



ADVANCED DIET PROTOCOLS

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THE MODERN NUTRITION PROTOCOLS

HOW DIETS REALLY WORK

I am often asked, “Are you the Paleo, intermittent fasting, or ‘insert any other well-known diet’ coach?” My reply: I am all of them and none of them!

My focus is on personalization. You should be, too. Nutrition is highly individualized, and every day more and more research is published supporting this! That you can personalize your food choices, dietary habits, and more will give you true freedom while achieving your goals.

Is there really just one ‘right way’ to eat for all people, when we consider our diverse ethnic heritages, modified DNA, and changing environment?

Surely not. This is why people continue to struggle with their body composition and poor health markers as they follow generic advice targeted toward one subset of the population, such as the ketogenic diet for people who thrive from a low-carbohydrate intake.

Personal nutrition is not about suggesting a particular diet protocol you have read about, or about going with the current trend. It needs the following considerations:

- **Ethnic origin**
- **DNA**
- **Current environment**
- **Location**
- **Time of year**
- **Lifestyle**
- **Personal preferences**
- **Likes/dislikes**
- **Stress levels**
- **Toxicity status**

Current Philosophy

I have a test you can try on almost anyone. Ask them to describe themselves as an ‘eating type’.

The usual answers you will get are that they are Paleo, an intermittent faster, vegan, vegetarian, carnivore, omnivore, or perhaps even the ‘eat everything’ type.

Eating is a tribal act, and we always seek to belong to something or to a certain group. When we have found our niche, we become defensive about this and feel that what we have found is the best system. As such, we fail to see the bigger picture.

In nutrition, that bigger picture is personalization. This is my issue with a number of the current ‘popular diets’ - many of them do not look into each user’s unique needs.

“So Why Do They Work?”

THEY HELP ACHIEVE A CALORIC DEFICIT/SURPLUS

First of all, while not specifically stated, many themed diets (e.g. Paleo, low-carb, keto) work because they are roundabout methods of reaching a calorie deficit. If you remove processed foods (Paleo diet) from your diet, chances are an increase in fiber intake and a decrease in refined carbohydrate intake – which results in reduced hunger and less food intake.

This equation of 'calorie in, calorie out' is generally considered as the main principle in gaining or losing weight (And those who don't see it as that are just trying to take your money!).

Eat more than your body needs, and you gain weight (in both muscle and fat, regardless of macronutrient ratio), or eat less than you burn, and you lose weight (mostly fat, but some muscle as well).

It is impossible to countermand this or lose weight/gain muscle through some other means. That said, there are secondary factors that can assist you in reaching a deficit or surplus that can sometimes be mistakenly adopted as an alternative, for example: low-carbohydrate diets. When we want to achieve weight gain, we must eat more than we need to provide the body with sufficient energy and nutrients for it to build new muscle tissue.

Even if you take out carbohydrates from your diet but you are still consuming more energy than you expend in a day, your body can still synthesize fat cells (adipose) from carbohydrates in a process that has a rather daunting name – De Novo Lipogenesis (Lipo – fat, Genesis – creation).

THEY IMPROVE FOOD TYPES (MACRONUTRIENT BALANCE)

Some modern dietary approaches take a food-first approach and zoom in on completely removing specific foods or food groups (such as the Ketogenic diet). Still others have an additive approach and instead, make you add nutrient-dense whole foods, as in the Paleo diet.

This guarantees that the person is eating a high-nutrient diet which in turn makes them not only observe physical changes, but shows them an improvement in health markers and performance in sports or in exercise as well! This normally means the person has more energy to burn and will exercise more often.

In addition, this also:

- **Aids them in controlling their calorie intake (without calorie counting)**
- **Gives longer periods of satiety (fullness) between meals**
- **Lessens overeating**
- **Provides a higher level of total essential nutrients in one's diet**

THEY IMPROVE THE MICRONUTRIENT INTAKE (VITAMINS AND MINERALS)

A good diet emphasizes the importance of taking in adequate

micronutrients every day, including water and fiber. Many modern protocols do just that, and emphasize the inclusion of whole, single-ingredient foods. This ensures adequate amounts of fruit and vegetables are included in the diet, which are also the foundation to maintaining enough amounts of micronutrients in the diet.

THEY FOCUS ON FOOD TIMING AND MEAL FREQUENCY

Many modern nutrition protocols educate their users on the value of nutrient timing. This refers to the optimal time when certain nutrients can be consumed so as to improve the success of the diet, for example Intermittent Fasting, and performance adaptations, such as post-workout protein intake.

For instance, we all have what you call the 'anabolic window'. It is that 1-2 hour period after training when our body is more responsive to absorbing and using specific nutrients such as carbohydrates (this depends on the training) and protein.

However, new studies reflect that if daily protein intake isn't enough to begin with, then the timing of your post-workout shake won't have much of an impact. But when your required daily intake is reached, it will provide your muscles with the essential amino acids needed to repair the damage done in the workout!

Many modern protocols also have guidelines to match eating frequency with their other recommendations. This further increases user compliance.

SUPPLEMENTS

Many modern protocols will introduce some type of supplementation in their process of changing someone's nutritional routine and habits.

We know there are many supplements that have been field-tested ,and research has been conducted to show they work. However, when looking at supplements we must always consider two things:

- ***Quality and Quantity*** – does the quality of the supplement adhere to recommended product standards and compliances? Have the main ingredients been researched significantly so as to prove results - and at the same dosages - prescribed in these supplements? If any of these factors seem questionable, you should avoid this supplement and look for a better available substitute.

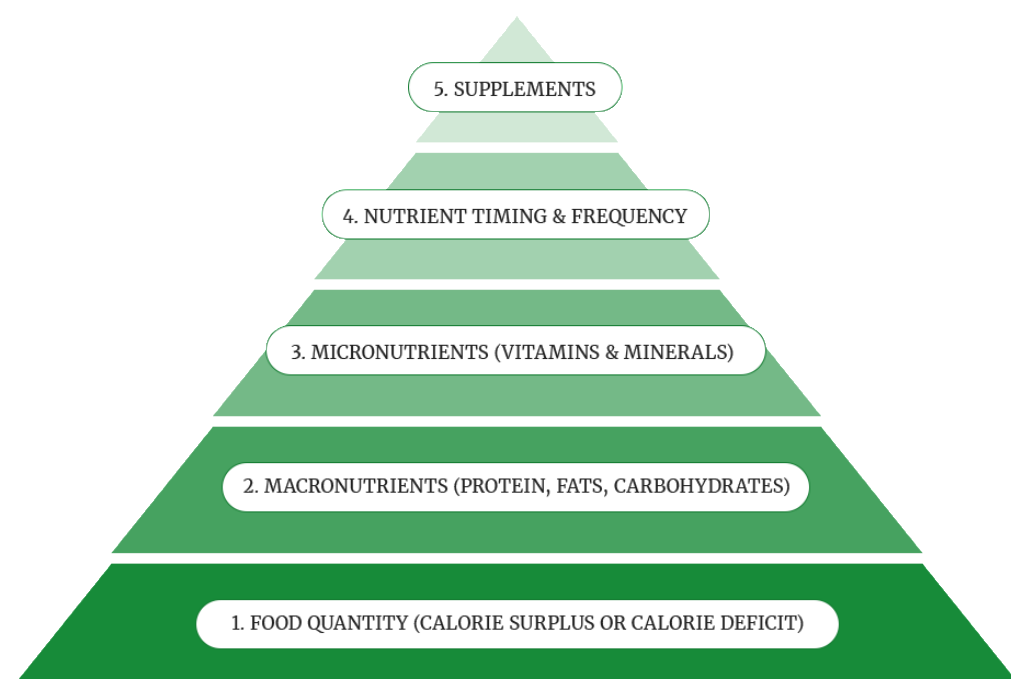
- **Is it safe?** – Are all the ingredients found in the supplement approved by the World Anti Doping Association (WADA)? If not, avoid this supplement and find one that is. Such supplements are not worth any risk. However, this criteria only applies if you are an athlete. Many supplements are safe and approved by the Food and Drug Administration (FDA) but not by the WADA. Athletes must undergo drug testing can only use those approved by WADA. Everyday adults do not need to. That said, with a few exceptions, you should look for WADA-approved supplements as these have undergone rigorous testing and are considered safe.

One must always consider these two factors when suggesting supplements, more so when understanding some of the supplements connected to modern nutrition protocols.

The information given so far can be summarized into the pyramid below, with the base being the foundation or most important, and working up to the top level.

Many modern nutrition protocols accomplish level 1, and are able to manipulate the user's body composition. Others will include levels 2-5, and sticking to all 5 levels will always garner the best results.

These are the underlying components to any plan. When we read testimonials and success stories from those who follow a modern nutrition protocol such as Paleo, or intermittent fasting, among others, we must recognize that this is the outcome of utilizing one or more of these categories.



A number of modern nutrition protocols or 'diets' use a spate of guidelines, restrictions, or techniques to achieve this. In effect, although they are all utilizing the same categories (or have similar objectives) there will feel varied in implementation.

Redefining Nutrition

When working to match the right nutrition protocol with someone, one has to look at their initial goals, as well as their responses over time towards these different protocols.

Many individuals see progress solely as a change in the scales or in the fitting of their clothes, but this idea is what tends to hold them back the most.

I therefore set myself criteria to work from when prescribing either a nutrition program or a dietary approach to my clients. I want to help them to see that there are other important markers of progress like one's energy levels, sleep, well-being, relationship with food, and such.

From personal experience I have noticed that this brings much better results and assists in creating a successful long-term environment in achieving and maintaining a healthy, balanced diet well into the future.

This is a result of moving away from the sole focus on how a person physically looks, to considering their health and well-being.

Consequently, whether designing or simply following nutrition programs that may or may not include some modern nutrition protocols, we must make sure that we respect and take into consideration how the body responds not only physically to these protocols, but emotionally as well.

A nutrition plan that successfully completes your list of goals will not only bring about the best results, but also guarantee the potential of becoming a long-term lifestyle change along the way.

Redefining Nutrition

IMPROVED BODY COMPOSITION

This is a person's instant goal, be it fat loss or to generally look good unclothed. If your body composition is showing improvements without the expense of the other two components and it is maintainable, there is success in controlling your energy balance.

IMPROVED HEALTH

Many people don't realize this, but health is a key driving factor to how one's body looks. It is important for us to comprehend the benefits of following good nutrition. It will not only improve body composition, but one's general health as well. With improved health one should have better energy, more restful sleep, raised confidence, and improved mood.

IMPROVED PERFORMANCE

We should be targeting improved performance markers from our nutrition. Be it in sports, hobbies, or in everyday activities, one should be able to perform these to the optimal ability.

It is important to always consider and monitor, using feedback, the three factors above, most certainly in designing a program and in considering the introduction of different techniques and protocols.

This process will also assist you in assessing any new protocols that may come your way. Before adopting any new protocol, always consider: How will this make them look, feel, and perform?

A decrease or reduction in any of these three factors is a revealing intimation that the current nutrition recommendations are not quite a good fit for the person.

Summary

You will know you have established the perfect diet when you can accomplish all three of these factors: improved body, improved health, and improved performance.

In order to come up with the perfect diet, we must pair the right nutritional protocols and guidelines while respecting the health pyramid and the individual's body composition.



THE MODERN NUTRITION PROTOCOLS

THE PALEO DIET

The Paleo, or hunter-gatherer diet is derived from foods Paleolithic humans would have consumed. This type of food consumption is also known as primal or caveman.

The Paleo diet is made up of real, whole foods. It focuses primarily on the consumption of fruit, vegetables, meat, fish, eggs, seeds, and nuts. In effect, it removes an entire range of processed or man-made foods that contain hidden sugars, preservatives, excess sodium, additives, colorings, and artificial flavor enhancers.

Despite the Paleo diet's basis being on the presumed diet of the Paleolithic humans, it is a modern nutritional plan that has become very popular over the past number of years. This is primarily because of the number of success stories being narrated by those who follow it.

Its main premise is that human genetics have barely evolved since the Agricultural Revolution (also known as the Neolithic Revolution) some 10,000 years ago, and as a result modern humans can adapt to the dietary regime of the Paleolithic period.

It has become a much sought after nutrition protocol for many, with some convinced it is how the general population should be eating. Consequently, the Paleo diet has become

a controversial point of discussion in the world of nutrition. It is, therefore, essential for us to have an unbiased view of this nutrition protocol.

History

The Paleo diet was first popularized in the 1970s by gastroenterologist Walter L. Voegtlin. He was among the first to consider that a person could greatly improve their health by following a diet similar to that of people during the Paleolithic era. He self published what he called the Stone Age Diet, which underscored that Paleolithic people were carnivores who ate a diet made up mostly of protein and fats, with small amounts of carbohydrates. Moreover, based on his own personal medical practice, he discovered some health benefits associated to following this kind of diet.

We did not see any further publications on this diet until the 1980s. In 1988, Eaton, Konner, and Shostak published their book on this nutritional approach. In this publication they suggested that we should be acquiring the same proportions of macro and micronutrients that were present in the diets of the late Paleolithic people. This diet did not include foods that were not available prior to the development of agriculture.

In 1989, a scientific study known as the Kitava Study was conducted by Steffan Lindeberg. This looked at the populations of Kitava in Papua New Guinea, which are non-Westernized. The population of Kitava did not suffer from the same diseases seen in people eating a Western type of diet, and thus reflected that there is a correlation between diet and Western diseases.

Since the 1990s we have seen many medical practitioners and nutritionists increasingly advocating a return to a so-called Paleolithic diet.

Currently, there are numerous books, campaigns, and websites dedicated to the promotion of such a diet. There are a number of variations of the Paleo diet, but they are mostly rooted in common principles.

FUN TOOL – We will be looking into the benefits of this diet for some individuals, and there are quite a number of these. That said, as with all these dietary approaches, you will eventually come across (especially if you follow social media) coaches that will advocate this diet as the 'End All, Be All' and claim that "we need to eat as our ancestors did". All you have to say to these advocates is "What was the life expectancy in the time of our Paleolithic ancestors? 30?"

The Basic Practice

The foundational practices of the Paleo diet are quite simple: eat the same food sources that were abundant in any of the ecological niches of humans during the Paleolithic time.

In modern times this consists of following a diet sources from cultivated plants and meat from domesticated animals. It is composed of foods that can be hunted and fished, such as meat and seafood; and food that can be gathered, such as fruits, mushrooms, eggs, insects, nuts, seeds, herbs, spices, and vegetables.

Also, the general recommendation for meat consumed is that it be free-range or grass-fed, so as to contain less toxins and higher nutrient profiles as compared to grain-fed domestic meats. For foods that can be gathered, the suggestion is that these be organic and locally grown, again to reduce contaminants and potential issues with toxicity.

Specific foods and food groups that were hardly ever or never consumed by humans before the Neolithic Agricultural Revolution are removed from this diet. These are mainly found to be dairy products, grains, legumes, processed oils, refined sugar, and salt.

As for fluids, water is considered as the main source, with some natural teas possibly being allowed. Man-made drinks, alcohol, and coffee are prohibited.

To Summarize This Information

Allowed:

- **Red meats, poultry, fish, (organic/grass-fed are preferred by purists)**
- **Fruit and eggs (only berries for purists)**
- **Vegetables (except the nightshade family - tomatoes, potatoes, eggplants)**
- **Nuts (except peanuts)**
- **Seeds (in small quantities only)**

Not Allowed:

- **Grains and legumes**
- **Milk and milk products**
- **Refined/added sugars**
- **High omega 6, refined, or hydrogenated vegetable oil**
- **Vegetables from the nightshade family such as tomatoes, potatoes, eggplant**
- **Added salt**
- **Coffee and alcohol**

Health Benefits Of A Paleo Diet

The rise in popularity of the Paleo diet is from the host of benefits people can get from adhering to it consistently.

People on the Paleo diet may experience the following benefits:

- **Mental clarity**
- **Higher and more stable energy levels**
- **More quality sleep**
- **Better attitude and mood**
- **Improvements in those suffering from depression and anxiety**
- **Cleaner skin and healthier-looking hair**
- **Sustained weight loss**
- **Muscle growth, increased fitness**
- **Improved immune function and a general feeling of well-being**
- **A lowered risk of heart disease, diabetes, and cancer**
- **Healthier intestinal flora**
- **Less to no bloating, decreased gas**
- **Better absorption of nutrients from foods**
- **Improved glucose tolerance; increased insulin sensitivity**
- **Better lipid profiles**
- **Reduction in allergies**
- **Improvements in those with respiratory problems, such as asthma**

Looking at the above list, the Paleo diet has a lot to give. That being so, it is important to understand why one might see such substantial benefits.

Weight Loss

WEIGHT LOSS

When you stop consuming refined-carbohydrate, high calorie foods like white bread, cereal, and pasta, you will most probably quickly achieve a calorie deficit. The question is whether or not you thrive and feel good while avoiding these foods. Fruits and vegetables are main sources of carbohydrates in the Paleo diet. By removing a particular food group from the diet we have reduced our daily intake of calories. This leads to weight loss. Furthermore, studies have reflected that a low carbohydrate diet may support greater weight loss than a conventional low fat, high carbohydrate diet because it makes it easier to achieve a calorie deficit. Additionally, you will probably consume a greater amount of dietary fiber, which then prolongs the feeling of fullness in between meals and helps regulate how much you want to consume daily. Finally, taking out all processed, high-calorie, low-nutrient foods from one's diet leads to more calorie reduction and contributes to weight loss.

HEART HEALTH

With the Paleo diet, you eat larger amounts of quality meat and fish, which then brings about an increased intake of Omega 3 fatty acids. According to the American Heart Association, increased Omega 3 consumption can assist in lowering blood pressure, decreasing triglyceride levels, and reducing your risk of sudden cardiac death. Increased fiber intake can help lower your cholesterol levels which, in turn, improves your heart health.

STABLE BLOOD SUGAR

A diet that revolves around whole, single ingredient foods and is high in fiber and low in carbohydrates helps to control blood sugar levels. This has a substantial effect on the management of one's risk for Type 2 diabetes, and even on reversing the its symptoms.

Who Is The Paleo Diet For?

Fundamentally, the Paleo diet is one that centers on quality meats, fish, and vegetables, with some fruit and nuts.

It is hard to argue against the fact that this is a wonderful 'foundation' diet for those who seek optimal body composition and health, and there are many testimonials to support this.

So, a more relevant question to ask might be – Who is this diet NOT suitable for?

Despite this modern nutrition protocol being very simple, it does not make it easy easy to follow – have you ever tried living on meat and vegetables alone?

Because of the limiting nature of the Paleo diet, many may find they are excluding too much all at once, and so give up entirely.

It is a rather restrictive diet protocol, and in today's modern society where we are bombarded with non-Paleo food choices, it can feel very tiresome and uninteresting.

Since we now know the reasons why we might see so many advantages to the Paleo diet, it may be possible to obtain sufficient results without necessarily using the full protocol. We can simply take the 'useful' or 'relevant' parts and incorporate them into our daily diets.

For instance, using an individual that is working towards fat loss - we know that a diet that is low in refined carbohydrates and foods can assist in reducing daily calorie consumption, right?



THE MODERN NUTRITION PROTOCOLS

INTERMITTENT FASTING

Intermittent fasting (IF) has fast become one of the most talked about modern protocols over the recent years. And rightfully so, as it breaks the rules. Since time immemorial we have been told we must eat every 2-3 hours and to eat breakfast upon waking, so as to kickstart our metabolism for optimal body composition and health.

IF goes against the grain, and many IF protocols advise reducing your meals and delaying breakfast. Also, many protocols advocate consuming less during the day and feasting at night, again completely opposite the saying, 'eat breakfast like a king, lunch as a prince, and dinner as a pauper'.

Consequently, IF goes against many of the usual recommendations from fitness professionals and has garnered the attention of many.

What Is IF?

Fundamentally, IF is the practice of going for periods of time without consuming food.

That's correct. You don't eat anything. This brings up two important questions:

- 1. Isn't this what I do when I'm sleeping?**
- 2. Surely, not eating will cause you to lose weight?**

The answer is yes to both; however, we must take a look at the facts more closely to understand this modern protocol better.

Everybody fasts, be it overnight (when sleeping), during periods when food is scarce, or perhaps for religious reasons.

IF is not a 'diet', but is instead a dieting pattern. In essence, it is the conscious decision to skip certain meals. You are, consequently, deciding to limit your consumption of daily calories to a specific time period and forgoing food during the other times of the day.

Over the past few years IF has increased in popularity with the health and fitness conscious as another means of manipulating one's eating habits for increased results.

How Does It Work?

Looking closely at IF, it appears to be a comparatively simple protocol on the whole; however, there are a range of programs that follow this general ideology, but are vary a lot in practice.

There are a variety of popular IF protocols that are worth your time and understanding.

Unlike some of the other modern nutrition protocols, IF lacks scientific basis, thus leaving it wide open to being freely manipulated by many users and advocates.

Current research on fasting is still quite new and it wasn't until its popularity increased that we have begun to see a truer idea of the benefits and disadvantages it has on a large population.

Existing 'lab' research is nominal on humans and many studies are of questionable quality. Also, it seems that a number of the benefits of IF were noted upon comparison with 'normal' diets, in other words Western type diets. As such, results from a scientific standpoint appear positive but are disputable in accuracy and scale.

Many of the various IF protocols have been based on other scientific studies along with strong reinforcement from anecdotal evidence. It seems to appear that many have had substantial success with different IF protocols and it really does seem like a 'test it yourself and see if it fits' kind of diet pattern.

Common IF Protocols And The Variations Between Them

TIME-RESTRICTED FEEDING (16-HOUR FAST WITH 8-HOUR EATING WINDOW)

This form of IF was made popular by Martin Berkham. Its focus is a short daily eating window of 8 hours, followed by a 16-hour fast. The typical recommendations are to start the eating window around 12pm or midday and finish around 8pm, right before bedtime. This makes the bulk of the fast overnight, with the remaining hours completed first thing in the morning.

This protocol also advocates a diet that consists of whole food sources of protein, grains, and healthy fats.

One should conduct weight training during the fasting period, followed by the consumption of 10g Branch Chained Amino Acids (BCAA's) prior to or immediately after it.

EAT STOP EAT (24-HOUR FAST, ONE OR TWO TIMES PER WEEK)

This IF protocol adopts the *Lean Gains* daily fast and extends it to 24 hours. However, this is done only one to two times per week. Outside of this, normal foods can be eaten, ideally sourced from healthy whole foods.

Furthermore, the location of your feeding window within the day is not too important. You can choose when to start your fast. Be it morning to morning, or dinner to dinner, the choice is yours to make.

ALTERNATIVE DAY FASTING (ADF) (36-HOUR FAST, 12-HOUR EATING WINDOW)

This is deemed one of the most aggressive forms of IF, because one consumes food only every other day. You have a 12-hour eating window: 8am-8pm. This is followed by a 36-hour fast. There is not as much focus on the food choices and calorie intake during the eating window than with the other IF protocols. If you do plan to try this out, you should simply focus on these important principles. It is interesting that this approach has the least focus on the composition of the food, as there is considerably less time given for you to take in all of your nutrients!

WARRIOR DIET (20-HOUR FAST, 4-HOUR EATING WINDOW)

This has some similarities to the *Lean Gains* protocol and extends the fasting window for up to 20 hours everyday. It is generally recommended that the eating window be conducted in the evening so as to reap the benefits of fasting during the day. It is allowable to eat a small number of selected foods during the fast (known as the under-eating phase) to further improve the effects of the fast and better prepare the body for the large consumption of food during the short eating window (the over-eating phase). It is recommended that weight training occur just before breaking the fast. This diet is repeated daily.

The Benefits Of IF

When it comes to the benefits of fasting, something needs to be considered. We have enumerated a string of different approaches, which should not be grouped as 'fasting'. The 16/8 method, for instance, is now known as time-restricted feeding, because while it technically is fasting, the body does not activate the same metabolic responses as it would in a 24 or 48 hour fast.

If you have heard of fasting, you must have heard of the wondrous advantages it can have on dead cell turnover and regeneration (autophagy) which may assist in reducing the risk of disease. However, what is not reflected here is that this process occurs after a 16-hour fast only in rodents. Sixteen hours is a much greater part of a rodent's life than it is for us humans.

Hence, it is not yet agreed upon whether or not short-term fasting can provide the list of benefits that it is often extolled for in articles you may have come across in someone's online blog.

Below are some of the more proven advantages of fasting -

ENHANCED FAT LOSS AND MUSCLE RETENTION

Short-term fasting may boost important hormones that play a role in muscle growth, such as the growth hormone. In addition, some studies show that time-restricted feeding paired with a traditional restricted-calorie diet may assist in preserving muscle mass while losing weight.

REDUCED HUNGER LEVELS

Fasting deprives the body of a source of carbohydrate for an extended period of time. This causes it to switch to burning fat as its primary fuel. This causes a reduced need to eat or need for carbohydrate. As a result, many people report feeling less hungry after only a few days of following this diet.

MORE STABLE ENERGY LEVELS AND IMPROVED MOOD

Fewer meals typically means more stable blood sugar levels, which leads to more stable energy, and an improved mood. Likewise, being set free from eating 6 or more meals a day as compared to traditional 'diets' can give one a sense of relief and reduce one's irritability.

INCREASED MENTAL FOCUS AND CONCENTRATION

People have also reported having more focus and mental clarity during their fasting windows. This may in part be a consequence of some hormonal changes, but may most likely be caused by more stable blood sugar levels, in other words no dips and spikes in one's energy levels.

The Negatives Of IF

Generally, there are relatively few negative side effects associated with intermitted fasting.

The main disadvantage for many is the transition needed for such a protocol. Changing from eating 6 meals a day to 3, all by postponing breakfast and taking on fasted weight training can be a daunting task.

This can be a great deal to push at a body in one go, so taking it a step at a time and introducing various components in little bits can boost compliance.

IF can be complicated for those who struggle with regulating their blood sugar, suffer from hypoglycemia, or have diabetes, among others. It should only be considered for healthy individuals with no health conditions.

Aside from avoiding this protocol for people within certain clinical populations, there is substantiation that men and women react differently to IF.

Research has begun to suggest that intermittent fasting has some significant negative side effects for women.

Many women have found that IF brings anxiety, sleeplessness, irregular periods, and a variety of other effects such as hormone deregulation.

In another study, they looked into the effect of alternate-day fasting on blood lipids. Women's HDL improved and their triglycerides remained stable. In men, it was their HDL that remained stable while their triglycerides decreased.

Hence, it is clear that metabolic and hormonal differences in males and females may determine how one responds to a stressor such as intermittent fasting. After all, not eating is an additional stress on the body.

Summary

Intermittent fasting, in all its different forms, can potentially offer many benefits. It is worth noting that the research is still uncertain whether these benefits stem from an improved diet, calorie control, or increased exercise.

When recommending IF protocols it's imperative that the user be in good health, is eating whole unprocessed foods and getting sufficient sleep, reducing stress, and exercising well. IF should be an inclusion to an already functioning and consistent training and nutrition strategy.

Fasting can bring upon a powerful response in our bodies, and therefore must be carefully monitored and adjusted to tailor the person. One must always start slow and build up towards the longer and more intense fasts.

Until long-term human studies are conducted in the future on the true physiological benefits and negative effects of IF, one must always remember that everyone is different and that one size does not fit all.

Nonetheless, IF and its various protocols are worth trying in a controlled and safe manner.

USEFUL TIP: When you start this approach, it can be normal for the person to 'fall in love' with the feeling of reduced hunger. This might make you wish to decrease your feeding window to 6, or maybe even 4 hours. You should take this as a red flag, as you have begun to think that by imposing further restrictions on yourself you will get the most out of the approach. Unless you have been adhering to the diet for weeks or even months and are prepared to shorten the window slightly to fit your lifestyle, we advise that you avoid this.



THE MODERN NUTRITION PROTOCOLS

CARBOHYDRATE BACKLOADING

Carbohydrate Back Loading (CBL) has become yet another popular modern dietary approach over recent years. Like other numerous approaches, CBL does not follow traditional nutrition and dieting recommendations.

Traditionally, we have been told that we must consume our carbohydrates early in the day. Otherwise, the energy from this will not be used and will eventually be stored in our bodies as fat.

Then CBL was published, and it told us to eat not just some, but all, of our carbohydrates at night. CBL has therefore gone against typical advice from fitness professionals and has gained a lot of attention.

What Is CBL?

CBL in its most basic form is the practice of postponing or delaying the consumption of one's daily carbohydrates.

The term 'Carbohydrate Back Loading' was given to this practice after an eBook called 'Carbohydrate Back Loading' was published by American training and nutrition consultant John Kiefer.

Many books have been previously published on carbohydrate cycling, but none have been as extensively researched and referenced as Kiefer's. Clever marketing made the book a hit, and CBL as become one of the most talked about modern protocols.

BASIC CBL SUMMARY

1. Eat calories later in the day, consuming lighter meals in the morning and early afternoon, and eating larger meals at night. This may include omitting breakfast.
2. Keep carbohydrate consumption at an absolute minimum throughout the day until training.
3. Training is performed in the afternoon, at around 5pm or so.
4. Start carbohydrate intake after your training session, up to 30 minutes after.
5. Continue carbohydrate consumption throughout the evening.

These are the fundamentals to the CBL template, which at first appears to be largely centered around nutrient training.

How Does CBL Work?

The protocol relies heavily on nutrient timing and revolves around controlling and manipulating cellular, hormonal, and biological responses with a delayed intake of carbohydrate.

The logic for delaying carbohydrates during the day is that this limits the release of insulin in the body. Insulin is the hormone secreted from the pancreas in response to carbohydrate intake. It promotes the uptake of glucose (simple form of carbohydrate) by our muscle cells to regulate our blood sugar levels. It is thus considered an anabolic hormone in that it works to make smaller things into larger things.

Of course, if we turn on a rapid insulin response often each day, from the intake of refined carbohydrate, we can risk this system running less efficiently or effectively. The muscle cells can then become less responsive to its effects, in other words insulin resistance.

Carbohydrates are the main nutrient that starts an insulin response. When insulin levels are consistently high and unstable, it not only promotes fat storage (in an energy surplus), but it also brings about fluctuating energy levels.

FUN FACT: One must always remember that insulin only promotes fat storage if energy intake (kCals) is more than what we use. If we have a calorie deficit, the absorbed glucose will simply be converted to energy. That is why energy balance is the conclusive factor for gaining or losing weight.

The CBL protocol is based on this theory, and is structured around controlling insulin so as to not interfere with fat burn, and yet still encouraging muscle building and recovery.

When we deprive our body of carbohydrates for a certain length of time, it can heighten the body's ability to absorb and use this nutrient when it does get it. That is essentially one of the main elements of this diet.

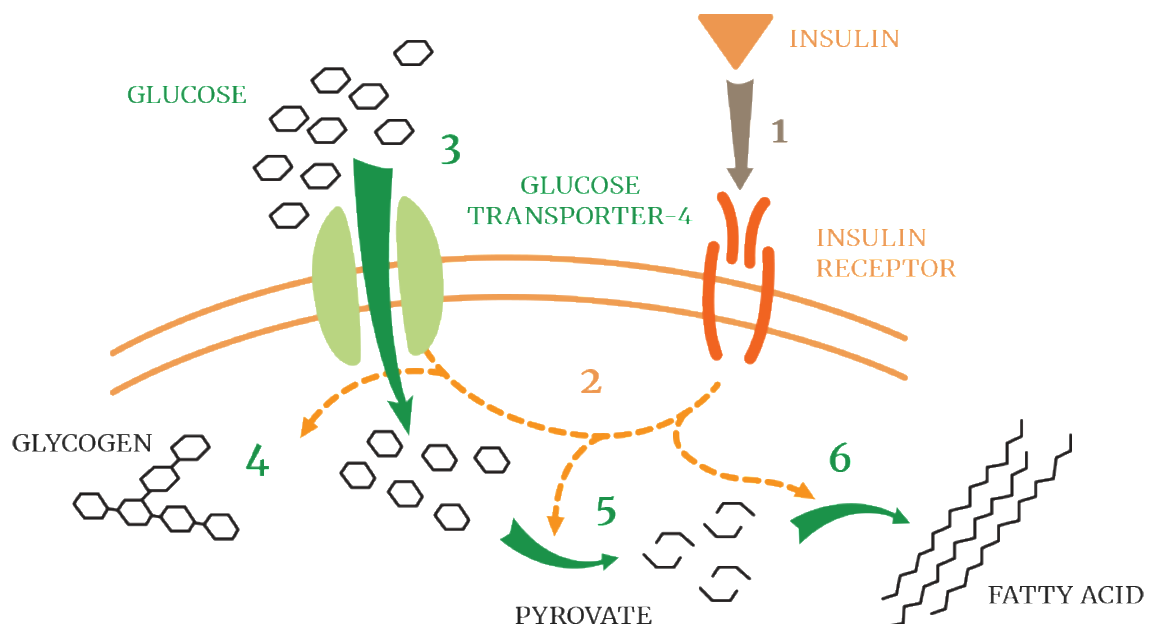
With the incorporation of mid to late afternoon weight training, we can encourage the muscle's sensitivity to carbohydrates, also known as insulin sensitivity. This will cause the rapid absorption of carbohydrates when they enter the bloodstream as glucose, which will then be used to replenish the depleted storage of carbohydrates in the muscle. This may reduce the chances of carbohydrates being stored as fat. I may start sounding like a broken record here, but it needs to be repeated that this must still be in the face of a calorie deficit. Otherwise the timing of your carbohydrates intake won't do much for your system!

This happens when our GLUT (pronounced 'glute') glucose transporters relocate. GLUT is comprised of a family of proteins that transport different nutrients from the blood into the muscle. GLUT transporters can carry a variety of nutrients, but specific ones such as GLUT4 particularly transport glucose. They are found in the jelly-like outer coatings of cells and are generally exposed on their surface.

The more insulin sensitive someone becomes, the more they can enlist GLUTs 4 & 12 to go to the surface of the cell to transport glucose into their systems.

Resistance training can cause an increase in GLUT4 activity when carbohydrate is taken in. Ergo, by delaying weight training until later in the day, we can heighten the sensitivity of the muscle cells towards glucose.

It has also been proposed that resistance training causes GLUT to relocate without insulin, and it also increases the amount and concentration of GLUTs 4 and 12 in the muscle cells.



The diagram above displays the effect insulin has on glucose uptake and metabolism. Insulin binds to its receptor (1), which triggers a cascade of protein activations (2). These include: the translocation of GLUT-4 transporter to the plasma membrane and an influx of glucose (3), glycogen synthesis (4), glycolysis (5), and fatty acid synthesis (6).

Resistance training provides muscle cells with ability to absorb glucose at a faster rate, either for storage or for producing energy. In effect, CBL has been one of the first protocols to bring together nutrient and weight training timing.

Hence, this protocol targets the intermediate to advanced fitness population who are interested in maximizing body composition. And so, if you are not one to train regularly, this is not going to be an appropriate option for you.

Setting Up A CBL Diet

More than simply delaying daily carbohydrate intake to the evening (or post workout), Kiefer's book takes you further into how you can maximize the effects previously discussed, in other words maximizing fat burn and glucose sensitivity.

BREAKFAST

CBL uses the template of intermittent fasting – delay taking breakfast, have small meals during the day and partake of a heavier, carbohydrate-rich meal at dinner.

This is based on the fact that having or not having a meal early in the day will dictate the metabolic status of your body for the rest of the day.

This is performed so as to enhance the fat-burning effects of the diet. In the mornings, the stress hormone cortisol is at its highest level. Cortisol is catabolic, meaning it breaks things down, As such, it is responsible for the breakdown of triglycerides into free fatty acids (FFA's) needed for metabolism. In effect, cortisol encourages the mobilization of our fat stores for energy in the morning, if other hormones such as insulin do not interfere.

Consequently, skipping breakfast and adopting an IF-type protocol is recommended.

KEY INSIGHT: When skipping meals is a part of a program or dietary approach, it is important to be mindful of compensatory behaviors. These may manifest in behaviors such as having double portions in the first meal later in the day, or excessive snacking. This can be caused by disordered eating behaviors or simply by an increased appetite. Nonetheless, it indicates that this protocol is not for you and you should go back to a more traditional meal structure.

AFTERNOON

Breaking the fast is done with a low-carbohydrate meal, consisting mainly of lean protein and unsaturated fats from whole food sources. The aim is to keep the total quantity of carbohydrates under 30-50 grams.

Green vegetables, meats, cheese, fats, and limited amount of nuts make up the diet during this portion of the day, for example 2-egg omelette with cheese and nuts.

POST WORKOUT

This is the time in your day when carbohydrates are introduced back into your diet

and, according to Kiefer, in great amounts, too. If it is within close proximity to training of a reasonable intensity, look for high glucose index sources of carbohydrate including white rice, bread, fruit. That said, a healthy balance is always key, so be sure to throw in some wholegrain sources as well!

Some studies have shown that an addition of a source of complete protein with your carbohydrate intake increases the insulinemic response and can accelerate the rate of uptake! However, this is only a matter of interest if you don't consume enough carbohydrates, so it is not overly important. BUT you should most certainly include a source of protein in this meal, there are no downsides to it!

When not weight training, your high carbohydrate meals should be replaced with a meal high in protein and healthy fats – this is to avoid 'back load'. There are some exceptions to this rule.

A SIMPLE CBL DIET

Approx. Meal Time	Meal
Upon waking (8am)	Coffee, coconut oil, mineral water
Late Breakfast (12pm)	4 scrambled eggs with chorizo & spinach
Late Lunch (4pm)	Stuffed avocado with bacon pieces
Resistance Training	
Late Dinner (8pm)	2 large chicken breasts, white jasmine rice, home-made popcorn and rice cakes
Non-Weight Training Day	
Late Dinner (8pm)	Caesar salad with 2 chicken breasts

The Benefits Of CBL

The CBL protocol takes a number of various techniques and incorporates them into a diet with a major emphasis on nutrient timing.

Few studies examine this diet, and so the reported advantages are largely derived from personal experiences, coach opinions and mechanistic assertions. But, in theory, CBL may help with the following;

FAT LOSS

The incorporation of an IF approach alongside delayed carbohydrate consumption can encourage fat oxidation earlier in the day. This, if paired with a calorie deficit, will promote fat loss.

IMPROVED ENERGY LEVELS AND CONCENTRATION.

Some have reported no longer feeling the typical afternoon energy crash or lethargy after removing refined carbohydrates from their meals during the day. This is most likely due to the reliance on fat and ketones for energy which gives a slow but steady supply for our brain and muscles.

CONVENIENCE

Many find that the CBL protocol fits well with their lifestyles and is, in effect, a diet that is easy to follow and to adhere to in the long run.

FOOD-FIRST APPROACH

An advantage to the CBL protocol is its minimal emphasis on the time-consuming process of tracking and calculating calorie consumption. Although Kiefer states its importance, it is not a crucial component of the protocol. For some this makes CBL an easy and stress-free protocol that can assist in improving body composition in its application.

Two studies are commonly referenced throughout Kiefer's book that highlight the effectiveness of CBL as compared to traditional dieting in building muscle and losing fat.

The first study made a comparison between the effect on body composition of eating 70% of one's daily calories in the morning as opposed to the evening. Ten subjects were placed on a 6-week weight loss (calorie deficit) diet. The group that consumed the majority of their daily calories in the evening lost more fat and less muscle than those in the morning group (1).

The second study was that of a 6-month program wherein Israeli officers consumed around 1,500 calories per day, with one group eating carbohydrates throughout the day and another consuming their majority of carbohydrates at dinner. The study found that the dinnertime group dropped more body fat than the control group and enjoyed higher levels of satiation (2).

POTENTIAL DOWNSIDES OF CBL

The greatest downside of CBL is its weak scientific foundation. Therefore, the question must be asked— does it really have an advantage over traditional calorie-controlled dieting?

The first main referenced study had a fairly small sample size (10) and used the notoriously unreliable method of total bioelectrical impedance to assess body composition (3).

The second main referenced study showed a number of major flaws:

- **Calorie intake was self-reported. This can lead to inaccuracies (4).**
- **Protein intake was rather low (75-90 grams per day) when you consider the average weight of a soldier was approximately 215 lbs.**
- **This low protein intake has been proposed to be insufficient to maintain muscle mass. The soldiers in the study did not engage in exercise, which is a major component of the CBL protocol.**

Alternatively, there are many more studies to show little to no benefit of CBL as compared to normal calorie restriction.

A certain study concluded that calorie intake, be it in the morning or evening, didn't affect either weight loss or body composition parameters (5).

One study indicated that those who usually ate breakfast lost more weight by skipping it, while those who didn't usually eat breakfast lost more by having it (6).

One study reflected that nutrient timing has minimal impact on overall results and it is more a matter of how much eat over the course of the day (7).

Another study emphasized that the management of insulin levels throughout the day is not the key to maximizing fat loss (8).

Summary

Carbohydrate back loading has grown in popularity over recent years. Its main selling point has been that we can build muscle and lose fat at the same time, all while consuming the foods we love without any requirement for either calorie or macronutrient control.

Unfortunately, this isn't the case. But what we do see is that it can work as another protocol to break the traditional dieting mold and provide some results in the process.

Many have seen that this protocol fits well with their current routines and it can act as a long term eating system for those who are interested in body composition without the negative side effects on metabolism or health.



THE MODERN NUTRITION PROTOCOLS

carbohydrate CYCLING

Carbohydrate cycling (carb-cycling) is when a low-carbohydrate diet is paired with planned periods of moderate to high-carbohydrate consumption.

This nutrition strategy has become a point of discussion over the past few years. Carbohydrate cycling, similarly to many of the modern protocols, does not follow traditional nutrition and dieting advice.

Convention tells us that we can either build muscle or lose fat, and certainly not at the same time. This is because one needs to maintain a calorie deficit to lose fat and a calorie surfeit to gain muscle.

And then carb-cycling came along and was peddled to us as the conclusive method lose fat rapidly while building muscle.

When done correctly, carb-cycling can yield benefits in both weight-loss and performance, but when done wrong it can lead to lowered energy levels, greater feelings of hunger, and weight gain.

What Is Carb-Cycling?

Carb-cycling, is distinguished by –

- The rotation of high carb, moderate carbohydrate and low/no carbohydrate days throughout the week;
- The daily requirement of adequate protein intake; and
- Fat intake must be inversely related to your carbohydrate intake.

How Does Carb-Cycling Work?

Carb-cycling works by giving your body the fuel necessary to increase metabolic capacity and workload through carbohydrates and by optimizing fat loss through a reduced carbohydrate diet. It is viewed as having ‘the best of both worlds’.

There are a variety of protocols that have been created to manipulate the general set up of a carb-cycling diet, but many will use all three types throughout the week. These are typically cycled daily, but the most common set up is dependent on daily activity levels.

THE TYPICAL RECOMMENDATIONS ARE:

1. During days of high activity, moderate to high-amounts of carbohydrates must be consumed.
2. During days of moderate to no activity, moderate to no amounts of carbohydrates are to be consumed.

A typical weekly breakdown can look like this:

Monday: Heavy weight training day > High carbohydrate

Tuesday: Interval training day > Moderate carbohydrates

Wednesday: Rest day > Low to no carbohydrates

Thursday: Heavy weight training day > High carbohydrates

Friday: Interval training day > Moderate carbohydrates

Saturday: Heavy weight training day > High carbohydrates

Sunday: Rest day > Low to no carbohydrates

Different carbohydrate cycling diets show variations in the detail, but all in all it is pretty much eating more carbohydrates on some days and eating less carbohydrates on other days.

The main focus is placed on the manipulation of carbohydrates, as it is considered to have the most impact on body composition and how you look, feel, and perform.

MODERATE TO HIGH carbohydrate DAYS:

- **Make you feel good and energized;**
- **Replace glycogen stores that nourish muscle; and**
- **Encourage an insulin response to produce an anabolic environment for muscle growth and retention**

LOW TO NO carbohydrate DAYS:

- **Build insulin sensitivity, allowing better body response to carbohydrates;**
- **Assist fat loss by tricking your body into burning fat for fuel; reduced insulin levels improve fat oxidization; and**
- **Boost fat burn by bringing down overall daily calories into a calorie deficit.**

Setting Up A Carb-Cycling Diet

You do not require any tracking devices or the use of calculators for carbohydrate cycling with most protocols because of the general believe that this will naturally take care of itself throughout the basic manipulation of carbohydrates.

More advanced carbohydrate cycling protocols, however, looks at tracking calories and monitoring the macronutrient split for each of the different days of the week. Although these change depending on the source, the general set up can look like this:

HIGH carbohydrate DAYS

- Carbohydrates are set between 2-2.5 grams per pound of bodyweight;
- Protein intake is set at 1 gram per pound of bodyweight; and
- Fat is set at 0-0.15 grams per pound of bodyweight.

MODERATE carbohydrate DAYS

- Carbohydrates are set at about 1.5 grams per pound of bodyweight;
- Protein intake is set between 1-1.2 grams per pound of bodyweight; &
- Fat intake is set at around 0.2 grams per pound of bodyweight.

LOW carbohydrate DAYS

- Carbohydrates are set at around 0.5 grams per pound of bodyweight;
- Protein intake increases to about 1.5 grams per pound of bodyweight; and
- Fat intake is set at around 0.35 grams per pound of bodyweight.

NO carbohydrate DAYS

- Carbohydrates are set at 30 grams or less per day;
- Protein is around 1.5 grams per pound of bodyweight; and
- Fat intake may be increased to 0.5-0.8 grams per pound of bodyweight.

Once daily calories and macronutrient targets have been set, the suggestion of ideal foods or meals to help the person reach their recommended numbers is done on a case to case basis.

A Simple High carbohydrate Day May Look Like This

MEAL 1: BREAKFAST

2 whole eggs scrambled in coconut oil

Gluten free porridge with honey and fresh berries

A serving of protein powder with greens powder

MEAL 2: LUNCH

Homemade turkey burgers with a serving of rice
3 rice cakes and a banana

MEAL 3: SNACK

Small baked potato topped with tuna and side salad

MEAL 4: WORKOUT NUTRITION

Post workout shake: a serving of protein powder blended with fresh berries, rice milk, and a large, ripe banana

MEAL 5: EVENING MEAL

Large chicken breast stuffed with sun-dried tomatoes wrapped in Parma ham, served with white jasmine rice
Snack of choice

A Simple Low carbohydrate Day May Look Like This

MEAL 1: BREAKFAST

4 whole eggs scrambled in coconut oil with spinach
A serving of protein powder with greens powder

MEAL 2: LUNCH

Homemade turkey burgers with large side salad
Large handful of roasted mixed nuts

MEAL 3: SNACK

Small sweet potato topped with tuna and cheese

MEAL 4: EVENING MEAL

Large chicken breast stuffed with olives and wrapped in Parma ham, served with roasted seasonal vegetables topped with olive oil

This would be a non-weight-training day.

The Benefits Of carbohydrate Cycling

A carbohydrate cycling protocol is usually one that espouses a high protein diet while rotating carbohydrates and fats depending on your activity levels.

This makes it effective at 'balancing' a person's diet to guarantee that they have a sufficient intake of all three macronutrients. We know that improving a person's macro- and micronutrient profile effects positive changes in body composition and health.

Carbohydrate cycling protocols, despite their simplicity, can be quite restrictive. For instance, "if you eat high carbohydrate you must go low-fat, if you eat low-carbohydrate you should go high fats". The advantage of this is that it becomes effective in ensuring that people are in a calorie deficit: be it daily, weekly or even monthly, this will result in weight loss.

This is why this protocol is usually suggested for, and used by, those with intermediate to advanced nutrition knowledge who seek fat loss.

Another upside is that people can see results without having to track their calories or daily macronutrient numbers. This is providing they adhere to the protocol's basic guidelines and principles. It is an effective 'loose' dieting style that many people prefer.

It can also perform as a good way for people to learn more about how certain macronutrients affect them because of the considerable differences between the high, medium, low, and potentially no carbohydrate days. Following this protocol can assist people in finding their 'ideal' macronutrient split rather quickly.

Many people will find that they look, feel, and perform better on one of the days over the others. This generally suggests they may be better suited to this macronutrient breakdown than any of the other macronutrient breakdowns they follow on other days. If so, from experience it would be wise to discard the carbohydrate cycling protocol altogether and simply apply their preferred macronutrient breakdown on a daily basis. After all, what we want is to feel and perform awesome every day.

The Negatives To carbohydrate Cycling

Carbohydrate cycling enthusiasts (usually the ones aiming to sell a book) claim that it increases fat burn, more so than traditional calorie control dieting, by combining the advantages of both high and low carbohydrate days so as to ensure metabolic capacity and accelerated fat loss.

There is much anecdotal evidence to prove that this protocol can get people very lean quickly; however, we must take a look at the research to discern how this occurs and if this approach really is any better than other approaches.

A key component of carbohydrate cycling is that we will note greater fat loss as a result of its low-carbohydrate approach,. A study was made to test if this would be the case for a ketogenic-based diet vs. a traditional diet. (1)

In this study, twenty overweight adults were randomly grouped into to one of two diet assignments:

1. A ketogenic diet (low carbohydrate), which was comprised of 60% calories from fat, 35% from protein and only 5% from carbohydrates.
2. A traditional diet which was comprised of 30% calories from fat, 30% from protein and 40% from carbohydrates.

At this point one must remember the 3 key reasons why we should use carbohydrate cycling techniques:

1. To burn more body fat;
2. To improve one's insulin sensitivity (nutrient portioning); and
3. Maintain metabolic capacity when dieting.

Based on these three key points the findings from the study were:

1. There was no significant difference between the groups in weight loss;
2. There was an improvement in both groups in insulin sensitivity (consequently, it is a caloric deficit that improves this); and
3. There was an increase in both groups in hunger, energy, and cravings ratings, which suggests there is no metabolic benefit to the low carbohydrate approach.

In conclusion, it seems that the micromanaging details of many carbohydrate cycling protocols will not provide greater benefits over traditional calorie-controlled diets. (2)(3)

From my own personal experience this appears to be the case as well. I have been successful at getting myself and my clients equally lean without needing to use a carbohydrate cycling protocol. On paper it is sound, but there is not much research

in support of it. Furthermore, it appears to be making an entire process more complicated than it has to be.

As previously mentioned, carbohydrate cycling protocols be much more restrictive than traditional approaches. Low or no carbohydrate days are difficult and can leave one with elevated cravings, which then leads to diminished dietary compliance.

Always remember, the best diet for you is one that you can stick with.

For those conducting high intensity training 4+ times a week, low carbohydrate days can prove to be quite difficult. Training days overlap onto low/no carbohydrate days and can negatively affect performance. Moreover, some people find they are unable to replenish their glycogen levels sufficiently during the short high carbohydrate opportunity provided by this protocol. A more traditional approach would be more beneficial for these people.

Summary

Carbohydrate cycling can be a worthwhile protocol for those looking for an easy and simple set of guidelines to follow when aiming for body composition changes.

Moreover, it is a quick means to help people understand what their body is looking for in terms of macronutrient breakdown and what they perform best on. Barring this, little evidence can be found to support claims that it will change body composition any quicker than traditional methods.

Finally, looking at all considerations, it can become quite a challenging protocol to follow.

THE ADVANCED DIET PROTOCOLS PART I

WORKBOOK

Q1. DESCRIBE THE NUTRITION PYRAMID AND ITS 5 FUNDAMENTAL COMPONENTS.

Insert text here

Q2. DESCRIBE THE PALEO DIET.

Insert text here

Q3. WHAT ARE THE MAIN HEALTH BENEFITS REPORTED BY THOSE WHO ADHERE TO THE PALEO DIET?

Insert text here

Q4. DESCRIBE WHO MIGHT BEST BENEFIT FROM FOLLOWING THE PALEO DIET?

Insert text here

Q5. WHAT IS INTERMITTENT FASTING (I.F.)?

Insert text here

Q6. WHAT ARE THE MOST COMMON I.F. PROTOCOLS AND HOW ARE THEY DISTINGUISHED?

Insert text here

Q7. WHAT ARE THE KEY BENEFITS OF I.F.?

Insert text here

Q8. WHAT GROUP OF PEOPLE MIGHT NOT BENEFIT FROM I.F. AND WHY?

Insert text here

Q9. WHAT IS THE CARBOHYDRATE BACKLOADING PROTOCOL AND WHO CREATED IT?

Insert text here

Q10. WHAT ARE 'GLUT' GLUCOSE TRANSPORTERS?

Insert text here

Q11. HOW DOES RESISTANCE TRAINING IMPROVE INSULIN SENSITIVITY WITHIN THE BODY?

Insert text here

Q12. HOW WOULD A TYPICAL CARBOHYDRATE BACKLOADING DAY BE PROGRAMMED (TRAINING DAY)?

Insert text here

Q13. WHAT IS A CYCLIC KETOGENIC DIET?

Insert text here

Q14. WHAT BENEFITS ARE ACHIEVED BY PERIODIC CARBOHYDRATE INTAKE ON A CARBOHYDRATE CYCLING DIET?

Insert text here

Q15. WHAT BENEFITS ARE ACHIEVED BY USING A LOW CARBOHYDRATE APPROACH ON A CARBOHYDRATE CYCLING DIET?

Insert text here

Q16. HOW DOES A CARBOHYDRATE CYCLING DIET WORK, AND WHAT ARE THE TYPICAL RECOMMENDATIONS FOR IT?

Insert text here

Q17. WHAT NEGATIVES COULD OCCUR FROM FOLLOWING A CARBOHYDRATE CYCLING PLAN?

Insert text here

THE MODERN NUTRITION PROTOCOLS

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