

### ***How does it work?***

Medifast works by putting you in a “fat burning state”. This is more technically known as ketosis. Ketosis is a stage of metabolism where your body has depleted the reserves of its main form of energy – glycogen. Once those reserves are gone, your liver will begin breaking down stored fat in the body for use as energy. Breaking down the fat yields fatty acids and three types of ketone bodies (hence, the name ketosis). The ketones are then burned by the cells in your body as an alternative fuel.

### ***Getting Into Ketosis***

Arguably, the worst part of being on the program is getting into ketosis. Our bodies have done what they've always done for millions of years – they've adapted to life as they know it. Our lives have led to us being overweight by indulging in bad foods in bad quantities. Our bodies are now used to that type of existence. Introducing a new nutritional paradigm (ketosis) to our bodies will necessitate its adapting to the new condition. This adaptation is stressful for the body and we will feel the effects.

First, your body will notice a dramatic drop in caloric intake at first. We've gotten our bodies used to abundant calories and carbohydrates for long periods of time or to an up and down pattern of calories/carbs which our bodies see as “feast or famine”. Either way, when we take the calories/carbs away, our bodies will react:

- **Hunger** – you're going to feel hunger because your body is used to having more than it has now. Not atypical for dieting in general.
- **Fatigue** – you're taking in dramatically less fuel (food) than you used to and your body will probably try to compensate by getting you to slow down your expenditure of energy. It does this by decreasing your metabolic rate. This can make you feel tired, even dizzy. It's a type of warning that your body's giving you saying “if you don't get some food, I'm going to start burning fat!”
- **Headache** – some report headaches associated with “carbohydrate withdrawal”. Whether it's truly withdrawal or not, I don't know. However, it certainly seems that way to those who suffer its effects. The typical headache relief methods (ibuprofen, acetaminophen, aspirin) are allowable while on MF, however your stomach may seem more sensitive to them because it's no longer loaded with food. Try to use such products soon after having a meal and drink plenty of water.

- **Irritability** – when your hungry, tired and/or have a headache...you can be understandably irritable. Try to keep in mind that you may be more inclined to react negatively to things during this short time and don't go off on those who don't deserve it.

The good news is that this transition generally lasts only 3-5 days. Once you're in ketosis, you'll feel a difference in your energy level. It will go up significantly as your body begins to enjoy having an alternative fuel source – ketones!

### ***Being in Ketosis***

As the ketones pervade your bloodstream to supply the cells with energy, your state of ketosis begins to manifest some side effects. Some of those side effects are disquieting, but they're not bad for you.

Ketones will show up in your urine, which are sometimes able to be detected with Ketostix, but the state of ketosis that MF evokes is so mild that often such tests won't show a positive result on the Ketosix.

One of the three types of ketones is permeable to the lungs and can pass from the blood through the lung walls and becomes incorporated into your exhalations, the same way that carbon dioxide passes out of the body. This can cause "ketosis breath" and a slight metallic taste in the mouth. This is unpleasant, but can be easily overcome with frequent brushing of teeth (a few times a day) and sugarless gum/mints.

Menses can also be affected while in ketosis. Your cycle may be disrupted or cease all together. While this is an odd occurrence for a woman, it is not completely unexpected while in this state.

You may occasionally feel hunger while in ketosis, but it should be more mild than normal. Since you're eating every few hours, you shouldn't feel that gnawing sensation associated with hunger prior to being in ketosis. As your body adapts to the new circumstances, it may even develop an internal clock that will make you mildly hungry right around meal time. For some, there is no hunger at all and people need to remember or even be reminded that they need to eat!

Another side effect for some is an increased sensitivity to cold. Hands and feet can be particularly effected. I am normally very hot blooded, yet my hands and feet became ice cold when in ketosis. Hot drinks (tea, coffee, MF

cocoa/chai tea/mocha/cappuccino), sweaters, heat packs, etc can all help with this.

### ***Breaking Ketosis***

Staying in ketosis revolves around keeping your body from getting excess carbohydrates. If your body comes to the conclusion that there are enough carbohydrates available to use as its main fuel source, it will end the ketosis state and resume using carbohydrates. This crash out of ketosis has some side effects as well:

- **Hunger** – your body will assume that since you're getting enough carbs to end ketosis, there must be ample food available. Coming out of ketosis and having food available is exactly the type of situation that the body has adapted for over the millennia - "Feast or Famine". Now, it sees it as a time to feast so that you can replenish the glycogen that you depleted while getting into ketosis. That replenishment requires more fuel – more food! Therefore, your body tells you to eat, eat and eat. You'll be almost insatiably hungry.
- **Immediate and dramatic weight gain** – As your body restores its glycogen, you're gaining weight...quickly. Several pounds in a period of a couple days is not uncommon.

### ***Resuming Ketosis***

If you fall out of ketosis for some reason, the best thing to do is to start working to get right back in it. Follow the program as if you didn't do anything to fall out.

If you "cheated" and had a candy bar or a hoagie or whatever, resume the program as if you hadn't had it at all. Keep on your meal schedule and get in your 5 MF meals and a Lean and Green. Don't abandon the day, weekend or week by just giving up on it because you've "screwed it up". Just get right back into the program immediately.

Doing this helps to significantly reduce the amount of time it takes to get back into ketosis. I've broken program and immediately resumed and ended up back in ketosis within 18 hours. The longer you stay out of ketosis, the longer it takes to get back into it. So, hop right back on the wagon!

## *Charts*

The following tables have useful data for your Lean and Green portions. They are compilations of data from the USDA, which you can look up for yourself at <http://www.nal.usda.gov/fnic/foodcomp/search/>. NS cites using the USDA database as their source for nutritional information. If you ever want to know if an item would be legal on MF you can ask NS or you can look it up at the USDA site to get an idea of if it would be legal or not.

## *Nutritional Targets*

If you're eating your 5 MF meals a day, you're getting all your vitamins and minerals. After that, you're basically targeting your calories/carbs (limiting them to keep yourself in ketosis), your protein (to keep yourself from losing muscle mass) and fat (to protect your cardiovascular system). Nutrition Support cites the following guidelines:

<b>Item</b>		
Calories		
Protein		
Carbohydrates		
Fat		

It is, in fact, important to keep yourself above 800 calories and below 100g carbs in order to maintain an efficient fat burning state. It is also important to get enough protein to protect your muscles (including important muscles like your heart!)

Under 800 calories can cause your body to think it is starving. When your body comes to that conclusion, it will become very conservative and slow down your metabolism to try and make your fat stores last as long as possible. This will manifest in a DECREASE in your rate of weight loss.

this is counter-intuitive in that people associate losing weight with taking in less calories. However, we've evolved over millions of years and during that evolution, our bodies have adapted to "feast or famine". When calories are abundant, our bodies will store them up as fat. When they're scarce, our bodies will try to stretch out whatever it has available so that it lasts as long as possible. The key to an efficient fat burning state is to make sure your body realizes that it's getting everything that it really needs to survive long term. Part of that is the vitamins and minerals that are provided in the MF meals and part of that is ensuring you're getting enough calories to comfort your body that it's not in a situation where it's starving.

Under 100g of carbs is the key to staying in a state of ketosis, which is the fat burning state. Your body will continue to burn fat for energy as long as it doesn't think it has enough carbohydrates to use as its main fuel source.

Of course, these numbers are based on the average human physiology and specific numbers may vary. However, it's very difficult to discern any one person's tolerances for each of these numbers and therefore these are given as a guideline.

If you've a lot of muscle mass or are a very active person, you may need to have a different set of targets. It is best to discuss this type of specialized situation with your physician to ensure that you get the adequate nutrition for your particular situation.