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ENDURE IQ

Quickstart Guide Summer '20

Live

Better



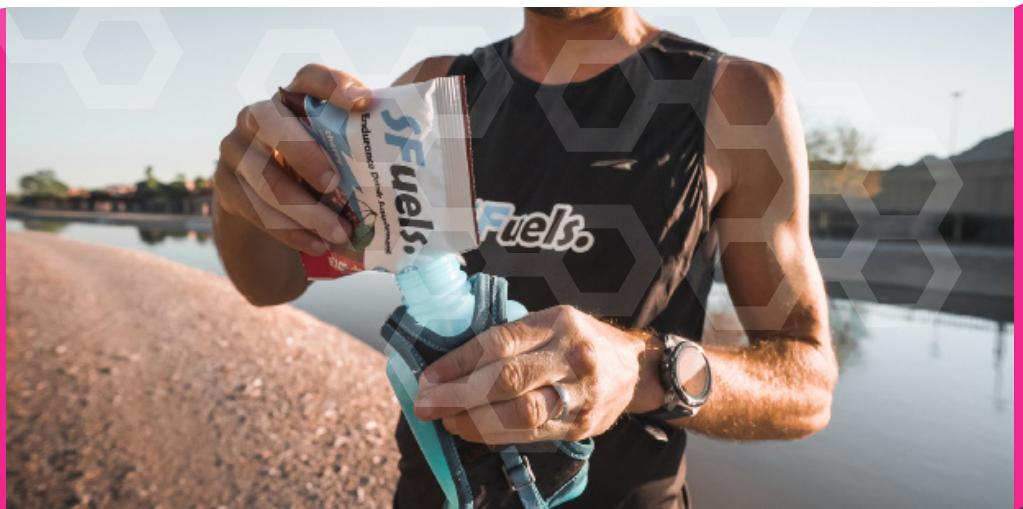
Train

Smarter



Race+

Faster



Coaches, Athletes & industry **Begin the switch...**

"Endurance athletes have long been concerned about all the sugar-carbs being consumed - but athletes have had no option. Athletes are looking for education and quality products that support them in establishing a baseline efficiency of fat-oxidation and easy-to use low-carb high-fat products for training and racing.

The product roadmap we're building with SFuels is very exciting."

Dave Scott

*6- Time Ironman World
Champion Coach, Teacher.*

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“Professional and amateur athletes continue to experience the high risks of spiking and crashing blood-sugars during ultra-endurance racing and training.

Extreme blood sugars swings continue to be a key factor in DNF (Did Not Finish) or poor-performance results, from Gut distress, stable-energy and bonking (hitting the wall).

Without optimally training the body to perform efficient fat-oxidation, athletes have no option but to begin taking in high amounts of sugar-based fuels and drinks, and are then left to experience the devastating effects.

Furthermore, these risks are not limited to racing alone. For years science has shown that the acute and chronic inflammation caused by swinging blood sugars is a leading cause of our most debilitating diseases.”

Dr. Dan Plews

*Ironman 2018 AG World Champion
& World Record Holder*

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Go Longer.

While the body holds only ~2000 calories of glycogen, 40,000 calories of fat are ready and waiting to be used for fuel. However, most endurance athletes have trained themselves to first, burn sugars for fuel, while-leaving these fat reserves totally under-utilized.

What if we could shift our fat oxidation from 0.3 Grams/Hour, to over 1.2Grams per hour? Wouldn't you want to Go Longer, with –



- A smoother stream of energy, and preserved glycogen levels,
- Less need to carry and consume high-amounts of carbs,
- Reduced risk of sugar-crash bonks in high-intensity training and racing,
- Reduced sugar-triggered GI/gut distress in training/racing, and,
- Improved recovery and more consistent training blocks.

START

Typical high carb intake can range from 400 grams to over 600 grams per day...

THE LOW CARB JOURNEY

Case Study
[CLICK HERE](#)

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LOW-CARB DAILY LIVING

Maintain a lower-carb higher fat lifestyle in the 50-150Gr/Carb per day range, to build a foundation fat-adapted metabolism.

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RACING | HIGH-INTENSITY

Burn fat at higher race intensities, with fat and targeted support of pre-digested low osmolality starch.

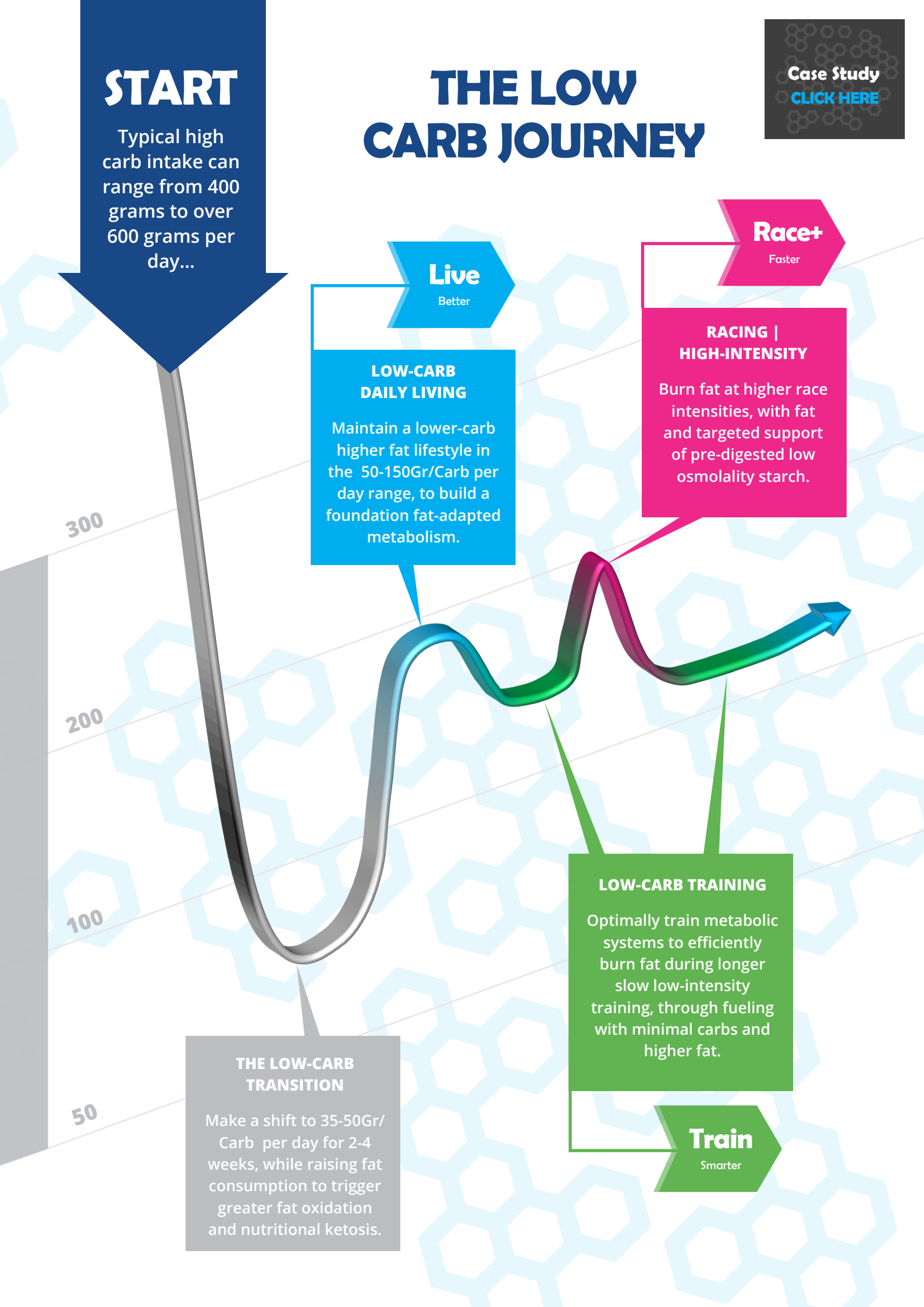
LOW-CARB TRAINING

Optimally train metabolic systems to efficiently burn fat during longer slow low-intensity training, through fueling with minimal carbs and higher fat.

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THE LOW-CARB TRANSITION

Make a shift to 35-50Gr/ Carb per day for 2-4 weeks, while raising fat consumption to trigger greater fat oxidation and nutritional ketosis.



TRANSITION SHIFTS

Get started on your journey by shifting your mix and type of foods, specifically lowering carbohydrates, increasing fat consumption and maintaining quality protein.

CARBS
REDUCE TO

35-50Gr
per day

FATS
INCREASE TO

65-80%
of your daily Calories

PROTEIN
TIMED/MEASURED

1.0 – 2.0
Gr/Day per pound per
athlete recommendations¹

YES

Non-Starchy
Vegetables
Berries

Creams, Butter, Nuts
Olive, Coconut Oil,
Avocado, SFuels

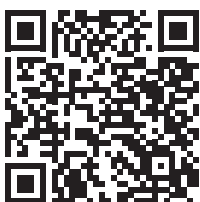
Creams, Butter, Nuts
Olive, Coconut Oil,
Avocado, SFuels

NO

Pastas, Rice, Grains
Cereals, Sodas, Juices,
Baking, sugar, candy

Safflower, soybean,
corn, peanut, canola
oils

Dairy snacking between
meals, high lean-beef
intakes without fat/fiber-
veges.

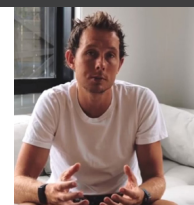


Scan Me!

Measuring Blood-Glucose And Ketones



World Age-Group
Ironman Champion
Record Holder Dr. Dan
Plews Talks Blood
Glucose and Ketones.



[CLICK HERE](#)

Measuring Maximal Fat Oxidation: Decision Tree

[CLICK HERE](#)

TRANSITION EXPECTATIONS?

Don't be alarmed! It is a well-known fact that as you transition off a high-carb, refined sugar diet, your body will naturally have a temporary reaction in the first several days.

**Tiredness Mental
lethargy
Headaches ?**

**Lower Power
In training ?**

**Increased
Urination ?**

2 – 4 weeks

Weakness, tiredness, yawning, possibly headaches and more frequent urination are temporary symptoms you may experience as you move down to 50 grams carbs/day. What is going on?

Many of your body's systems have been fed a constant diet of refined sugars for years. Your gut, your brain, your liver, your muscle's power plants (mitochondria), your adrenal glands have all been dependent on sugar. Simply put, when the sugar drip-feed stops – these systems are distressed, since other metabolic processes (i.e. fat oxidation, and ketone production) are unable to rapidly turn on and take up the 'sugar-slack'.

Additionally, reducing carbohydrates in the diet, results in the body shedding sodium and water (increased urination), and subsequently potassium. Adding salts to your foods is recommended for low-carb diets-lifestyle.

However, as you transition through this 2-4 week period – the release of glucose into the blood begins to slow. The liver begins to more efficiently produce ketones from fat, and the muscle cells, organelles and enzyme-systems improve their fat oxidation efficiency (possible 2 fold increase). With this, the temporary symptoms you initially felt stop.

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LOW CARB LIVING

After your transition, maintain a consistent 50-150 grams of carbs per day, relative to the duration and intensity of your training days and rest days.



Easily transform meals, by choosing from 100s of these Low-Carb High-Fat recipes.

<https://www.pinterest.com/sfuelsgolonger/>



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SFUELS LIFE

When you're not training, use SFuels LIFE for grab-and-go low-carb shakes and snacks.

ELECTROLYTES

Maintain mental and physical drive by maintaining electrolyte levels, as you transition off high-carb foods.

QUALITY CALORIES

Maintain caloric intake with medium chain-triglycerides and higher fat snacks, foods and drinks, while training your fat-oxidation. Eliminate the need to use sucrose, fructose, glucose, maltodextrins and sugar alcohols in your foods and meals.



**GRAB & GO
SHAKES
& SNACKS**



CLICK HERE

Spring
2020

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LOW-CARB GRAB & GO



1 MAX HIGH-INTENSITY, THRESHOLD WORKOUTS



Hit your high-intensity workouts with force, feeling satisfied and fueled, while keeping blood sugar levels in check, and fat-oxidation running high.

**HIT Training
When Carbs?**
[CLICK HERE](#)

2 MAX RECOVERY, POST LONG-AEROBIC WORKOUTS



Speed recovery of micro-fibre muscle and gut-membrane damage from long endurance workouts, by feeding quality protein isolate and resistant starches, without the sugar dump or sugar alcohols. Take SFuels LIFE BARS within 30mins after your workout.

3 MAX FAT OXIDATION EFFICIENCY, INTERMITTENT FAST



Continue to max your fat-oxidation efficiency from overnight intermittent fasts, by breaking the fast with a very low- carb, high fat-protein-fibre snack. After a 14-15 hour overnight fast, break your fast with SFuels LIFE BARS and water, coffee or tea.

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SFUELS LIFE BARS

Train the body to use fats for fuel by eliminating the use of sucrose, fructose, glucose, maltodextrins and sugar alcohols.

Provide quality oils and fats to train the bodies metabolism for efficient fat-based calorie absorption, assimilation and utilization.

Provide highest quality protein isolate for maximum absorption, and minimized lactose levels to maximize rapid repair of micro-muscle damage and minimize the unwanted effects of higher milk-sugar loads or lactose-sensitivities.



Meet the demands of an endurance athletes lifestyle with great tasting real food, mixed with resistant starches to **satisfy your intense appetite, while repairing and feeding damaged gut-membranes from long-hot endurance workouts.**

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WHICH CARBS – ARE OK?

It's important to note that 'low-carb' does not mean 'no-carb'. Here's a spread of high-fiber, nutrient dense foods, with a low glycemic index.



Cooking: Fiber and blood sugar impact.

Natural fruits and vegetables are not only dense in nutrients, but also in fiber. Fiber slows the digestion-absorption rate of nutrients into the blood system. Cooking dilutes this impact, by breaking down the cellulose in fiber, so seek to maintain a mix of uncooked and cooked carbs.

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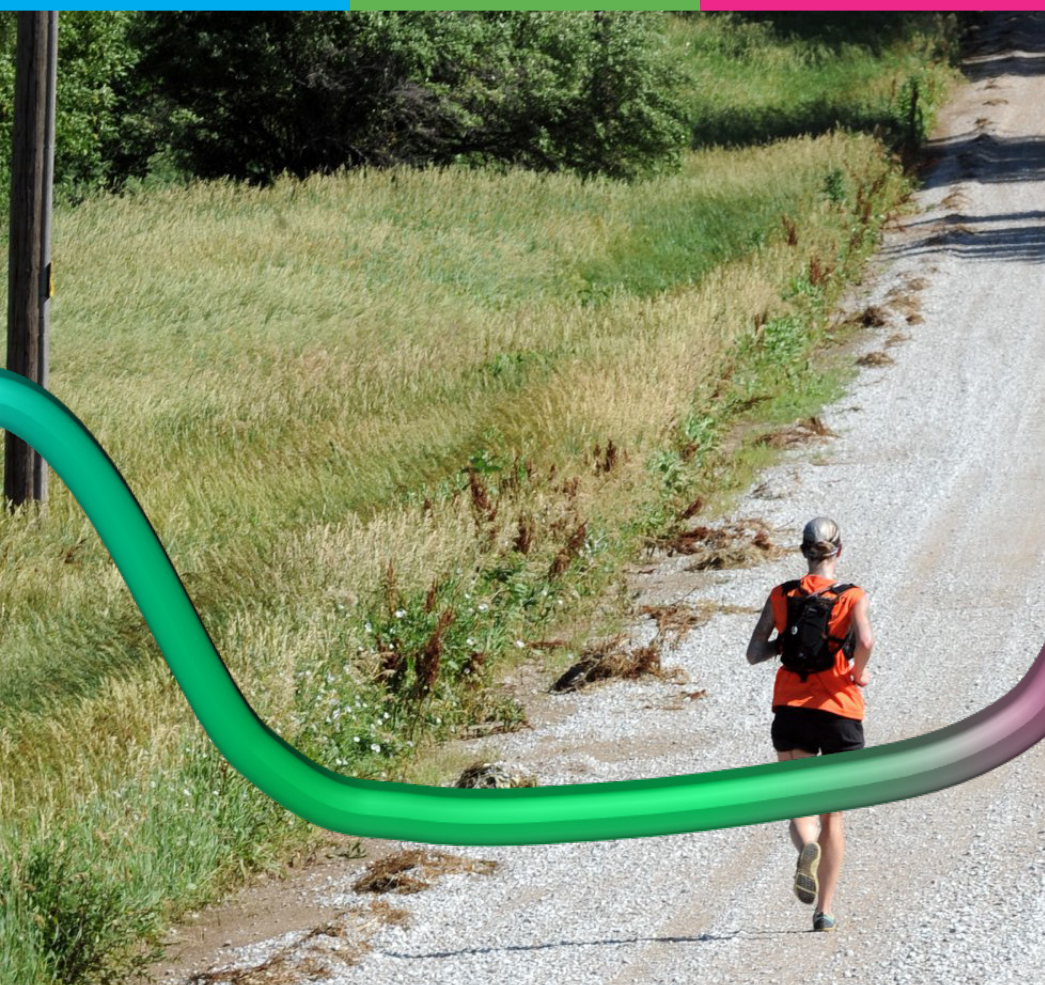
LOW-CARB TRAINING



**Why
Training Needs
to be Low?**
[CLICK HERE](#)

Conduct your low-intensity training sessions on low-no carbohydrate based hydration to trigger maximum metabolic shifts in fat-oxidation efficiency.

Long slow distance training builds both aerobic efficiency and fat-oxidation efficiency.



Train

Smarter

SFUELS TRAIN

Train the body to use fats for fuel by eliminating the use of sucrose, fructose, glucose, maltodextrins and sugar alcohols.

Optimize Vitamin C levels within cells for immune and anti-inflammatory processes, by keeping blood-sugar levels in healthy ranges.

Provide quality absorbable hydrolyzed collagen peptides, to help providing critical nutritional building blocks for repairing damaged connective tissues from repetitive endurance training and racing blocks.



Supplement electrolytes to avoid deficient states from repetitive endurance training blocks.

Minimize exercise induced GI/Gut distress and delayed onset muscle soreness by fueling-feeding the muscles and the gut membrane with clinical levels of Glutamine.

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RACING AND HIGH-INTENSITY

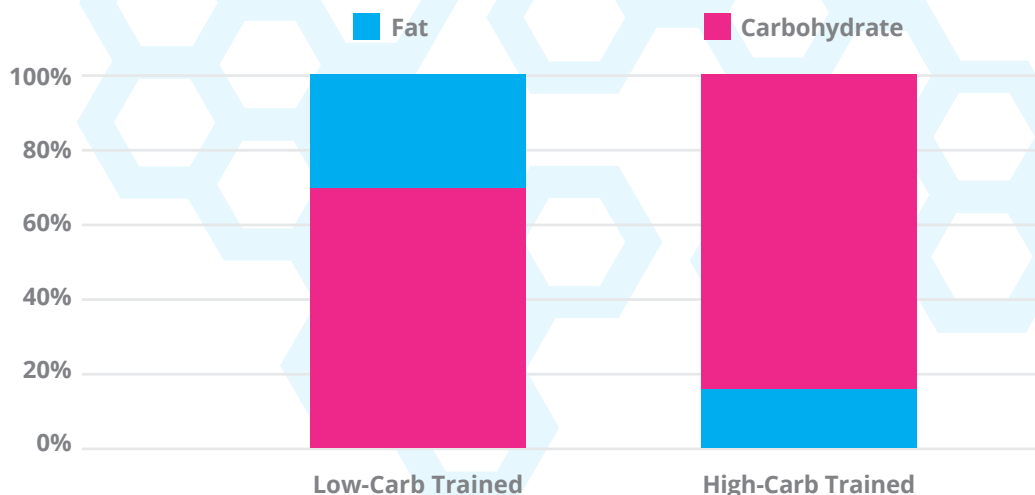
VO2Max substrate testing has shown that Low-Carb trained athletes can oxidize fats at over 90 grams per hour, 3-4 times more than high-carb trained athletes.

This supports the lowcarb trained athlete to train or race at higher intensities, while consuming fewer carbs, avoiding the infamous bonk, hitting-the-wall, race stopping gut distress ([PAPER HERE](#)) and unmanageable energy swings."



Fat/Carb % Oxidation Efficiency at High Intensity

Comparison at 270W Cycling



How the
MATH
WORKS?

[CLICK HERE](#)

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RACING AND HIGH-INTENSITY

Train and test your fuel-water dosage requirements against expected race day intensities, temperature, elevation and duration. Below is provided as guidance.

Fuels: Product Choice vs. Intensity/Duration

Rate of Perceived Exertion*	1Hr	2Hr	3Hr	4Hr	5Hr+
Cruising No Muscle Awareness	TRAIN	TRAIN	TRAIN	TRAIN	TRAIN
Deeper Breathing Muscle Awareness	TRAIN	TRAIN	RACE+	RACE+	RACE+
RACING Intense Breathing And Muscle Awareness	TRAIN	RACE+	RACE+	RACE+	RACE+

Pre-Race Morning and Race Start

It's important not to consume insulin triggering grains, simple sugars and dairy on race morning. Also, complete the first 30-60 minutes of your race without any intake of sugars/carbs.

Applying this to your race-day prep enables muscle cell glucose transporters, to rapidly move to the cell wall, open glucose channels, and allow the free flow of glucose into the muscle cells, without insulin.

Muscle cells can then simultaneously oxidize both fats and glucose to provide a smooth supply of energy and power throughout your race. By enabling high fat oxidation during high intensity racing, athletes will need less carbohydrate to perform and also mitigate the risk of race stopping gut distress from simple sugars like sucrose (fructose+glucose) and fructose.

*Rate of Perceived exertion is provided as a guide here to help, translate exertion signs of rising intensity levels to approximate lactate threshold levels – and where oxidation rates shift between fat and carbohydrate.

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RACING AND HIGH-INTENSITY

Dosage Guidance – During Race

During high-intensity racing and training, low-carb trained athletes can be burning over 800 calories of fat per hour, plus additionally burning carbohydrates. With the majority of energy coming from fat oxidation, the amount of carbohydrate consumption required is far less.

	Fat-Oxidation Grams/min	Fat-Oxidation Calories/Hr.
Very High	1.5	810
High	1.4	756
	1.2 - 1.3	702

As intensity levels shift during the race from changes in elevation, wind, heat/humidity, competitive-racing dynamics, and exhaustion – the amount of calories burned will change – and so to does the required amount of carbohydrate intake.

Oxidized Calories/Hour, at Various Intensities*

	12-13 mph	16-19 mph	>20 mph	5 mph (12min/mile)	7 mph (8.5min/mile)	10 mph (6min/mile)
60kg/132lbs	420	660	900	420	630	900
75kg/165lbs	525	825	1,125	525	788	1125
90kg/198lbs	630	990	1350	630	945	1350

Based on above mentioned (blue table rows) Fat-Oxidation rates/Hr.

SFuels RACE+ Dose Guidance	use SFuels TRAIN	1 Race+ Sachet/Hour	1-2 Race+ Sachets/Hour	use SFuels TRAIN	1 Race+ Sachets/Hour	1-2 Race+ Sachets/Hour
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Testing fuel-dosages at various intensities in training, is critical to best optimize race performance outcomes, and mitigate under/over hydration and gut-distress issues.

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RACING AND HIGH-INTENSITY

SFuels Race+ Storage Ideas



	SFuels Race+ (Concentrate) Storage	Water (Only) Storage
100Mile Bike	<p>Add multiple SFuels Race+ sachets into 32oz water bottle(s) – to support expected duration and intensity levels on the bike-segment.</p> <p>Mix with Water only bottle/storage, and/or directly sip throughout race.</p>	<p>Cockpit – just water. Refill at aid Stations.</p>
Marathon or IM Marathon	<p>Add multiple (Relative to your race duration/intensity) SFuels Race+ into a bowl, with 'JUST ENOUGH WATER' to create a gel-like concentrate. Pour the concentrate into as SFuels Soft-flask. Carry your softflask into your Tri-suit, race suit, race-belt/vest. Squeeze some concentrate into water cups in aid-stations and drink.</p>	
Ultra-Marathon 50-100Miler	<p>Same as Marathon, plus - workout how many of the SFuels Race+ concentrate softflasks you will need for the ultra. If you have a drop bag/aid-station, or supportable aid-stations in the race – then have replenishment SFuels Race+ softflask concentrate bottles cooled and ready in your drop bag, or from your support crew.</p>	

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SFUELS RACE+

Fuel high-intensity training and racing by simultaneously burning fats and carbs. Using pre-digested branch chained starches with MCT oils, while avoiding ANY use of simple sugars, glucose, fructose, syrups, sugar alcohols and spiking maltodextrins.

Enable rapid transit of calories through upper GI tract while racing, by ONLY using carbs with low osmolality and pre-digested branch chain starches and medium-chain triglycerides, while avoiding gut irritants like fructose, and sugar alcohols.



Maintain dependable neuro-muscular communications, and the support most efficient gut absorption by supplementing with Sodium, Calcium, Potassium and Gut-friendly Magnesium.

Minimize exercise induced GI/Gut distress and delayed onset muscle soreness by fueling-feeding the muscles and the gut membrane with clinical levels of Glutamine.



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RAPID RECOVERY

High volume training, longer, more frequent sessions and intense racing can overwhelm our physical and emotional health. Progressive improvement during these times of high-stress, can be achieved through targeted nutrition and quality recovery. But left unchecked here's what can happen -

... SPIKES UP

1

Oxidation

2

Inflammatory
Mediators

3

Muscle-tissue
injury

4

Cortisol

5

Sympathetic
Nervous
Response

... DROPS DOWN

Immune
Resistance

6

Gut
Integrity

7

Parasympathetic
Nervous Response

8

Heart
Rate Variability

9

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WHAT SPIKES UP?

1

OXIDATION

Endurance training/racing raises substances (reactive oxygen species, or free-radicals) which cause lipid peroxidation and cell-wall breakdown. The body has many enzymes to manage free-radicals, but post ultra race levels can reach almost 90% over, pre-race levels. Aside from acute inflammation, free-radicals have been directly related to chronic diseases.

3

SYMPATHETIC OVERDRIVE

Over-stimulation of the sympathetic branch of the autonomic nervous system, can trigger difficulty sleeping, higher blood pressure, higher cholesterol, nervousness, and constrained blood supply to the digestive system.

4

CORTISOL

A constant triggering of cortisol from the adrenal glands, can trigger increased weight gain, slowed healing, muscle weakness.

5

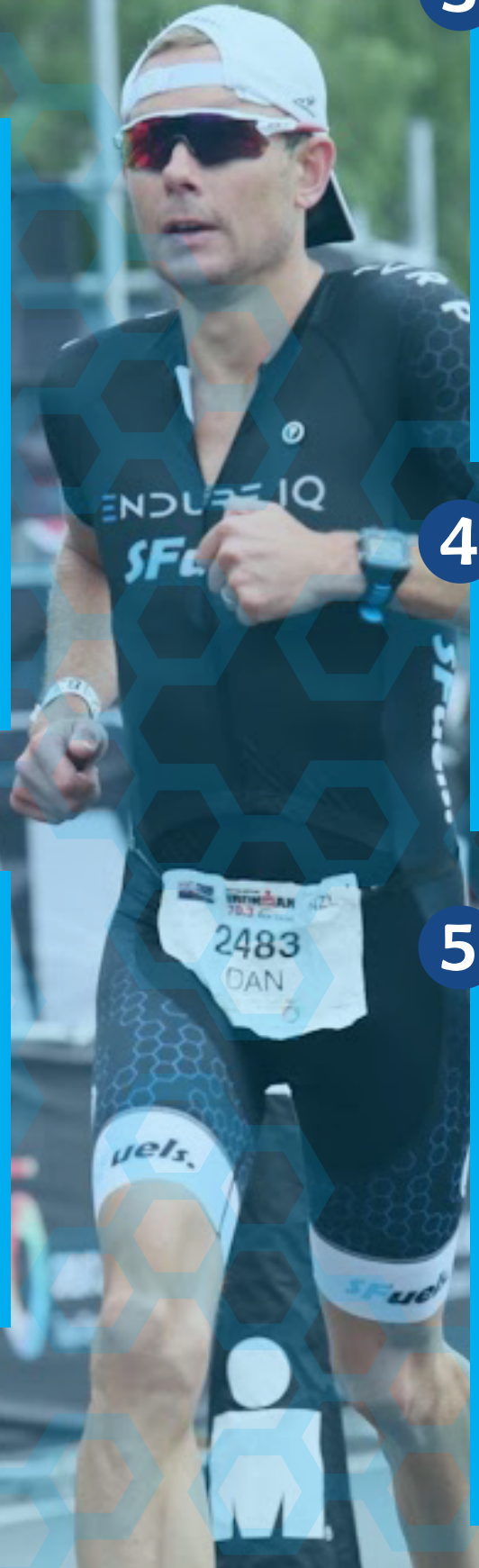
MUSCLE BREAKDOWN

Blood tests following endurance exercise, shows heightened levels of Creatine kinase (CK), and myoglobin – both being markers of muscle damage, and post exercise soreness. In fact in ultra-events, markers can remain high for two-five days after race (or training) completion, indicating ongoing muscle damage.

2

INFLAMMATION

Endurance training has shown to raise inflammatory markers and powerful cytokines (cell messengers), like IL-6 and TNF. Endurance exercise can more than double the level of these inflammatory markers, versus pre-exercise levels.



WHAT DROPS DOWN?

6

IMMUNE RESISTANCE

Studies on ultra-marathon finishers, have shown >25% incidence of upper-respiratory tract infections within two weeks post race. Research suggests a decreases in mucosal immunity (IgA) following marathon events. Again, high consumption of sugar (bars, drinks, gels in training/racing) reduces vitamin C transport into white blood cells impairing immunity.

7

GUT INTEGRITY

Exercise of longer duration, shunts blood from the Gut, creating a hypoxic state (no blood), increasing gut membrane breakdown and the flow of toxic inflammatory compounds into the blood. Heat, simple sugars, dehydration will all increase this.

8

PARASYMPATHETIC TONE

As the sympathetic nervous system dominates over the parasympathetic system, bodily functions like slowing of the heart rate (rest), Gut/ GI motility and secretions become weakened and disorderly.

9

HEART RATE VARIABILITY

As sympathetic nervous strength prevails, and parasympathetic tone declines, the variability of time between each heart beat decreases - which becomes a key proxy or bio-marker, for athletes looking for early signals of physiologic imbalance, and over-reaching in training and lifestyles.

THE ULTRA GUT.

**CLICK
HERE**

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SFUELS REVIVAL

Endurance Recovery Drink Supplement

Reducing (protein) oxidation, high endurance by raising levels of B-hydroxybutyrate (BHB) ketones.

leucine muscle from volume exercise

Replenish sodium levels, commonly seen in low-carb endurance athletes.

lowered levels, seen in endurance

Improve muscle-torque (power), lower delayed onset muscle soreness and inflammation, through high dose L-Glutamine supplementation. Also to reduce, exercise heat-triggered damage to the gut membrane, by rapid membrane repair, through L-Glutamine.

muscle-torque (power), lower delayed onset muscle soreness and inflammation, through high dose L-Glutamine supplementation.



Using highest quality whey protein isolate, to improve lean-body mass, reduce the damaging effects of high-volume eccentric muscle contractions (running, cycling etc.) resulting in a decline of muscle strength and micro-tear muscle damage. Whey protein has also been highlighted for improving immune response, and blunting cortisol responses from training stress.

Eliminating sugar triggered insulin spikes, stalled fat-oxidation and heightened inflammatory markers through avoiding the use of sucrose, glucose, fructose, maltodextrins.

Maintain favorable gut bacteria, by avoiding the use of all sugar alcohols like sucralose, that have shown to disrupt the gut microbiome.



SFUELS LIVE: VIDEO CONTENT

Dave Scott

6X Ironman
World Champion



Dr. Dan Plews

Ironman AG
World Champion



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ENDURE IQ

Endure IQ breaks down the science of endurance performance into practical information through online education courses and learning communities which will empower you with the understanding needed to find your sweet spot.

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