

Introduction

*People come to us for results. It's that simple. Results are the bottom line. Bodybuilders care about gaining muscle, losing fat, and improving overall health - and they come to us because we can show them how. There are probably a hundred companies that will be happy to sell you supplements. What sets us apart is we provide the information you need to get results — as well as the highest quality supplements available. The foundation of our program is **The Parrillo Performance Nutrition Manual**. We believe that food is the foundation of nutrition and to derive the most benefit from supplements they should be used in conjunction with the proper diet. We've spent years working with bodybuilders perfecting the optimum diet for gaining muscle, losing fat, and improving overall health. Some people work hard at bodybuilding but don't make any progress because they're missing one component, and that's holding them back. Our program works the best because it's a comprehensive approach to bodybuilding, based on proper nutrition, intense training, aerobics, and stretching.*

You've seen people who train hard but never seem to grow, and people who spend a lot on supplements but don't get any results. Not on our program. We know of no one who has followed our program without getting good results. True, our program is demanding and it takes an enormous amount of work, dedication and consistency. It's not for everyone — it's for serious bodybuilders who are willing to put forth the effort to get results.

In the Nutrition Manual, we explain the practical information about how to design your diet: which foods to eat, how to combine them, how to divide your calories among protein, carbs, and fat, and how to make adjustments to your diet to ensure that you continue making progress. These days, nearly all of the competitive bodybuilders are following this diet. It has become so standard that you don't really hear people arguing about nutrition in the gym much anymore.

Basically, everyone is in agreement about what the optimum diet is. But we still get a lot of technical questions about the reasons behind the diet — the underlying principles of biochemistry and metabolism. That's why we've put together this series of technical bulletins that address many of the biological processes behind nutrition and supplementation. These bulletins should help you better understand how the body utilizes the foods and supplements you incorporate in your diet.

MCFs: A Fat That's Not Stored As Body Fat

by John Parrillo



CapTri® is retained in the liver and is immediately burned to produce energy, so it has very little tendency to contribute to fat stores.

We want everyone who uses our products to be on the proper diet. After the foundation is laid with the proper foods, supplements can be used to further increase nutrient levels beyond what can be obtained from foods alone. So to understand how CapTri® works and how to use it, we have to discuss it in the context of a total program of nutrition. The most surprising thing about CapTri® is that it is technically a fat, yet paradoxically it contributes less to fat stores than conventional fats and even carbohydrates.

To understand why, you have to understand in the body. Conventional dietary fats found in foods are called "long chain triglyceride chain fatty acids (LCFAs), which are 16-22 carbon atoms in length. This also turns body. CapTri® is known as a medium chain triglyceride (MCT), because it is (MCFAs), which are only 6-12 carbon atoms long. This difference in molecular CapTri® behaves differently in the body than conventional fats (1).

cent water and that fat is not very soluble in water (oil and water don't mix). Your tive process in order to absorb and metabolize fats (2). The gall bladder produces little fat droplets called micelles. Cells in the intestines make protein carrier molecules. These fat-protein complexes are called chylomicrons and are released from the chylomicrons eventually reach the bloodstream through the thoracic duct. Once in throughout the body. Insulin causes fat cells (adipocytes) to absorb the fat mol-

ture and is more soluble in water (1). sorb and does not require this complicated fats are prone to be stored as body fat, small intestine to the liver by the portal turned into ketone bodies which the used for thermogenesis (heat), and a por-

rency of the cell (1,3,4). CapTri®, therefore, is processed in the liver so there is

CapTri® provides the caloric density of fat—but without the tendency to be stored. Studies have been demonstrated to contribute less to body fat accumulation than conven-

In summary, excess calories from any food can be stored as fat, but some foods. Carbohydrate or protein has to be converted to fat before it can be stored as

hand, already has the same chemical structure as body fat. This is why excess calo-

prone to be stored as body fat. CapTri® is processed by the liver and is immediately little tendency to contribute to body fat stores (1).

MCT on the market and is considered to be the world's premier MCT supplement.

CapTri® is an excellent way to provide extra calories which can be used to support body fat.

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MCFAs: An Amazing Energy Source

by John Parrillo



CapTri® can be burned for energy even in the presence of carbohydrates

In the last bulletin we discussed the difference in molecular structure between CapTri and conventional fats. Conventional dietary fat is very similar, chemically, to body fat, so the body has a strong tendency to simply “file away” dietary fat as body fat.

Conventional fats are circulated throughout the body, picked up by fat cells and stored in the presence of insulin and glucose (1). In contrast, CapTri® is not circulated throughout the body, but instead is transported directly from the small intestine to the liver. CapTri® is retained in the liver, where it is rapidly

burned to produce energy (2).

Excess calories from any food can be stored as body fat, but some foods are much easier to convert to body fat than others. Conventional fats are the easiest to store as body fat because they already have the same chemical structure as body fat. By comparison, protein and carbohydrate have to be chemically converted into fat before they can be stored as fat. This conversion process uses up some of the calories contained in the protein or carbohydrate food, so this reduces the tendency of these foods to contribute to body fat stores. This is why we recommend a diet high in natural complex carbohydrates and lean protein, and that consumption of conventional fats be kept to an absolute minimum. Just be sure to take a tablespoon of linseed oil or safflower oil everyday to supply essential fatty acids.

Since CapTri® is transported to the liver (instead of fat cells) and burned for energy, it's no surprise that it contributes less to body fat accumulation than conventional fats do. The amazing thing is that CapTri® contributes less to body fat stores than carbohydrates (3, 4). Even though we've just started our discussion of how CapTri® works, we've already hit on the central reason why so many bodybuilders are using it today: CapTri® is extremely caloric dense, but due to the way it is metabolized, it has very little tendency to be stored as body fat. It's the ideal supplement for bodybuilders—concentrated source of calories that won't make you fat. The calories from CapTri® represent an energy source which can be used to fuel activity or support weight gain.

Now, let's examine what happens with CapTri® inside the liver. The liver is a miraculous organ; it's the workhorse of your metabolism. Your liver knows more about biochemistry than all of the scientists in the world. When you mention

bodybuilding, everybody thinks of muscles. But your liver is doing all the behind-the-scenes biochemical work that makes it possible. If your muscles are a race car, then your liver is the pit crew. Your liver occupies a central position in metabolism, including metabolism of fat.

Once inside the cells, fat molecules are burned in structures called mitochondria. The mitochondria are little furnaces where the foods you eat are burned to produce energy. All of the enzymes responsible for fat burning are located in the mitochondria. Therefore, if fats are not permitted to enter the mitochondria, they cannot be burned for energy. Conventional fats (LCTs) cannot simply enter the mitochondria by themselves because they can't penetrate the mitochondrial membrane (1). Instead, they have to be actively transported across the mitochondrial membrane by a special transport system called the **carnitine shuttle**. Without the carnitine shuttle (1), conventional dietary fats and body fat cannot be burned for energy. (Given an adequate diet your body can make its own carnitine, but we add some to our Lipotropic Formula just to make sure.)

Carbohydrate metabolism generates an intermediate called malonyl-CoA, which inhibits the carnitine shuttle (1). Furthermore, carbohydrates trigger insulin release, and insulin stimulates fat synthesis and fat storage. For these reasons, fat is not burned much as an energy source if carbohydrate fuel is available. This is why we recommend that you do your aerobics either first thing out of bed before breakfast, right after training or after your last meal because at these times you're relatively carb depleted and will burn more fat for energy.

In contrast to conventional fats, CapTri® can enter the mitochondria by itself and does not require the carnitine shuttle (1, 2). Therefore CapTri® can be

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burned for energy even in the presence of carbohydrates. This is another reason why *CapTri*[®] has very little tendency to contribute to body fat stores: Conventional fats can be burned only after carbohydrate fuels have been exhausted, but *CapTri*[®] can be burned at the same time as carbs (5). The calories from *CapTri*[®] are an additional energy source which can be used at the same time as carbohydrates, and this helps the carbohydrate fuel last longer (6). This is known as the glycogen sparing effect. The more energy you have, the longer and harder your workouts can be.

Lets' summarize the reasons why *CapTri*[®] is not stored as fat:

- Conventional fats have the same molecular structure as body fat, but *CapTri*[®] has a different molecular structure (1, 2).

- Conventional fats are circulated throughout the body, and insulin stimulates fat cells to pick up the fat molecules from the bloodstream and store them.

CapTri[®] is not circulated throughout the body but is processed by the liver (1, 2).

- In the liver, *CapTri*[®] is rapidly burned to produce energy. Some of this energy is used by the muscles and some is converted to body heat. Once the *CapTri*[®] is burned up, there's nothing left to be stored (2).

- *CapTri*[®] does not require the carnitine shuttle for entry into the mitochondria, so it can be burned for energy at the same time as carbohydrates (2, 5).

For these reasons, we recommend *CapTri*[®] as a key supplement in your nutritional program. Unlike dietary fats, *CapTri*[®] supplies the body with calories ready to be burned for energy with very little tendency to be stored as body fat.

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Energy and MCFAs

by John Parrillo



Whereas regular fats are circulated throughout the body and are prone to be stored as body fat, CapTri® is transported directly to the liver where it is immediately burned to produce energy.

MCFAs are very easy for your body to metabolize. In fact, your body prefers to burn MCFAs for energy rather than converting them to stored body fat. So far in this series we've covered the digestion, absorption, and metabolism of CapTri® and conventional dietary fats.

We've also explained the reasons why conventional fats make you fat but CapTri® does not. Whereas regular fats are circulated throughout the body and are prone to be stored as body fat, CapTri® is transported directly to the liver where it is immediately burned to produce energy (1). Conventional dietary fats have the same molecular structure as body fat, so it's easier for your body to store them.

Metabolism of conventional fats is a lot of work for your body (as you've noticed on the stair climber) and in general your body will go to the trouble to burn these fats as your carbohydrate sources are depleted. CapTri®, while being a fat, has a different molecular structure from the fat stored on your body: The fatty acid chains are shorter (1). As it turns out, this results in CapTri® being very easy for your body to metabolize, and your body prefers to burn CapTri® for energy rather than converting it to the form of storage fat (1). If eating regular food is like throwing a log on the fire, then eating CapTri® is like pouring gasoline on the fire. Since CapTri® burns so fast, it has very little tendency to be stored and that is the reason it's so popular with bodybuilders. The calories from CapTri® can be used to fuel activity or to support weight gain. Athletes add CapTri® to their food to provide additional calories and make drinks out of CapTri® to use while they train. Some endurance athletes even use it while they're running.

We explained that CapTri® is metabolized in liver mitochondria. Mitochondria are little furnaces inside cells and are the site of cellular energy production. Mitochondria are sometimes referred to as "the powerhouse of the cell." As you know, the body produces energy from the foods we eat by combining the foods with oxygen from the air we breathe. This type of chemical reaction is called "oxidation" because it involves reaction with oxygen

and is very similar to burning things in a fire. Many oxidation reactions release energy, just like a fire does. The main difference between burning something in a fire and inside your body is that the energy of a fire is released as heat to the surroundings. When foods are burned inside the body, some of the energy is captured so it can be used by the body. This process of burning foods occurs in the mitochondria, and the energy is captured by a molecule called ATP. ATP is the direct source of energy used for all bodily functions, including muscle contraction. Before the energy contained in foods can be used by the body, it has to be converted into ATP.

Unfortunately, body fat and conventional dietary fat cannot enter the mitochondria by themselves because the fat molecules can't make it across the mitochondrial membrane (2). These fat molecules have to be actively carried across the membrane by the carnitine shuttle. If carbohydrate fuels are available, this transport system is not very active (2). This is why your body burns fat only after carbohydrates have been depleted and is one of the reasons why fat tends to be stored so easily. In contrast, CapTri®, with its small molecular structure, can get into the mitochondria by itself and doesn't need the carnitine shuttle (1,2). This means that CapTri® is burned immediately—at the same time as carbohydrates (3). This additional energy source has a carbohydrate-sparing effect (4).

What happens to CapTri® inside liver mitochondria? If CapTri® is burned in the liver, how can the energy get to my muscles? Here's how:

Once inside the mitochondria, all fats are burned in a process called beta-oxidation. In beta-oxidation, blocks of two carbon atoms at a time are chopped off the end of the fatty acid chain. This forms an intermediate called "acetyl-

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CoA” which then enters an energy-producing pathway known as the “Krebs cycle.” The products of the Krebs cycle then enter the “electron transport chain” which generates our old friend ATP, as the chart above shows.

All of this occurs inside the mitochondria. What happens with *CapTri*[®] is that it gets burned in the liver so fast that it makes an enormous amount of acetyl-CoA, and the Krebs cycle can't keep up with it all. In other words, the Krebs cycle can only make ATP so fast, and *CapTri*[®] can overwhelm it. So what happens is that some of the acetyl-CoA gets diverted to a different metabolic fate—conversion to ketone bodies (1).

This process is termed “ketogenesis”—which simply means the manufacture of ketones. What happens is two molecules of acetyl-CoA combine to make one molecule known as a ketone body, or simply a ketone. This process occurs with regular fats too. Your body produces ketones from your body fat while fasting. Under normal conditions, however, regular dietary fats do not produce many ketone bodies because they're not burned that fast. The Krebs cycle can keep up with it and turn all the acetyl-CoA into ATP. But *CapTri*[®]—and not regular fats—will still produce ketone bodies if carbohydrates are ingested at the same

time (3). This indicates two things: that *CapTri*[®] is burned at the same time as carbohydrates, and that *CapTri*[®] is burned really fast.

So, a significant proportion of the *CapTri*[®] molecules are converted into ketone bodies in the liver. These are released into the bloodstream and are taken up by muscles to be used for energy (1). In the muscle cells the ketones are converted back into acetyl-CoA and are further metabolized to generate ATP, as outlined. This explains what happens to *CapTri*[®] inside liver mitochondria, how it is converted into energy, and how this energy is transported to the muscles to be used.

One interesting point about ketone bodies is that they are readily excreted in the urine - unlike fatty acids or glucose. So any extra calories which are not used as fuel can be eliminated instead of being converted into fat. Add that to your list of reasons why *CapTri*[®] is not stored as fat.

CapTri[®], unlike conventional dietary fat, is burned very quickly in the liver, producing acetyl-CoA. Part of this is converted to ATP in the Krebs cycle. The remainder, which is a significant portion, is converted to ketones which travel from the liver to the bloodstream to the muscles where it is converted to energy.

You can see that *CapTri*[®], as a

supplement to your daily diet, provides your body with the energy-producing calories used in metabolic processes by being converted to ketones which are used directly by the muscles as energy. Ketones can also be excreted by the body when not used, therefore not being converted to bodyfat. Simply put, using *CapTri*[®] is one of the most efficient ways to get your body the energy it needs for desired results.

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MCFAs: Metabolic Rate

by John Parrillo



You can control your rate of energy expenditure by careful selection of foods and supplements, proper nutrient combining and proper timing of meals.

Last month we talked about how CapTri is burned in the liver to produce energy, and how some of this energy is converted into ketone bodies which are used by your muscles. Now we're going to take a look at the bigger picture of energy production by the body. Granted, you're probably not a biochemist, and may not care about what happens to every molecule inside your body. But the more you un-

derstand about something, the better you can control it.

It's no coincidence that the biggest, leanest bodybuilders are also the ones who consume the most calories - as many as 8,000 to 10,000 a day. On the other hand, how many fat people have you met who are always on a diet - who skip meals and live on 1,000 calories a day? Obviously, the bodybuilders know something the others don't. If 8,000 calories can make you lean and 1,000 calories can make you fat, then there must be something going on here.

When it comes to gaining or losing weight, everybody is obsessed with how many calories they consume. And that's good - but it's only half the story. Changes in body weight are not governed by energy consumption, but by energy bal-

. There are two sides to the balance equation: energy consumption and energy

expenditure side of the equation, because they don't understand it, but it's just as

control over your body if you learn to control both sides of the energy equation,

show you how.

Everyone knows that you expend energy even tells you how many calories you're burning. You probably also know that

even when you're just sitting around. But what you may not realize is that your rate

of energy burning - goes up every time you eat (1). And how much it goes up depends

on how you control your rate of energy expenditure by careful selection of foods and supple-

ments. To understand how to do this, you have to know some

of the details of metabolism. Metabolism is a term which describes the total chemical activity going on inside your body (2). Metabolism has two sides: an energy-consuming component called "anabolism," and an energy-producing component called "catabolism." You can think of your metabolism as the flow of energy through your body. This energy is measured in calories.

The "metabolic rate" is your body's rate of energy expenditure, and is expressed in calories per hour. Nearly all of the energy expended by the body is ultimately converted to heat (2). (The only real exception to this when work is performed outside the body.) Therefore, the metabolic rate can be measured as the amount of heat given off by the body. Since greater than 95% of the energy liberated by the body is derived from the reaction of foods with oxygen, the metabolic rate is proportional to the rate of oxygen consumption (2). In practice, the metabolic rate is measured by the rate of oxygen consumption, since this is much easier than trying to measure how much heat the body gives off.

Anabolism means "building up," and describes the process of building new bodily tissues. Anabolism is growth. Anabolic steroids are called anabolic because they stimulate growth. Your body produces its own anabolic steroids naturally, and our program is designed to help you take maximum advantage of what your body is capable of doing naturally. Foods provide the building blocks that your body is made out of as well as the energy which fuels your activities. The process of growth essentially amounts to your body disassembling the molecules of the food you eat and restructuring them into the molecular form of new human tissue. This transformation process requires energy, as well as the building blocks used to make new human tissue.

Catabolism means "tearing down," and

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is the process of degrading nutrients to provide energy and building blocks. The foods you eat can experience three general metabolic fates: they can be burned to release energy, they can be digested into small building blocks to be used for growth, or they can simply be excreted. Your body is pretty efficient at absorbing nutrients, and not too many are excreted without being used. If you consume nutrients in excess over what is required to maintain your current body weight and activity level, the excess calories will generally be converted into body weight - either muscle or fat. The Parrillo diet is specifically designed to provide your body with the building blocks it needs to construct new muscular tissue, but not to give it building blocks which are used to make fat tissue. Of course, excess calories from any food can be converted to fat, but if you are careful and do everything just right you can direct most of those excess calories to muscle. We'll go more into this in the coming months.

After you eat a meal your body begins to burn the food to release energy. Since food is burned by reaction with the oxygen that we breathe, the rate of oxygen consumption increases after eating. This is proportional to the increase in metabolic rate - the rate of energy expenditure. So in other words, the metabolic rate increases after you eat (1). The same number of calories (the same amount of energy) from different types of foods can have different effects on metabolic rate (3). Different foods increase the metabolic rate to different extents probably due to both the inherent energy content and chemical composition of the food, as well as its rate of digestion and absorption.

So how do you use this information? There are several key ideas. One is that you should eat small, frequent meals. Since your metabolism speeds up after each meal, eating frequently keeps your metabolism elevated all day. If you eat 3,000 calories per day, you will be leaner if you eat six 500 calorie meals instead of one 3,000 calorie meal. If you provide

your body with too many calories at one time, some of them will be converted to fat. Give your body a constant and steady supply of energy - enough to fuel your activities and make muscle, but not so much that you're putting on fat. Your body can only make muscle so fast, so we suggest you gain no faster than 1-2 pounds per week.

Another important point is to always eat breakfast - this gets your metabolism going first thing. This is why breakfast is probably your most important meal. You have the whole day to burn off any excess calories you consume at breakfast - any excess calories you consume right before bed are likely to be stored as fat.

Another one of the keys is to combine your foods properly, so as to slow the release of glucose into the bloodstream. Carbohydrates are digested down into glucose, which is the form of sugar released into the blood. If too many carbs are consumed, or if they are released into the blood too rapidly, the insulin response causes the excess to be taken up by fat cells and converted into fat in a process known as lipogenesis. (We'll get more into that in the coming months.) By eating unrefined, complex carbohydrates - and not simple sugars - you slow the release of glucose into the blood. This is also the reason we have you combine fibrous carbs and protein together with your starches at each meal - it slows the rate of digestion and release of glucose.

And guess what else? CapTri dramatically increases the rate of oxygen consumption - and thus the metabolic rate - after a meal. It's no accident that we've incorporated CapTri at the core of our supplement program. The reason? As you know, CapTri is a very concentrated source of calories - calories that can be used for energy and to support weight gain. The increase in oxygen consumption that occurs after you eat CapTri means that it is being burned very fast (4, 5). Remember, foods are burned by reacting with the oxygen we breathe, so the reason oxygen consumption increases after

you eat is to supply enough oxygen to burn the food to produce energy. As we explained last month, some of this energy is converted to ketone bodies and transported to the muscles. But that's not the whole story.

Some of the energy from CapTri is converted into body heat in a process known as thermogenesis (4, 5). This is the single most important reason why excess calories from CapTri have less of a tendency to make you fat than excess calories from other foods. CapTri is burned so fast that excess calories from it are turned into body heat instead of being converted into fat. This is why I've called CapTri the best supplement ever developed for bodybuilders - it's an excellent way to supply extra calories but has very little tendency to make you fat.

Next month we'll go into more detail about the thermogenic effect, energy expenditure, and introduce you to the concept of food efficiency.

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Energetics and Thermogenesis

by John Parrillo



The net energy balance determines whether you will gain or lose weight, but what kind of foods you eat will determine if it's muscle or fat.

Last month we talked about metabolic rate—the body's rate of energy expenditure. Most people are very aware of their caloric consumption, but many still ignore the expenditure side of the energy balance equation. That's a shame, since it is energy **balance**, not just energy consumption, which determines whether you'll gain or lose weight. As it turns out, you can

exert a considerable amount of control over your metabolic rate by following certain eating habits. Our Nutrition Program is based on using nutrition to control your metabolism. It is possible to eat more than before and get leaner and more muscular as a result. We teach you how to control your metabolism, so you can target your calories to muscle and train your body to burn fat instead of storing it.

Gain and loss of body weight are governed by a simple thermodynamic principle: the conservation of mass and energy. If more or less calories are consumed than expended then weight is gained or lost, respectively. Although this statement is correct, its simplicity is deceiving (1). The human body is very complex, and here's where some knowledge about metabolism comes in handy. Different foods are metabolized differently and are converted into body weight with different efficiencies (2). This is described by the term "food efficiency," which is defined as the calories consumed of a particular food divided by the resulting weight gain (3). You may not have realized it, but a given number of calories from one food may have a very different effect on your body weight than the same number of calories from a different food (2). This is easy to prove. Just pull out 1000 calories of potatoes and rice from your diet and replace it with 1000 calories of candy and ice cream, and see what happens.

So you must not only consider the net energy balance (calories consumed versus calories expended) but also the **type** of calories consumed. If we were throwing foods into a bonfire they would all burn about the same. However, human metabolism is more complex than a bonfire. To the human body, not all calories are the same.

Different foods are digested at different rates and with different efficiencies. And different nutrients perform different functions within the body. Generally speaking, calories coming from protein are used for maintenance, repair, and growth of tissues and organs; calories from carbohydrates are used for energy; and calories from conventional fat are very prone to be stored as body fat. Simply put, the net energy balance determines whether you will gain or lose weight, but what kind of foods you eat will determine if it's muscle or fat.

The food that you eat can experience three general metabolic fates. It can be burned to liberate energy, it can be converted into body weight, or it can be excreted. All foods release heat when they are burned. Not all foods are burned completely to produce energy however; some of them are only partially degraded to provide building blocks to support repair and growth of your tissues. The heat liberated from a particular food is thus a measure not only of its energy content but also of its tendency to be burned. This is known as the "thermic effect of food (TEF), or the "thermogenic effect" (1). Increased thermogenesis means increased heat production, and this correlates with increased oxygen consumption and metabolic rate (4). Food efficiency is simply a measure of how efficiently a particular food is converted into body weight. Foods with a high food efficiency are more prone to be converted to body weight while foods with a low food efficiency are more prone to be burned for energy.

CapTri[®] has a very low food efficiency due to the thermogenic effect. This means that it is burned for energy instead of being converted into body fat. CapTri[®] is rapidly absorbed and metabolized to release energy (5). As

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we've discussed previously, some of this energy is converted into ketone bodies which are transported to the muscles to be used as fuel to power muscular contractions (5). Some of the energy released when *CapTri*[®] is burned is simply converted to body heat in the process of thermogenesis (2,6,7).

Think of it this way: *CapTri*[®] is burned very efficiently, so it is stored very inefficiently.

If you've read the previous bulletins, you now understand the basics of what *CapTri*[®] is, how it works, and why it's so different from other fats. Now we can get into more detail about some of its more interesting properties and the ways bodybuilders use it.

It should come as no surprise to you that *CapTri*[®] has a lower food efficiency than regular fat (2). This means that regular fat will contribute more to body weight gain than an equivalent number of calories from *CapTri*[®]. (Unfortunately, most of the weight you gain from regular fat will be fat, not muscle.) The main reason for this is that *CapTri*[®] is burned for energy, and a significant portion of this energy is released as body heat (2,6,7). While regular fat can also be burned for energy, it has more of a tendency simply to be stored away as body fat, since it already has the same molecular structure as body fat. Regular fats (LCTs) are not burned much as long as carbohydrates are available, since the carnitine shuttle is not activated until carbohydrate fuels have been depleted. You can think of the carnitine shuttle as a switch which turns on fat burning after the carbs have run out.

But what may come as a bigger surprise is that *CapTri*[®] also has a lower food efficiency than carbohydrate (3,8). This means that *CapTri*[®] is burned even more efficiently than carbs!

These experiments were performed on rats, since at the end of the experiment you can dissect the rat and accurately determine its body composition. Generally, the rats are fed a caloric excess so they will gain weight during the trial. The rats are divided into three groups: a low-fat group, a LCT group, and a MCT group. Grams of protein were held constant among groups, and the remainder of calories are supplied as carbs, conventional fat, or MCT.

Of course, the rats fed conventional fats (LCTs) gained the most weight—because they gained more fat (3,8). Lean body mass was essentially the same in all groups at the end of the experiment. Of the three groups, the rats fed MCT were by far the leanest. They gained about 60% less fat than either the LCT or low-fat groups (3). (I'm sure the results could have been even better, but rats don't exercise much.) This means that *CapTri*[®] is more difficult for your body to convert into fat than carbohydrates are. Do bodybuilders take advantage of this? You bet they do.

When you're gaining weight in the off season, you can add *CapTri*[®] to your food to provide extra calories. And those extra calories are less prone to be stored as fat than if you used conventional fats or carbohydrates to supply the extra calories. Before a contest you can decrease your carbohydrate intake and make up the difference with *CapTri*[®]. This lets you use the low-carb strategy to lose fat, but the calories from *CapTri*[®] provide a source of energy in place of the carbs so you don't feel like

CapTri[®] is a great source of calories which can be used to support weight gain, and the low food efficiency of calories when you're dieting. That's why most of our bodybuilders use it

Keep in mind, *CapTri* is not a drug, and there's nothing magic going on. *CapTri*[®] provides calories, like any other food. The point is that different types of foods

and are therefore processed differently by the body. Different foods have

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