and the fat-based approach to athletic performance like this piece in a 2009 issue of Sports Illustrated.

Take Two What?

A brief history of sports' most ridiculous remedies

Facing six weeks on the sidelines after damaging a ligaments in his right ankle, Robin van Persie, a striker for Arsenal in the English Premier League, did what any reasonable person in his situation would. He decided to go to Serbia and let a housewife rub horse placenta on the ankle. The procedure supposedly introduces proteins into the injured area, and several soccer players have already tried it. "It can't do any harm, and if it helps, it helps," said Van Persie.

Strange? Yes. Gross? Certainly. But not unprecedented in the annals of unconventional remedies. A few others:

Baby urine. After beating Samuel Peter to regain the WBC heavyweight title in 2008, Vitali Klitschko wrapped his hands in the wet diapers of his three-year-old



son, Max. "Baby wee is good because it's pure, doesn't contain toxins and doesn't smell," said Klitschko, whose grandmother gave him the idea. "The nappies hold the liquid, and the swelling stays down."

Emu oil. Shortly before the 2003 London Marathon, Paula Radcliffe collided with a bicyclist and suffered a dislocated jaw, whiplash and cuts and bruises. To hasten the healing,

FOAL PLAY Van Persie's horse-placenta treatment is the latest cure from the animal kingdom.

she used an old aboriginal treatment: a balm extracted from the fat of an emu, a speedy, three-toed Australian bird. A month later Radcliffe defended her title in world-record time.

Hornet juice. In 2000 Naoko Takahashi



attributed her win in the Olympic marathon in Sydney to an elixir made from the stomach fluid of killer hornets, which purportedly improves endurance. Why hornets? They fly up to 60 miles a day—at nearly 20 mph—in search of food.

Rooster combs. Several athletes have sought treatment from unconventional German doctor Hans-Wilhelm Müller-Wohlfarth, whose medicine of choice for joint problems is an injectable lubricant called Hylart, which is extracted from the bumpy growths on roosters' heads. His most successful patient: cricketer Darren Gough. "I'm the Tin Man," Gough said in 2005. "I go to see him for an oiling every month." Gough's bum knee healed so well that he not only recaptured his form as a bowler but also won the British talent show *Strictly Come Dancing*.



The real-world results told another story. Athletes following this approach were winning and setting records at some of the most challenging competition in the emerging sport of ultrarunning.

It was in 2010 that Peter met with Dr. Stephen Phinney MD, PhD., the first researcher who did not dismiss these results. He not only validated the scientific basis for these results but engaged Peter as a reviewer for his and Dr. Jeff Volek's books, "The Art & Science of Low Carbohydrate Living" and "The Art & Science of Low Carbohydrate Performance." Drs. Phinney & Volek then began to study these OFM athletes first in the Western States Study (unpublished) in 2012 which led to the ground-breaking FASTER Study (published 2016). Their first publication; "[Metabolic characteristics of keto-adapted ultra-endurance runners](#)" conclusively demonstrated humans are able to metabolize a lot more fat than the body of science to date suggested was possible and at the intensity levels necessary for performance level sports thus validating what Peter & his athletes were saying and demonstrating in the real world of competition.

Today, Peter continues to focus on results driven innovation to help each individual reach their health and performance potential.

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More References Available upon request.

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