

Nutrition

Zone:

Posted 8-1-2007 by Mike Ryan

So, after 25 years of on and off Japanese jujitsu, aikido and judo training with the same instructor, I decided it was time for a change. I recently started studying Brazillian juijitsu and muay thai at a new school that opened in my area. I am really liking the workouts so far... they are so different from my previous training. They are easier and harder at the same time. Easier on the body because there are not as many throws and falls and harder because the pace requires much more endurance. The schedule has me working two hours on M&Th and one hour on T-W.

The problem is that with the heat and exercise (and if I am being honest, the extra weight I carry around), I get gassed before the end of the workout. I know some of it is because I am new to this and the heat really saps my strength, but I also think that part of it is needing a better pre-workout meal.

Any suggestions on a good snack that I can eat prior to the workout that will stay down and give me a bit more energy to complete the classes (or anything else that might help)? For reference, I try to eat zone-type meals.

Thanks,
Mike

Response by Robb Wolf

Mike-

Can you give us 2-3 days of normal eating? Also what is your height/weight and what have you traditionally done for S&C? Any CrossFit or similar conditioning.

BJJ and Thai boxing training is VERY demanding and you may just need time to adapt. You may need to coast on some elements a little and slowly build intensity.

Mike Ryan's Response

I am pretty good about the quality of the food I eat, but I am beginning to believe, as Mike suggested, that the quantity may be off. I am about 285 lbs and ~25% BF (by scale and girth measurements) and 5'11" tall. I also weigh and measure most of what I eat. A typical day would look like this:

3 eggs + 2 whites or 8 oz LF cottage cheese
64 g Quaker old fashioned oatmeal with a pinch of salt and one packet of equal

5 oz chicken or steak
large salad or mixed veggies (~3 blocks worth)
~2 blocks of fruit (from the favorable list)
Olive oil and balsamic vinegar for dressing on the salad

5 blocks of chicken, steak or fish
~3 blocks of veggies
~2 blocks of fruit
usually saute veggies in olive oil

Sometimes a 2 block snack about an hour before bed. (I know that this should be more consistent)

Lots of water and a couple of coffees throughout the day

I am very consistent M-F while I am working. On the weekends, I am busy running the kids all over and often eat less although I still try to keep meals near zone quality (not counting the occasional pizza or beer. Ya still gotta live! 😊).

If anything, I think I am not eating enough but I am afraid to add and gain weight, even if it is muscle mass. 285 lbs is too much to carry around. I have fought this war most of my adult life.

As for other activity, I have a pretty sedentary job but I coach little league so I often throw batting practice or am otherwise active during that time, usually 2-3x per week for a couple of hours. I have done CF workouts (scaled) off and on for years and have always been athletic. Despite my size, I move

very well and have always been able to do things that people found surprising. For example...I used to coach gymnastics and could do several back handsprings in a row followed by a back tuck (at about 250 lbs).

I will admit that I have not worked out as hard or long as I do in BJJ and Thai boxing in as long as I can remember and I have started losing some weight. I am down about 8 lbs in the past three weeks. I think I just need to dial in the diet and exercise at the same time, which has always been the problem. Thanks,
Mike.

Response by Robb Wolf

Mike-

Food looks solid, like you said perhaps even a little under eating but I think the main issue is jumping in with both feet on some VERY intense activity. Ease into it, give it some time...start a log if you like so we can chime in and provide help if possible. I suspect a few months down the road things will be much better and you will be no one I would want to tangle with!
Keep us posted.

Posted 8-8-2007 by Russell Greene

just started the zone three days ago on a 17 block plan. It is definitely much less food than I am used to, but I would like to lose several percentages of BF% so I guess that makes sense. Do most people feel hungry all the time when they first start the zone? I sure do.
I am 5'10 and around 177 lbs. I workout three days on, one day off. Every workout day I run a mile, do three rounds of 15 ohs at 75 lbs, 18 pull ups, 15 sit ups, 5 hspu's, and a superman hold, plus Crossfit workouts and/or heavy lifting around 5 days a week. Is 17 blocks a normal prescription for someone my size and activity level who is trying to lose just a bit of fat?
My body fat percentage is not at the level of the top Crossfitters, but I can do 8 dead hang muscle ups and have a 3:58 Fran, so it can't be too high either. I can see my top four abs if I flex. I got fed up last night with starving, so I read the nutrition archives on the Crossfit board. Lauren and Robb both mentioned that the fat and protein levels are minimums, but the carb level is a maximum. So last night I had about 20 almonds, salmon, and chicken. I guess I will add almonds and protein from time to time when I am too hungry to continue.
I want to lose body fat because I am trying to maximize my CF performance and the top crossfitters have lower BF than I do. I know that as far as health goes, my body fat percentage is low already, but to maximize Crossfit performance, especially on the body weight exercises, seems to favor, if not require, very low body fat percentages.
I have noticed so far on the zone that I fall asleep much more easily. I was having problems with falling asleep around 3 AM and now it is hard for me to stay up past 11:30 PM. This is good because I am getting more and better sleep.
I ran the slightly-over-a-mile loop that I usually run in around 6:00-6:10 in 5:48 yesterday, and it was not at all a max effort. I felt very light on my feet and strong.
Nutrition is definitely my weak point, both in terms of knowledge and application.

Response by Robb Wolf

Russ- have you read the "how to tweak the Zone" piece I did a month or so ago? One way to minimize hunger is to partition a significant portion of carbs to the post WO period. I'd stick with 4 meals, tinker with a little IF later.

You will lean out very quickly...you will be fairly hungry during the whole process. Once you ramp up the fat it will be tough to eat your meals.

For most I see the Zone as an intervention...the folks who do well on the Zone are VERY disciplined...make their beds with no creases type of folks. I was a chemist and I find the weighing and measuring unlivable for the long term...in part due to relatively no change in performance. Body comp? yep, I'm leaner on the Zone...can't say performance is improved however but I am pretty tight IF/paleo due to good allergies and schedule.

Now if only I could sleep more...

Make a journal on this, it would be super helpful for folks.

Posted 9-5-2007 by Eric Jones

It really helps my thinking if I can quantify how many Zone blocks it takes to put on fairly lean mass. Up until now i have followed a fairly paleo diet with no real portioning controls, I have just been trying to eat as much as I can between 4pm and 10pm. It feels like I am stuffing myself (several pounds of vegetables, 4 whole fruits, whole bag of cashews, lots of lean meat and protein powder and amino's post workout) but can't tell if it is enough. I seem to be putting on some lean mass, but would like to get more precise to make sure I am getting enough clean calories.

I am about 165lbs, 21yo, male. I am a trainer at Rogue Fitness, so I am very active all day long and workout 5-6 days per week. I figure 21 blocks at 3x fat seems right. That's about 150g PRO and about 3,050 calories. As I put on mass, that will have to go up. Is this enough?

Response by Robb Wolf

Eric-

Cut back on the veggies a bit and up the nut butters. use some dense carbs post WO. It will be tough to eat enough otherwise!

Posted 7-21-2008 by John Schneider

I'm currently working on my M.S. in Exercise Science and I'm enrolled in an "Advanced" Nutrition class this 5 weeks. Last week's assignment was focused on Carbs. Everyone concluded from the research that active individuals should be taking between 60-75% of their caloric requirements from CHO. 🤔

The thing was that the research I came across did not support a CHO restrictive diet like the Zone, but my athlete who has been following it religiously for 9 months now (keeping highly detailed logs) and dialing it in a little with increased fat and starting to save his CHO blocks for post workout as recommended here at the PM. He doesn't show any signs of having trouble recovering muscle glycogen and his performance only continues to improve.

The question is, how do you resolve when research doesn't match up with what you are observing in real life? Right now I'm just assuming that the studies are executing things in a poor manner. Below is the questions and my responses for the assignment:

Quote:

1) Based on the recommendations in the literature how many grams/kg AND total grams of CHO's should your active individual ingest each day? Make sure you include the weight of the individual as well as the typical amount of exercise (intensity, duration and mode) that the individual is engaged in each day.

2) Again based on the literature how would you suggest that the above individual obtain the CHO's- liquid vs solid, simple CHO vs complex CHO (or both) and meals/snacks/ingestion during exercise. Be as specific as possible. The idea at the end of the course is to be able to look at your answers and have a good idea what the active athlete should be ingesting in the way of macro nutrients.

3) An active individual (average of 10 hours of exercise each week- combo of aerobic and resistance training) asks you to explain to them why a low CHO diet is probably not the best way for them to eat- how do you respond?

John Schneider 20 Jul 08 9:02 PM MST

1. My athlete, Chad, is preparing for basic training in the Marine Corps. He weighs 70kg and trains six days a week. 4days/ wk he does some type of metcon with a perceived exertion of about 80% normally and twice a week he is lifting heavy either with power lifting movements or the Olympic Lifts and their variations at an intensity between 75 and 95% 1RM. Each training session lasts for approximately an hour. According to the reading, he should be taking 5-7g of CHO for every kg of body weight which would put him between 350-490 grams of carbohydrates/ day.

2. During exercise, the source of the CHO as solid or liquid makes little difference in the short term(1). I prefer liquid because there is no chewing involved. If he were doing longer bouts, I'd recommend solid CHO sources because solid CHO feedings For post workout, I recommend high glycemic index foods over low glycemic index foods because they aid in the recovery of muscle glycogen faster.(3)

3. I'd explain that low CHO diets don't provide enough CHO to replenish muscle glycogen for an active individual and that their performance would diminish (4) Low CHO diets might be good for sedentary individuals only concerned with fat loss, but for an active individual interested in performance, they need an adequate amount of CHO.

(1) MASON, W. LEE; McCONNELL, GLENN; HARGREAVES, MARK; Carbohydrate ingestion during exercise: liquid vs solid feedings; *Medicine & Science in Sports & Exercise*. 25(8) 966-969; August 1993

(2) HARGREAVES, M., D.L. COSTILL, A. COGGAN, W.J. FINK, and I. NISHIBATA. Effect of carbohydrate feedings on muscle glycogen utilization and exercise performance. *Med. Sci. Sports Exerc.*, Vol. 16, No. 3, pp. 219-222, 1984

(3) L. M. Burke, G. R. Collier and M. Hargreaves; Muscle glycogen storage after prolonged exercise: effect of the glycemic index of carbohydrate feedings; *Journal of Applied Physiology*, Vol 75, Issue 2 1019-1023, 1993

(4) Langfort, J., Zarzeczny R., Pilis, W., Nazar K., Kaciuba-Uscitko H.; The effect of a low-carbohydrate diet on performance, hormonal and metabolic responses to a 30-s bout of supramaximal exercise; *Journal European Journal of Applied Physiology*, Volume 76, Number 2 128-133; July, 1997

Sub-note: What do you do when the research you find doesn't match with what you are observing in real life? Chad is actually following the Zone diet strictly with some tweaks like taking in more fat and saving some of his CHO servings for post workout(I've gone through his nutrition logs)and has been for 9 months now. His performance has only improved and he feels great. Many other CrossFit affiliates observe the same results. I did the assignment as it was called for because I understand that personal testimony has no place in academia, but what I've read here doesn't match with what I'm seeing?

Response by Robb Wolf

Folks never allow for adaptation:

<http://www.nutritionandmetabolism.com/content/1/1/2>

this is a fantastic article...one will NEVER do glycolytic work without glycogen but everything else runs fine on ketones and lipids.

Need a health related answer? Look to evolutionary biology.

Paleo:

Posted 6-6-2007 by Jordan Glasser

For those who stay paleo, what type of protein powder do you use? If you use whey, do you consider it cheating the paleo plan?

Response by Robb Wolf

I would not attack this from a paleo/not paleo perspective but rather is it A-healthy or B-helpful to performance?

Depending upon the circumstances it may be yes and no in both those situations. I REALLY recommend folks stick with solid food unless they simply can not get in enough food otherwise.

It is very easy to overdo liquid foods, both in carbs and total amount of calories.

Posted 6-24-2007 by Brandon Enos

Ive asked this on the Dragondoor forums but didn't fit what I was looking for. Not that I didn't get answers I liked, but I don't think that they understood what I was saying.

If you ignore things like food quality etc (I'm doing Paleo for food choices so that part doesn't matter to me), what is the real difference in what they recommend. What I mean is, is there any evidence or research showing that one is better than the other? That eating "light" during the day; a salad, an apple, etc during the day is "better" or "worse" than eating nothing. Or is it completely a personal thing?

Response by Robb Wolf

I think both approaches have merit. There are a load of human studies showing simple caloric restriction one day mixed with ad libitum eating another day improves insulin sensitivity and some other bio-markers...just not as well as the full fast.

Many people report the full tilt fast being easier, both in implementation and not really getting hungry until they eat...but like others have said, make it work for you.

I think you will see a revamping of the "grazing" recommendation in Ori's re-release due out in Dec...

Posted 7-3-2007 by Jeremy Shepard

Robb, you seem to have done a significant amount of reading on ketosis. What is your current opinion regarding increased levels of methylglyoxal during ketosis? While we're at it, what is your feeling toward AGEs in general with regard to aging?

Quote:

Ann N Y Acad Sci. 2005 Jun;1043:201-10.

Ketosis leads to increased methylglyoxal production on the Atkins diet.

Beisswenger BG, Delucia EM, Lapoint N, Sanford RJ, Beisswenger PJ.

Dartmouth Medical School, Dartmouth Hitchcock Medical Center, 1 Medical Center Drive, Lebanon, NH 03756, USA. paul.j.beisswenger@dartmouth.edu

In the popular and widely used Atkins diet, the body burns fat as its main fuel. This process produces ketosis and hence increased levels of beta-hydroxybutyrate (BOB) acetoacetate (AcAc) and its by-products acetone and acetol. These products are potential precursors of the glycotoxin methylglyoxal. Since methylglyoxal and its byproducts are recognized as a significant cause of blood vessel and tissue damage, we measured methylglyoxal, acetone, and acetol in subjects on the Atkins diet. We found that by 14-28 days, methylglyoxal levels rose 1.67-fold ($P = 0.039$) and acetol and acetone levels increased 2.7- and 6.12-fold, respectively ($P = 0.012$ and 0.028). Samples from subjects with ketosis showed even greater increases in methylglyoxal (2.12-fold), as well as acetol and acetone, which increased 4.19- and 7.9-fold, respectively; while no changes were seen in samples from noncompliant, nonketotic subjects. The increase in methylglyoxal implies that potential tissue and vascular damage can occur on the Atkins diet and should be considered when choosing a weight-loss program.

PMID: 16037240 [PubMed - indexed for MEDLINE]

Response by Robb Wolf

Jeremy-

I've wondered about that. In general ketones are more reactive than aldehydes and alcohols. This explains some of the increased AGE production from fructose, a ketone sugar, vs glucose, an aldehyde sugar.

I'm curious if there are repair mechanisms that ameliorate the effects...

Now here is a nice piece from [wikipedia](#). It appears the main source of methylglyoxal formation, according to that article at least, is GLYCOLYSIS gone wrong.

then this article:

<http://diabetes.diabetesjournals.org...tract/48/1/198>

that describes decreased rates of methylglyoxal formation in diabetics who are placed on metformin. Metformin increases insulin sensitivity and tends to mitigate some of the metabolic derailing common in glycolysis, especially in the diabetic.

Then we look [here](#) and find that fasting is recommended as a means of decreasing methylglyoxal production, mainly due to its action on glycolysis...but fasting is a state of ketosis!

So it looks to me that glycolysis is the main culprit in MG formation. Regarding the paper you cited it would be interesting to know the insulin sensitivity of the folks on the Atkins protocol...and it would be super interesting to know EXACTLY how they implemented the protocol. Did the researchers introduce any non-glycemic load items that inhibit normal insulin sensitivity (artificial sweeteners, whey protein).

If ketosis was REALLY the issue we should see sky-high MG levels in fasting, starvation and to some degree in caloric restriction...but instead we see the opposite. This might be a good topic to email the lead author of that study and ask that question.

Posted 7-4-2007 by Jeremy Shepard

To quote the authors:

"The highly significant relationship that was observed between acetol and MG suggests that MG is produced directly from acetol by oxidative mechanisms. Although ketone bodies are likely to be an important source of MG, it is also possible that some MG is derived from increased triose phosphates resulting from increased production of glycerol (from accelerated triglyceride breakdown) or from lipoxidation products (from the high fat intake) undergoing degradation

to MG."

The study participants were limited to >25 BMI and a fasting blood glucose of <100 mg/dL. None had been previously diagnosed as diabetic. As far as whey or artificial sweeteners, the participants were just instructed to follow the advice in *Dr. Atkin's New Diet Revolution*. It has been too long since I've read it to remember any mention he makes regarding that type of thing. So, typical self-reporting crap, but at least they were tested to exclude the ones not following close enough to remain in ketosis.

I can get you the full text if you want to check it out, fairly interesting stuff.

Response by Robb Wolf

Jeremy-

If you can hook me up with the full deal that would be peachy. I've been digging around on this and it does appear ketosis up regulates enzymes that deal with this problem...not so MG from glycolysis...

Posted 9-6-2007 by Jordan Glasser

I've been thinking about trying to eat seasonally this winter. I am after some opinions/guidelines. First thing to note is I live in Whistler, BC, Canada.

I do know, that seasonal our not, I do have to replace my CHO after workouts. But, I am curious on whether it is possible or advisable to maintain an active lifestyle while sticking to eating foods only available to me in the winter.

Part of me is saying that I don't sleep 14 hours a day in the winter, so why should I eat that way? But, having said that, I would love to eat foods that are available locally, and eat according to season.

Response by Robb Wolf

Jordan-

You folks are still pretty warm in the winter, yes? If you have nay farmers markets still going that would be perfect. yams, squash and citrus seem perfect for dense carb sources.

Posted 9-12-2007 by Matthew Ricker

Two questions:

1. Are there any paleo-friendly, or even just semi-friendly (as in not pure paleo, but not a blatant violation, either), substitutes for flour when frying chicken? And perhaps more importantly, are any substitutes tasty?
2. What would the best frying oil, taste-wise, be? Coconut? Olive? Macadamia? Butter? More than one suggestion is okay/appreciated, as well.

Thanks.

- Matt

Response by Robb Wolf

Matthew-

scramble 1-3 eggs. Roll the chicken in the eggs prior to the almond flour. You can make your own almond flour using a coffee grinder anytime.

Make sure to season the flour with some garlic powder, salt pepper etc. Coconut oil is perfect for frying...don't start a grease fire!

Posted 1-28-2007 by Matt Lawson

would Yerba matte be considered paleo friendly? if so...does anyone know much about it? ive read allot about it though people on this forum tend to have the skinny on stuff. Any thoughts?

Response by Garrett Smith

Nothing wrong in particular, unless you are trying to control your caffeine intake.

Most yerba mate is smoked (you may or may not want the added potential carcinogens that smoking provides), I have recently seen yerba mate that is "raw", or not smoked at all.

I've tried yerba mate several times, I don't know if it's the smoking or not, it just doesn't sit well with me, nor do I particularly like the flavor.

Response by Robb Wolf

I have a similar experience as Dr. G. Green tea and mate actually mess with me whereas coffee does not (precious...)

There are several stimulant alkaloids in these products..theophylline(sp?) being one that actually makes it hard for me to think. weird stuff.

Posted 1-28-2007 by David Mathews

I have been paleoish for over 6 months (apprx. 60-100g carbs/day) and pretty much fat adapted,if that is the right phrase,the fat seems to be melting off.My question is; What mix of carbs/glycogen and/or fat and/or muscle(hopefully none) do you think you would be burning in these two scenarios and what amount of carbs would you say is needed PWO with each?These were both done in the A.M. around 7:00 fasting since supper the night before(8-9pm);

1.WOD-Murph;run 1 mile,100 pullups,200 pushups,300 squats,run 1 mile(45 minutes)

2.ME(one exercise only;squats,deads,or presses 5x5,5x3 or 5x1) plus a short 8-10 minute wod/finisher.

Can you burn fat through a whole workout if you are fat adapted enough?Or is it always a combination?

When I did Murph I took in apprx. 50g carbs PWO with 60-70g of protein and it seemed to suffice.I usually only take in apprx. 20g carbs after an ME workout.Is this enough? From a blackbox standpoint it seems to be working but I don't want to be slowly digging a whole and end up crashing and burning. Any thoughts and/or suggestions would be appreciated.

I know,I know if it ain't broke don't fix it!

Response by Robb Wolf

David-

Looks good. There are exertion levels that absolutely will outstrip your fat metabolism and you will need to use glycogen. Your PWO meals sound adequate AND conservative. Larger WO's can/will accommodate larger carb meals. Tinkering is the only way to know how to manage that.

Robb

Posted 4-5-2008 by Greg Battaglia

Despite the fact that I've been an avid proponent of evolutionary medicine and the paleo diet approach I've always made it a point to keep an open mind. Although I'm certainly not opposed to paleo eating (I currently eat paleo myself) my recent interest in centenarian lifestyles has roused my curiosity. After doing a lot of reading about centenarians I've come to realize that although there are certainly similarities with the paleo approach there are also some distinct differences.

Although centenarians do indeed seem to consume lots of fruits and vegetables the most unique components of their diets appear to be raw dairy products, and soaked/sprouted grains and beans. This seems to coincide with what the WAP foundation has been saying for years. For example, I just read an article at my girlfriends house that was in an issue of AARP titled "Living to 100" that looked into the diet and lifestyle of a Costa Rican village called Nicoya that has an unusually high percentage of centenarians. The author describes his experience with one centenarian women that he met. Before getting into the details of the diet, the author noted that despite her age and failing eyesight Panchita remained incredibly physically active and capable at age 101. Apparently she chops wood and chops down small trees with a machete, moving fast and rigorously all the while. She also walks everywhere. The following is an excerpt from the article:

Quote:

A bowl of bananas and papayas sat on the counter for easy access, and everything else-beans, onions, garlic, greens, corn, which all required preparation-remained out of sight.

and

Quote:

She moved slowly and deliberately, heating up beans and seasoning them with garlic and onions. From an earthen pot she scooped out grayish corn that had been **soaking in lime hydrate overnight**, rinsed the kernels, and ground them into dough. She patted out tortillas and roasted them over the open fire. She melted a dollop of lard on an iron griddle and fried eggs. Finally she cut paper thin slices of cheese....

and

Quote:

In about 30 minutes she presented us with lunch-small portions of beans, corn tortillas, and one egg on a small plate. The serving looked huge, but it amounted to about half of what you'd get if you ordered the breakfast at your local diner.

The author goes on to list the following highlights of the Nicoyan lifestyle:

Quote:

Have a strong sense of purpose Costa Rican centenarians have a clear mission in life, what they call a *plan de vida*. They feel needed and want to contribute to a greater good.

Drink hard water Nicoyan water has the country's highest calcium content, which perhaps explains the centenarians' lower rates of heart disease and less hip fractures.

Keep a focus on family Nicoyans centenarians tend to live with their families, and children or grandchildren provide support and a sense of purpose and belonging.

Eat a light dinner Eating fewer calories seems to be one of the surest ways to add years to your life. Nicoyans eat a light dinner early in the evening. Their traditional diet of maize and beans may be the best nutritional combination for longevity the world has ever known.

Maintain social networks Nicoyan centenarians get many visits from neighbors. They know how to listen, laugh, and appreciate what they have.

Keep hard at work Centenarians seem to have enjoyed physical work all their lives. They find joy in everyday physical chores.

Get some sensible sun Nicoyans get regular sunlight which provides vitamin D for strong bones and healthy bodies.

Embrace a common history Modern Nicoyans' roots, among the indigenous Chorotega, and their spiritual traditions have enabled them to remain relatively free of stress.

Other centenarians, such as the Sardinians share very similar traits like eating raw pecorino cheese that contains live larvae and consuming beans as a significant portion of their diet. They eat grains too, but in smaller portions. The common theme is that these foods are prepared properly (sprouted or soaked for grains, beans, and nuts and non-homogenized, non-pasteurized raw dairy from grass-fed animals) to leech out any anti-nutrients or lectins and make nutrients more bio-available.

Additionally, primitive (but not necessarily tribal) cultures have been thriving on diets that contain grains, beans, and dairy products that are properly prepared. Could it be that in the last 10,000 years humans have developed adaptations to such foods, so long as they are prepared in a proper manner? Maybe it is the fact that only in the last 100 or so years have we begun to eat grains, beans, and dairy in their modern, unprepared form that makes them detrimental? Perhaps if we consumed these foods in a properly prepared state (99.9% of Americans don't) we would do just fine incorporating them into our diets. I'm not sure to be honest, but I don't think it's completely out of the picture. I personally have never tried soaked/sprouted grains or beans. People like Ross Enamait have noted a complete amelioration of seasonal allergies and a dramatic improvement in

immune function after adding raw milk to his diet. Not to mention that the presence of lactase in some European cultures is clear evidence of at least some adaptation to dairy. Couple this with the fact that the most robust centenarians include these foods in their diet and you have a pretty convincing argument.

Also, I find it quite striking that some very prominent promoters of paleo-esque diets (Mark Sisson, Ori Hofmekler, Mark Lundegren, Tamir Katz) state quite clearly that 10,000 years ago—once agriculture began—human evolution came to a screeching halt. They are essentially claiming that our genome is exactly identical to what it was 10,000 years ago. This is absurd, as anyone with even rudimentary knowledge in the area of human evolution knows that evolution is a continuous process that is influenced by environmental cues (like diet, especially). Surely, there must be [b]some[b] level of adaptation to grains, beans, and dairy within the last 10,000 years. To what degree, I don't know.

Finally, I think centenarians are a far more appropriate reference point for modeling our lifestyle habits, as they are actually living proof of what works. We can't rely on the assumption that just because contemporary H/G's have a short lifespan due to traumatic death and infant mortality that they **would** live to be centenarians barring any accidental death. Centenarians seem to get it all, both long life and a high quality of living.

That being said, I'm not about to give up my paleo diet just yet. I'm going to continue to study up on any relevant information pertaining to centenarian diets and life styles. If I keep finding these same consistencies I'm going to give the WAP style an honest try for the sake of experimentation. If it sucks, I can always go back to paleo.

Thoughts, comments, opinions?

Response by Robb Wolf

HG's had plenty of access to beneficial (and not so beneficial) flora, I think this is wired into our genes. The ofal of herbivores was one of the prime sources for this concentrated "pro-biotic" load. Not surprising this would be of benefit to pastoralists and agriculturalists.

The notion that evolution stopped 10K years ago is based on the need for an isolated population to exist in a species to allow for genetic drift in a subpopulation. This appears to be a solid assertion. I can get into the genetics if anyone is interested but it's a bit technical. As it is there are only a few adaptations that are recognized to have happened in the past 15K years or so: Lactase enzyme in som pop's, vit-D/folate metabolism alterations in northern europeans who consumed gluten containing grains, sickle cell adaptation in pop's exposed to malaria...possible an exposure to an HIV type virus, but that was possibly as old as 100K.

Moste centenarians drink alcohol almost daily and have smoked at some point in their lives. The longest lived are not typically tee-totalers.

Posted 6-16-2008 by Greg Davis

Here's a fertility question I've had posed to me that I'm a bit stuck on:

something along lines of:

"As our fertility mechanisms must be based around being more fertile when more resources are available, it must be that as insulin sensitivity increases, one becomes less fertile. For a female this would mean less likely to get pregnant if insulin sensitivity is high. For a male, does this mean testosterone goes lower?"

Wouldn't relatively higher insulin resistance in the fall raise testosterone in males as a signal to "get it on" and have spring babies? A bit inspired by stuff in Lights Out here..

What I'm getting at here is I'm not sure how to logically defend having high insulin sensitivity year-round when thinking about hormones and our evolutionary past.

Response by Robb Wolf

Greg-

That is pretty much the lights out thought: Insulin resistance will increase in summer/fall, this will decrease sex hormone binding globulin, making more androgen's available...increasing fertility. I think it's easy to overdo this otherwise transitional state!

Diet and Supplements:

Posted 5-22-2007 by Greg Battaglia

Basically, I was curious as to why the Crossfit dietary prescription has changed from it's original form a while back. It used to go something like "Eat lean meats, vegetables, nuts and seeds, a little fruit, and no sugar". It now goes like this "Eat garden vegetables, especially greens, lean meats, nuts and seeds, little starch, and no sugar". I was just curious why the fruit was removed from the equation.

Response by Robb Wolf

No clue as to the change. For glycemic control obviously that is a good move...it removes potentially significant levels of fructose which if weight loss is of paramount concern that might be good. Just keep in mind:

Meat and veggies, nuts and seeds, little starch, no sugar...although adequate to prevent metabolic derangement...these "paleo" foods CAN NOT BE EATEN IN A 40/30/30 RATIO.

Posted 6-12-2007 by Nick Cummings

Any thoughts or experience on resveratrol? Research seems to suggest positive effects in animal experiments. Additionally many of those who have done the research publicly claim to be using it although they add the standard disclaimer that it is too early to advice people to use it.

Response by Robb Wolf

Yea...it looks legit but it is very fat soluble...tough to get a spike in blood concentrations. folks are working on ways around this however.

Posted 6-20-2007 by John Vernon

today I experienced a third such attack in the last year & a half. until I just googled migraine symptoms I was totally clueless as to what I was experiencing, I thought it was just something I ate, lack of sleep, etc.

my symptoms have been identical for each attack:

- impaired vision (usually in my left eye) 20-30 minutes prior to the actual headache. manifested in bright spots or blurred vision. i've discovered the bright spots are called scintillating scotomas. this morning when it set it was experiencing both scintillating scotomas & very blurred vision in my left eye.
- once the headache sets in it settles right at my eyebrow line and is most severe behind one eye (usually the right eye)...on a pain scale of 1 to 10 (10= severe pain) it's about a 8.5-9.
- then nausea and/or vomiting sets in. didn't puke this time due to my stomach being fairly empty from a 14-hour fast. previous attacks I did.
- other: sensitivity to light, dizziness, mild hand/lower arm tremors, sensitivity to movement.

my past course of treatment during my last two experiences have been: puke and then go to bed and sleep/don't move for many hours. then I'd wake up and be right as rain. I'm going on hour 12 this time and I still have the pain behind the right eye. this is after leaving work at 10:00, coming home, and going right to bed.

have yet to see a doctor (just webMD) for official diagnosis but I'm pretty darn sure this is what I've got.

does anyone experience these and if so have any treatment tips or preferred over-the-counter drugs?

my last two migraines came on when I was a very diligent paleo zone eater, I'm still okay with my diet and have also been throwing in some IF. so, I don't think it's related to diet or exercise at all.

I don't know anything about migraines other than they really blow and what I've just read on the internet so any advice is appreciated.

Response by Robb Wolf

Insulin resistance can be a sneaky aspect to migraines...and sleep deprivation can be a sneaky route to insulin resistance. Getting your zzzzz?

Posted 6-18-2007 by Kevin Mckay

Anyone have arthritis? I found out I have it, was hoping it was gout but no such luck... Not sure if it is rheumatoid or ostio but it recently moved from my hands and wrists to my elbows. If anybody has experience with this let me know. I am not sure if it is ok to workout with a joint when it is flaring up.

Response by Robb Wolf

RA- Flares from dairy and of course, wheat. Asymptomatic if the diet is 100%.

Robb Wolf on Fiber

I think we are wired for a good bit of fiber...but the Inuit and others get by fine with little to no fiber. Just read the Eades post...I remember reading a study on psyllium and GI inflammation, totally makes sense.

Bottom line (anyone get the pun?) if you introduce an irritant to a system you will get problems. This is likely why intermittent fasting further improves digestion, simply decreasing the number of physical irritants to the GI tract.

Posted 7-3-2007 by Mike ODonnell

Just out of curiosity....is there ANY real differences between the "Metabolic Diet" and the "NHE" eating plan? (I can't remember all the specific details with each) From what I recall both are low carb (30g/day) with carb ups at 3/1 or 4/1....all with high protein and fat...

No idea why I am asking this....just curious while I was looking over some old stuff....and fooling around with the Body Opus program lately....

Response by Robb Wolf

Virtually identical. NHE explains some of the sciency stuff better...MD allows for post WO carb spikes to facilitate recovery if the standard plan is not cutting it. The trouble shooting guide is legit:

http://www.metabolicdiet.com/mdiet_tools.htm

Posted 7-11-07 by Nick Cummings

(Coconut Oil vs. Milk; Brand Preference?)

The tittle pretty much says it all. I have heard a lot of good things about coconut products but can not find the difference between milk and oil. Also I have been looking online for a quality product at a reasonable price. The coconut oil seems to come at about \$55/gallon. Anyone know of something better? Thanks in advance.

Response by Robb Wolf

Nick-

The gallon is a pretty good price and it will last for ages. If you have an asin grocery nearby you can find good quality, inexpensive coconut milk. The difference is the oil has all the water and plan solids removed...both are great options.

Posted 7-12-07 by Greg Battaglia

What are the dangers of prescription antibiotics? How do these dangers compare , if at all, to natural antibiotics like garlic? Also, if one chooses to avoid prescription antibiotics for health reasons what alternative can be used to eliminate infections (ie spider bite, pneumonia, STD's, etc)? The reason i ask is because i currently just went through to courses of anti's for an infection that I got from a spider bite while riding in the woods. I never get anti's for common colds and stuff, no way. I mainly talking about more serious infections, are anti's a must in those cases? Thanks

Response by Robb Wolf

If you have a raging infection they are your only hope to survive in many cases. Antibiotics and over/improperly used in many ways but people forget how easy it was to die from simple infections prior to penicillin.

Posted 8-17-2007 by Ben Blosch

I had a question with ZMA and sleep and something strange that has been happening to me.

Since reading the ZMA thread Coach Rut started I ordered some and have started taking it every night, on an empty stomach, right before I go to bed. My sleep is not nearly as good. I'm tossing and turning, getting up at in the middle of the night, and not falling asleep as fast as usual.

Here's where it gets a little weird. When I get up in the morning I feel much more rested. All day I feel better, especially when I work out.

Anyone know what's going on?

Response by Robb Wolf

Possibly overall sleep quality has improved. You may not get to sleep immediately but once you go down it may be deep, restful level 4 sleep. Duration is important but an uninterrupted sleep cycle is VERY important. Waking mid cycle registers as a potent stressor and can really mess with things.

bottom line ala The Black Box-if it works, run with it!
Keep us posted.

Inter. Fasting

Posted 5-22-2007 by Daniel Miller

I've been experimenting with IF, primarily with a focus of health/longevity.

In addition I've been sticking to paleo foods and have been limiting my Cho intake to 2-3x per week sweet potato + fruit (100g Cho) PWO. During my feeding times, which have ran 4-9hours usually 6-8, 1-2 meals will contain some low GI fruit (for totals of around 80-100g of Cho per day before subtracting fiber), but most of my food is fibrous veggies, some protein, and copious fat. Total kcals are down slightly, but so far it isn't a problem due to the nutrient partitioning.

Problems:

1. I've had a few bloody noses since I began this. I wasn't light headed or having any other symptoms, just spontaneous nose bleeds (I think 3).

2. I'm finding myself low on energy. 2 days per week I feel great but 3-4 days per week I feel really sluggish and tired. Yesterday, I had a Cho PWO meal at around 11:30 am, and then ate until 5pm. At 6:30-8pm I was incredibly tired. I went to bed at 8:30 and woke up at 6am feeling still incredibly tired.

I didn't eat until around 11am today and actually felt pretty well after an initial 1-hour period of having a hard time waking up, which is something I rarely experience, being a morning person.

3. As I eluded to in problem 2, I have not yet felt a huge increase in energy during fasting times. Only 2x in the last two weeks did I feel great while fasting. Other times, I've felt weak, unfocused, and cold.

Lastly, I've been using urinalysis strips and find I can be in ketosis (trace amounts) if I eat 80-90g fibrous Cho for only 1 day. After 2 days, I have small amounts of ketones washing out.

Part of me thinks that this is a good transition period and I should try and stay in ketosis. Another part of me, and the part which at the moment seems more prudent, is for me to add a little more fruit to my feeding times and speak with my clinician(s) and some other relevant people about the dangers/benefits of me being in ketosis.

Any thoughts about my problems would be appreciated.

-Dan

Response by Robb Wolf

Daniel-

You can get decreased platlet agregation similar to n-3 supplemnetation with intermittnet fasting or just lower insulin levels. That may be part of the issue.

I'm pretty convinced there are significant health benefits from periods of ketosis. Most of the medical community does not currently share this opinion...but most of these people can not distinguish between ketosis and ketoacidosis.

A few things:

From Stryer Biochemistry, 4th edition, pg 777- After adaptation ketones bodies become preferred fuel sources for both the heart and brain.

pg613- "Acetoacetate and b-hydroxybutyrate are normal fuels of respiration and are quantitatively important sources of energy. Indeed, heart, muscle and the renal cortex use acetoacetate in preference to glucose..."

That was from my medschool biochem text. My undergrad biochem text was much more thorough on that topic but I remember being struck at the time (1997) that it was very odd that ketone bodies might form a preferential fuel...yet no one was the least bit interested in this phenomena.

Fast forward to the work in metabolic control analysis, intermittent fasting, epigenetics, caloric restriction with adequate nutrition...hormesis (had to sneak that in). Very compelling stuff IMO.

If you are torched after the bike ride I'd just eat! It's not necessary to do IF every day to garner benefits.

Posted 5-23-2007 by Daniel Miller

man I wish I could remember that Kierkegaard quote about the 'leap of faith'.

No doubt, I'm with you on how compelling Hormesis, MCA, IF, CR, etc are. In fact, it all might be changing my course of study slightly or at least my eventual choice of specialty/residency.

Once concern I have had concerns my lymphatics and how they are handling the loads of fat I'm eating given the health condition I spoke of in the email (lymph mets). Somewhere inside my black box are things I don't want to piss off. I have no idea if this is a legit concern, but it is something I think about.

Response by Robb Wolf

Daniel-

Hmmm....the lymphatics issue was certainly not on my radar. I'm just thinking out loud here...if your inflammatory markers are "good"/improving, if you are not seeing increased levels of oxidized LDL/VLDL, if liver enzymes are not on the up-tick, if glycated hemoglobin is improved(ing)...I really do not see an issue.

Keep in mind that under paleo/zone conditions one will sequester the TAG's consumed into muscle, adipose and the liver, typically in that order. If intake is HEYUGE we may have a problem for anyone but I honestly think the intake you are experiencing is higher than what you were previously doing but not uber-high in an absolute sense.

Posted 5-24-2007 by Kevin Anderson

Has anyone tried IF with a strength training program. All I do is olympic lift 5 days out of the week. I'm thinking about fasting a couple days a week on the days that I train. I tried it the other day and I felt good during the workout but the next day, which was also a workout day wasn't so good. **I figure I will try fasting on the days I workout before a rest day** which is twice a week. I'm concerned about not getting enough protein, losing strength and recovery but I figure I will experiment for a while and see what happens. The program, while the exercises have variety, is just too regular IMO. Training wise, I'm thinking about getting out and doing a little sprinting once a week as well as an extra easy workout in the early morning on training days followed by some foam roller work. If the backsquat starts to go down then I may have to abort. It will also be nice to lose the extra fat off my belly as well. I was eating just about as much as I could for a while and got up to about 195 but would cut down before meets (85KG). For the past several months though I've been at about 187 with a bit of extra fat on my belly. At peak Crossfit my weight was as low as 165 but settled at about 170, being pretty lean. I used to throw in a fast every week or so back then and I could remember my body feeling like it was kicking into overdrive. I'm thinking adding IF might help with recovery in general and those nagging aches and pains. If this is nonsense please let me know. I'm just trying to bust out of a rut.

Response by Robb Wolf

Kevin-

Once you adapt it should go fine. I'm not sure one can achieve elite totals doing this...it might be advisable to down a bit of protein prior to training if you are not firing all cylinders. Just have to feel that out.

Posted 5-23-2007 by Mike O'Donnell

a good article from Dr Eades' Blog

<http://www.proteinpower.com/drmike/>

Quote:

Since posting the piece on ketone bodies and their causing breathalyzer problems I've had enough comments and emails to make me realize that there are probably many people unsure of what ketones really are, where they come from and why. Let's take a look at the goals and priorities of our metabolic system to see what happens. I'm going to try to keep the biochemistry to a minimum, so fear not.

The primary goal of our metabolic system is to provide fuels in the amounts needed at the times needed to keep us alive and functioning. As long as we've got plenty of food, the metabolic systems busies itself with allocating it to the right places and storing what's left over. In a society such as ours, there is usually too much food so the metabolic system has to deal with it in amounts and configurations that it wasn't really designed to handle, leading to all kinds of problems. But that's a story for another day.

If you read any medical school biochemistry textbook, you'll find a section devoted to what happens metabolically during starvation. If you read these sections with a knowing eye, you'll realize that everything discussed as happening during starvation happens during carbohydrate restriction as well. There have been a few papers published recently showing the same thing: the metabolism of carb restriction = the metabolism of starvation. I would maintain, however, based on my study of the Paleolithic diet that starvation and carb restriction are simply the polar ends of a continuum, and that carb restriction was the norm for most of our existence as upright walking beings on this planet, making the metabolism of what biochemistry textbook authors call starvation the 'normal' metabolism.

So, bearing in mind that carb restriction and starvation are opposite ends of the same stick and that what applies to one applies to the other, let's look at how it all works. I'll explain it from a starvation perspective, but all the mechanisms work the same for a carb-restricted diet.

During starvation the primary goal of the metabolic system is to provide enough glucose to the brain and other tissues (the red blood cells, certain kidney cells, and others) that absolutely require glucose to function. Which makes sense if you think about it. Your a Paleolithic man or woman, you're starving, you've got to find food, you need a brain, red blood cells, etc. to do it. You've got to be alert, quick on your feet, and not focused on how hungry you are.

If you're not eating or if you're on a low-carbohydrate diet, where does this glucose come from?

If you're starving glucose can really come from only one place and that is from the protein reservoir: muscle. A little can come from stored fat, but not from the fatty acids themselves. Although glucose can be converted to fat, the reaction can't go the other way. Fat is stored as a triglyceride, which is three fatty acids hooked on to a glycerol molecule. The glycerol molecule is a three-carbon structure that, when freed from the attached fatty acids, can combine with another glycerol molecule to make glucose. Thus a starving person can get a little glucose from the fat that is released from the fat cells, but not nearly enough. The lion's share has to come from muscle that breaks down into amino acids, several of which can be converted by the liver into glucose. (There are a few other minor sources of glucose conversion: the Cori cycle, for example, but there are not major sources, so we'll leave them for another, more technical, discussion.)

But the breakdown of muscle creates another problem, namely, that (in Paleolithic times and before) survival was dependent upon our being able to hunt down other animals and/or forage for plant foods. It makes it tough to do this if a lot of muscle is being converted into glucose and your muscle mass is dwindling.

The metabolic system is then presented with two problems: 1) getting glucose for the glucose-dependent tissues; and 2) maintaining as much muscle mass as possible to allow hunting and foraging to continue.

Early on, the metabolic system doesn't know that the starvation is going to go on for a day or for a week or two weeks. At first it plunders the muscle to get its sugar. And remember from a past post that a normal blood sugar represents only about a teaspoon of sugar dissolved in the entire blood volume, so keeping the blood sugar normal for a day or so doesn't require a whole lot of muscular sacrifice. If we figure that an average person requires about 200 grams of sugar per day to meet all the needs of the glucose-dependent tissues, we're looking at about maybe a third of a pound of muscle per day, which isn't all that big a deal over the first day. But we wouldn't want it to continue. If we could reduce that amount and allow our muscle mass to last as long as possible it would be a

Posted 5-29-2007 by Craig Cooper

I decided to ask Eade's about low carb diets and sprinting performance:

Dr. Mike,

Have you had any experience with LC diets being unable to provide fuel for intense exercise (sprinting, CrossFit Style Metabolic Workouts, etc.)?

This study:

<http://www.nutritionandmetabolism.com/content/1/1/2>

seems to suggest that after one has become fat adapted, endurance exercise performance returns to normal, but sprint performance remains poor. The suggested reason is that this type of exercise can not be fueled by fat, it must be fueled by glucose.

If this is true, does this mean that Paleolithic man's ability to hunt while in ketosis was poor?

Hi Craig-

I've seen this same phenomenon reported in a number of papers. In long stretches of high-intensity exercise, performance falls off with a low-carb diet.

But, I don't think that would impair Paleolithic man's hunting ability or ability to survive. No Paleolithic man - irrespective of how much carb he consumed - was going to be able to out sprint a lion chasing him or was going to be able to run down a deer. Hunting was a group effort involving long bouts of low-intensity exercise (tracking and locating the game) and very short surges - just a few seconds at a time - of intense effort to bring it down.

I can't see Paleolithic man indulging in sprints just to keep in shape, so there was really no necessity to evolve a system that would perform optimally under those circumstances.

Another thought...Paleolithic man was on a low-carb diet from birth. Modern man is on a high-carb diet from birth. Some modern men decide to go on low-carb diets later on. And they adapt relatively quickly as far as endurance exercise is concerned. Maybe the adaptation period for high-intensity exercise simply takes a lot longer than we think.

Cheers-

MRE

Response by Robb Wolf

Scotty Hagnas has been posting some sick times on WOD's like Angie...in a fasted, low carb state. I think one can become much more efficient at using ketones for energy but hepatic glycogen replacement may be at work here. Scotty is not doing burners EVERY day. One met con then several days of strength work. That time may allow for sufficient glycogen repletion to occur.

This is a point that has rattled in my head for some time: Should food availability dictate training for the health and longevity biased? It starts looking a bunch like devany's recommendations....a day or two here and there at very high work output, then many days of lower level activity. I'm not sure that this will put one at the absolute top of the food chain in CrossFit World...but I think it's pretty good.

Posted 5-23-2007 by Thomas Richards

After weeks of mulling over what to do to lose weight I jumped in on the IF/PALEO band wagon starting weight of 242 don't know my body fat % probably 25-30% but in less than 2 weeks combined with 3-4 days of crossfitnc I have lost 14lbs as of this morning. I am very pleased with my results so far no loss of energy, have experienced that light headed feeling, feeding window is mainly 6am to 12pm with a work out at 6:00 pm break the fast @ 6:00 am, not really following on the weekends. I have cheated a little at times but have not really felt the effects like

I have before except from eating a piece of birthday cake last really alot of sugar in it, but didn't want to piss my girlfriend off!! Thanks for all the info guys this forum rocks!

Response by Robb Wolf

Thomas-

I don't think there is anything to worry about. Hard work and smart nutrition just work very very quickly!

Posted 6-4-2007 by Mike Kirkpatrick

Whatsup guys? This is my first post here, and so far I have found this site to be filled with great information. Anyway, I am completely new to the whole intermittent fasting concept, as I have never even heard of it before. It seems to be a very interesting idea, and something I might be interested in starting (using the fast-5 plan) if I knew a little more about it. Ok, before the questions, here are some stats about me:

Age: 17 (I'm young, lol)

Height: 6-1"

Weight: 195lbs

Bodyfat%: 16.25

Goal bodyfat%: 10.00

My workout program is basically powerlifting on M/W/F using I believe what is the conjugate method, doing high intensity conditioning (either GPP, sprints, or guerilla cardio) on Tue/Thur, and MMA (1 hour MT, 1 hour BJJ/Wrestling) usually 2-3 days a week. So, as you can see my workload is pretty high (but nothing spectacular). I've been following John Berardi's Precision Nutrition and his 7 habits, but I find it extremely hard to always eat correctly, especially when I am away from my house.

Now, the questions (sorry guys, there a alot):

- 1) Is it possible for me to avoid Overtraining if I follow IF/Fast-5 with my training schedule?
- 2) What types of foods should I be eating during my eating periods? I am not famaliar with paleo foods honestly.
- 3) If I follow the Fast-5, how much food should I be eating during my 5 hour eating period? Is there a caloric limit?
- 4) Is it possible to continue to improve my S&C and my MMA while doing this?
- 5) I don't plan on being super religious with this (I may even eat regularly on the weekends), so should I take any pre/post workout drinks/meals before or after S&C and MMA? I usually do my S&C in the AM, and MMA in the PM.
- 6) How do you explain your diet/eating plan to your family or friends? It sounds so gimmicky and extreme, I can see my family thinking I'm crazy, lol.

I am very interested in hearing from Rob Wolf, he seems very knowledgable in MMA/training athletes, but I would greatly appreciate answers from anyone. Thanks in advance for any answers.

Response by Robb Wolf

Hey Mike!

Welcome...holly boatload of questions BatMan! In a nutshell...yes, one can implement intermittent fasting successfully into a strength & Conditioning/MMA program. It is HIGHLY recommended that one can put together a good paleo/zone diet built around a normal eating schedule first. Basically cleaning up the diet and getting consistency. From there compressing the feeding window (like the fast-5) is a good option. Track down the post from Dr. Eades regarding IF, it is outstanding. Issues 6 and 16 (I think) cover IF. Worth a read for sure. Sift through these threads as there is a mountain of good information.

Somewhat related here is an endorsement from some MMA fighters from Ireland I believe pertaining to

Cordain's Paleo Diet:

http://thepaleodiet.com/success_stories/#athletes

I think intermittent fasting can be highly beneficial but it is a bit like jumping into the deep end of the pool...ease into some of the paleo nutrition, then add some IF.

Keep us posted on how things are going!

Posted 6-4-2007 by Mike Kirkpatrick

Robb, thanks for the info. I plan on buying the Protein Power Life Plan soon, since I saw you recommending it in the paleo forum. What kind of adherence would you say I need to be hitting with the paleo diet before I should start worrying about IF? My only concern about IF is this: I am starting to compete in a good bit of grappling tournneys (my first one is this month on the 9th, then I have another on the 23rd), so I will be doing alot of training in technique, strength, conditioning, flexibility, etc...and to me, as someone who is not famaliar with Intermittent Fasting, it looks like there is no way I could eat enough nutrients to enable my to not only enable recovery, but also continue to improve at a high rate. Have you ever trained any athletes who uses IF?

Response by Robb Wolf

Mike-

The multiple training sessions can really buggar the feeding schedule. I think it's important to get some familiarity with how your body works on a more conventional eating schedule comprised of paleo foods. You can always shift more carbs to the post WO meal and make other meals more protein, greens and good fats. You will just have to tinker with that and dial things in to support your activity level. Once you are familiar with that then you can tinker with a compressed feeding schedule at some point.

We used a bit of IF with Glen Cordoza for inflammation management. He suffered a pretty good ankle tweak at one point and we fasted him till the next day and it was stunning how quickly he recovered. Black and blue one day, full mobility the following day and nearly 100% within a week. This is some of the advantage of very clean eating and a little smart intermittent fasting...tissue heals very quickly.

You really need to ease into this process however! We got Glen dialed into his paleo foods such that his body-weight was consistent and his recovery was good and then only a day or two here and there did we tinker with IF.

Posted 6-5-2007 by Paul Kayley

I'd be interested to hear your thoughts on this Robb. I have used IF in the past when I was experimenting with a Warrior style diet. I enjoy the challenge of IFing. I got the feeling whilst doing it that it helped with improved tissue repair.

Response by Robb Wolf

So long as the caloric intake is solid I think it really enhances recovery. I think the adaptations are VERY endurance/metcon specific as well.

Many people have noticed an improvement in max strength...people like Kurtis Bowler who have really pushed that max strength element. That is honestly surprising to me as the adaptations seem to favor a fiber type conversion and tendency towards endurance adaptations. It could be that one will not create a TOP level Olifter, PL'er or sprinter on intermittent fasting, the well fed state is very favorable to the type 2b fiber type expression, but for the endurance athlete or strength-endurance athlete it may be very beneficial.

Posted 6-6-2007 by Gordon Richmond

I have to take an Army PT test one month from now. The event consists of 2 minutes of pushups, 2 minutes of situps, and a 2 mile run. For the past few months, I have been training for this and for GPP. I usually ran a 3 on/1 off schedule. In the morning on the first and the third day I would do one or two big exercises like squats, DLs, cleans, and the obligatory ab workout to help boost my situps. In the PM on the first (and usually the third day) I would run and do some pushups. On the second day, I would do some short Crossfit WOD like Cindy.

Now, like I said, I am one month away from taking this test. My goals are 80 situps, 75 pushups, and a 13:30 two-mile run. Last time I took the test (a little over a month ago), I got 78 situps, 72 pushups, and a 14:00 on the run. However, when I take the PT test this summer, the scorer on pushups will be completely anal, and even with flawless form on every rep, I have to plan to lose a few. I know for this last month, I am going to up the running to 4-5 times/week, as opposed to three, but if you were in my situation, what would your training methodology be? Would you stop lifting weights completely? Or would you not change a routine in the least?

As a side note, I am considering not doing two workouts in a day (or at least doing it less often) because it is tough to be energetic for that second workout and I really don't know that I am/was gaining too much from it in the first place.

Finally, I do short (13-16) IF on most every day. I think the fast would be longer were I to only work out in the PM. Anyway, your thoughts are much appreciated.

Response by Robb Wolf
Gordon-

couple of thoughts here:

1-Grease the groove (GTG) works VERY well on strength endurance activities like the sit-ups and push-ups. Pavel wrote a good piece on this using the swing as the exercise but I think it illustrates the need to alter volume and intensity to keep making progress:

<http://www.milfitmag.com/sample/page.php?id=2>

Now for your needs you might shoot for something like this:

Day-1-30% of max push-ups performed as many times throughout the Day as possible (GTG)

Day 2-40% GTG

day 3 off

day 4 50% GTG

Day 5 20% GTG

Day 6 30%

Day 7 Off

day 8 Off

Day 9 Test-start with new cycle using similar volume progressions.

You can build this back from the date from your PT test so you allow for a few days of tapering..perhaps as many as 3-4 on the push ups and sit-ups.

For the runs I would Hit one day per week of 400m repeats with 4 min rest between efforts. Start off with 4 sessions the first time, build each week by adding one more round till you are at 8 rounds. On another day, perhaps several days after the 400's run the 3 miles AT BEST RACE pace. Try to simulate the conditions you will be running in...time of day, if it's on a track is it before or after the sit-up/push-up test. In essence make it as close to your event conditions as possible. This will take a little planning to make your training coincide with the run but it won't be that hard. Specificity pay very big dividends so use it to your advantage to optimize your results.

On another day try shooting for FAST 800M runs with 4 min rest between efforts. Run 2 one session, 3 the next session and alternate between those.

Week one might look like:

400m day-4rounds, 4min rest.

Few days later race pace 3 mile day.

Few days later 800m run, 4min rest 2 rnds.

week 2

400m, 5 rounds 4 min rest

few days later race pace 3 mile

few days later 800m run, 4min rest 3 rounds

Let me know if that all makes sense.

Regarding the heavy lifts...I'd focus on your strength endurance efforts...you can maintain ALL of your strength with just a bit of training. Use something like a 8x3 or 10x 2 with 85-90% of your 1RM on a Squat or Deadlift, a press and a pull up movement (bent rows can work). These should be on separate days and you need to only hit each movement once per week. You will not lose any strength and it will allow all your recovery to go towards the PT standards you NEED to ace.

Let me know if that makes sense!

Posted 6-7-2007 by Troy Archie

This topic has been on the back of my mind lately. In Lon Kilgore's "Physics, Physiology, and Food" in this month's CFJ, he brought up an interesting point in regards to the eat every 3 hours principle:

"Insulin stimulates the transport of that newly digested carbohydrate, now in the form of blood sugar, to be moved out of the blood into the various tissues of the body. The inevitable result of insulin action, a reduction in blood sugar, stimulates hunger, which is a response to depressions in blood sugar. You get hungry more frequently on a low-fat diet. That tiny little problem usually dooms low-fat diets to failure and abandonment in a matter of weeks. For a chance at success with a low-fat diet, not only do you need to change the foods you eat, you also need to change how you eat. Instead of three squares a day, it is much more effective to eat four or five smaller meals with little snacks between. Spreading the food relatively uniformly across the waking day helps minimize the time between insulin concentration troughs, thereby helping limit between-meal hunger pangs."

If that's the main reasoning behind the 4-6 small meals per day ideology then does it fit into a low-carb/high fat principle too? I'm thinking no.

Response by Robb Wolf

Troy-

That scenario you describe is the classic "hypoglycemic's" situation...they need a constant titration of food to make it. They are sufficiently insulin resistant such that they can not access body fat for energy and MUST have a near constant glucose infusion.

I think it's hard as hell to eat every 3 hrs on low carb. This is part of the reason a moderate-high carb diet is likely better for gaining muscle at some point as you are actually hungry. Low carb means little or no hunger.

Posted 6-8-2007 by Steve Shafley

I have the full papers on these:

Quote:

Cell Metab. 2007 Jun;5(6):405-7.
FGF21: A Missing Link in the Biology of Fasting.
Reitman ML.

Department of Metabolic Disorders, Merck Research Laboratories, Rahway, NJ 07065, USA.

A sufficient energy supply is essential for life; consequently, multiple mechanisms have evolved to ensure both energy availability and conservation during fasting and starvation. Two reports in this issue of Cell Metabolism (Badman et al., 2007; Inagaki et al., 2007) demonstrate that FGF21, a circulating protein produced in the liver in response to the PPARalpha transcription factor, is a "missing link" in the biology of fasting, inducing adipose tissue lipolysis, liver ketogenesis, and metabolic adaptation to the fasting state.

Quote:

Cell Metab. 2007 Jun;5(6):415-25.

Endocrine Regulation of the Fasting Response by PPARalpha-Mediated Induction of Fibroblast Growth Factor 21.

Inagaki T, Dutchak P, Zhao G, Ding X, Gautron L, Parameswara V, Li Y, Goetz R, Mohammadi M, Esser V, Elmquist JK, Gerard RD, Burgess SC, Hammer RE, Mangelsdorf DJ, Kliewer SA.

Department of Molecular Biology, University of Texas Southwestern Medical Center, Dallas, TX 75390, USA.

Peroxisome proliferator-activated receptor alpha (PPARalpha) regulates the utilization of fat as an energy source during starvation and is the molecular target for the fibrates dyslipidemia drugs. Here, we identify the endocrine hormone fibroblast growth factor 21 (FGF21) as a mediator of the pleiotropic actions of PPARalpha. FGF21 is induced directly by PPARalpha in liver in response to fasting and PPARalpha agonists. FGF21 in turn stimulates lipolysis in white adipose tissue and ketogenesis in liver. FGF21 also reduces physical activity and promotes torpor, a short-term hibernation-like state of regulated hypothermia that conserves energy. These findings demonstrate an unexpected role for the PPARalpha-FGF21 endocrine signaling pathway in regulating diverse metabolic and behavioral aspects of the adaptive response to starvation.

Quote:

Hepatic Fibroblast Growth Factor 21 Is Regulated by PPARa and Is a Key Mediator of Hepatic Lipid Metabolism in Ketotic States

Michael K. Badman, Pavlos Pissios, Adam R. Kennedy, George Koukos, Jeffrey S. Flier, and Eleftheria Maratos-Flier,*

Division of Endocrinology, Department of Medicine, Beth Israel Deaconess Medical Center, 330 Brookline Avenue, Boston, MA 02215, USA

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DOI 10.1016/j.cmet.2007.05.002

Mice fed a high-fat, low-carbohydrate ketogenic diet (KD) exhibit marked changes in hepatic metabolism and energy homeostasis. Here, we identify liver-derived fibroblast growth factor 21 (FGF21) as an endocrine regulator of the ketotic state. Hepatic expression and circulating levels of FGF21 are induced by both KD and fasting, are rapidly suppressed by refeeding, and are in large part downstream of PPARa. Importantly, adenoviral knockdown of hepatic FGF21 in KD-fed mice causes fatty liver, lipemia, and reduced serum ketones, due at least in part to altered expression of key genes governing lipid and ketone metabolism. Hence, induction of FGF21 in liver is required for the normal activation of hepatic lipid oxidation, triglyceride clearance, and ketogenesis induced by KD. These findings identify hepatic FGF21 as a critical regulator of lipid homeostasis and identify a physiological role for this hepatic hormone.

Response by Robb Wolf

Nice stuff Steve, Thank you.

Looking for drug targets is nice but it is missing the downstream gene alterations of simply BEING in

ketosis, to say nothing of the improved delta-G of ATP hydrolysis and factors associated with mitigating glycolysis.

Props for them trying however...otherwise this research would never happen.

Posted 6-9-2007 by Greg Davis

So I think my experience with IF has been working out for me so far. Its been about 6 months since I've consistently been incorporating fasting. Last few times I went out biking with carb-loading buddies who bike a lot more than I do (and used to whoop my ass), I've been the best rider, especially when it comes to all out sprinting. My weight is on the low end of my spectrum but I don't really mind other than people keep telling me I'm looking "skinnier" (in a negative way) than I used to. But now that I can do 5-6 muscle ups in a row I can handle that! I think my frame is just not meant to carry as much muscle mass as someone like De Vany despite his emphasis on lean body mass %.

At this point I threw out the idea of trying to have any sort of regular schedule (ie. 2 days on, one off, etc. etc.) and just keep things totally random. One thing I am wondering about at this point is if there might be benefits to strictly staying away from food combinations such as eating nuts or fruit anytime close to meat+veggie meals. It seems to be me that paleo dudes would probably be eating these totally separate- and I mean more than just a few hours in between as touted by most food combining advice. I might even start keeping just a few servings of fruit in the mid morning and some nuts in the afternoon (eating these only a few times a week anyway) to totally different days. On days when I really need to get some kcals in stick to just meat+veggie+fat meals. I find if I just stick to meat+veggie+fat on most of my days I have better digestion.

I notice De Vany doesn't seem to mind mixing fruit in with his meals and I don't think I've read him mentioning much snacking. He did post at some point that he likes nuts and nut butters.

One the biggest lessons I've learned is the whole warrior diet, binge approach does NOT work for me. This has the same effect on my body as a big load of carbs would (ie. cravings- probably a sign of major insulin release). So for me I have to just forget about maintaining any particular weight and stop myself after one plate of food.

As always appreciate hearing feedback from others who are trying out similar approaches!

Response by Robb Wolf

Greg-

Sounds like you are kicking ass. I think the food combining approach lends itself perfectly to IF. Some notice a difference with it, some do not. If I did not have a sick fascination with maintaining my CF metcon numbers I'd ditch even the fruit and just run with veggies for carbs. I've not done intermittent fasting and low carb as long as Scotty so I may be blocking some adaptations. Might give that a run this fall.

Posted 6-14-2007 by Paul Kayley

I recently read that lots of times when people crave sugar they're lacking in protein.... is this a possibility....can anyone give more detail on this???

Response 6-21-2007 by Derek Simons

Uhm I am pretty confident that you were actually practicing alcohol absorption with gross consumption of greasy protein / carbohydrates. I should know as I have had many similar late night trips.

Response by Robb Wolf

I think Derek's offering are the most sound in this...but do think the sugar craving is a sign of insulin resistance. Not being able to access bodyfat for energy.

This is one of those weird "AHA" momnnets when I starting researching intermittent fasting. Even a protein/fat meal produces some insulin release. What if we are designed to run optimally with NO insulin release for long periods of time? I experienced a dramatic improvement in blood sugar mood going to a low carb diet back in '99-2000 but even that started to not work as well after a number of years eating 5-7 meals per day.

So Paul, I think it's an issue of insulin resistance, not any overt protein deficiency.

Posted 6-27-2007 by Yvana van den Hork

Anyone here who's doing IF by eating an early breakfast and a late night dinner with approx. 12 hrs of fasting in between?

Late 2006 I had good luck losing with 3 meals/day on a 10am/4pm/10pm schedule, but I wanted to try IF.

The Fast-till-5 was a disaster right away as I didn't feel hungry, as much as cold.

Unfortunately, I can't prove this with a decrease in body temperature, since I've only started measuring body temp after that trial.

This cold feeling went away when I decided to go for an approximately 12hr fast with breakfast at 10am and dinner at 10pm. When I was still eating 3 meals I would sometimes already spontaneously eat at 10am-8pm-10pm because appetite that would increase at 4pm would disappear spontaneously when I was too occupied to eat.

I'm still not 100% sure whether metabolism will not go down with 2 meals as opposed to 3 meals, as calorie intake also dropped for a bit on the 2 meals/day pattern.

BTW, I'm not doing IF on WO days, and have 5-6 meals on those days.

So:

- who eats breakfast+late night dinner as well?
- have you tracked body temperature (objectively and/or subjectively) and noticed a difference?

Response by Robb Wolf

Definitely notice the drop in body temp. It's hell in the winter when the gym was unheated and ~28°F. It's pretty nice now that Chico is heating up.

that approach is likely quite good...lots of ways to cook that stuff.

Posted 6-28-2007 by Jordan Glasser

I do have 2 questions to ask here, but before I do I wanted to say that I can't believe how much info I get from reading the posts here. It's truly unbelievable! Ok, enough ass kissing.

1. I have been really loving IF, the results are great. For the most part I eat from 12-4. My problem is the days I want to eat regular. I prepare an average size meal (Paleo foods, low carb, high fat, mod protein), and am hungry when I'm done. What seems to happen is I eat again, and realize I am a few protein blocks away from eating my daily quota in a 4-6 hour window. (I still use some zone type parameters to keep my diet consistent. Lately 20 block protein, 6 block carbs, too much to count fat.) So, I fast again. It's not like it's a real problem, but, I would like to follow the Intermittent IF protocol, instead of the daily version. I seem to be going daily. Does this happen to you?

2. Supplementing during IF. I like to take my probiotics before bed (empty stomach), and sometimes drink raw apple cider vinegar. Would this effect insulin? My gut literally tells me it's all good, but, it is clear that you guys are the experts!

thanks,
Jordan

Response by Robb Wolf

Jordan-

I doubt if the probiotics or vinegar are a problem...not sure what to offer on the satiety issue. Two options: 1-Eat till satisfied. 2-work the hunger a bit.

I can concoct arguments for both approaches...so long as your body comp, energy and performance improves, that is all that matters.

Posted 7-6-2007 by Brian Shanks

Ok a little background first.

I am a hobbist nutrition and workout buff. I love to read about different things and try them out to test how they work.

I am also training in MMA and hope to compete this fall.

I started Paleo eating(75-80% compliant) about a year and a half ago when I told my coach I wanted to compete. I lost around 20lbs and have kept it off.

I recently started reading about IF in this forum and another one. The concepts sound like they have scientific principle backing them so I thought I would give it a try. Most days I train twice a day, once in the morning and once in the evening. Depending on the day, It can be anything from a strength program, a muscle endurance program, conditioning, or BJJ/MMA class.

My goal of trying IF is to see if I can maintain my training intensity with fasting days included in my weekly schedule. I have recently had a problem with getting boil type infections on my arm and an ankle that doesn't seem to want to heal. I was hoping IF would help with the immune system, injury healing, and I am toying with the idea of fighting at 155 (current weight 175-180).

This week I implemented a type of IF. My goal is on Mon, Wed, and Fri to fast for 12 hours. Tues and Thurs I eat my regular 4-6 small meals, the weekends are basically what ever the family dictates. On fasting days I will eat from 7-7:30 in the morning, then eat from 7:30 till bed in the evening.

After reading through alot of the posts on IF, the lowest time of fasting is around 17 hours. Will I get any of the IF benefits by fasting only 12 hours?

This week I did an endurance workout which consisted of 5 snatches, 5 dumbbell swings, and 10 burpees with 1 minute rest inbetween complex for a total of 5 sets. It is a really tough workout and I made it through it. I didn't necessarily feel any downside from not having the food in me. Energy level seemed normal.

But this morning, (fasted yesterday because of wife and 4th of July) I did a mile run with fido and a core routine and I was punked. I am hoping once I get used to fasting this feeling will go away?

Sorry for the long post!

Any input is appreciated.

Also just recently subscribed to the newsletter so haven't read the issue discussing IF.

Response by Robb Wolf

Hey Brian!

It may be kinda lame but no one really knows how long one needs to fast to gain benefit. I suspect it is a somewhat linear dose/response curve with benefits for things like cancer treatment being out at the 48-72 hour level...but again, no one really knows.

I'd recommend easing into things...start with 12 hrs and See how you feel that week. then try marching it out 1 hour each week. Ideally you should feel "better" training should be solid and hopefully this helps to streamline your life. If not a simple Paleo/Zone approach works great and is always an ideal fall back.

Posted 7-20-2007 by Shannon Clark

So I was just wondering if I could get a few opinions on this.

I've been doing IF for a while now (had the other thread going) and am thinking I might start trying to reduce my carbs lower as I think I'll feel better this way.

My diet is modified though and I'm moving slightly away from pure IF in that I'm eating two large protein/carb meals in the morning (pre/post workout) and then again right before bed, then snacking on fat sources during the day.

What I'm wondering though is how low I could take my carbs, particularly post-workout without starting

to see a decline in my workouts?

Right now I have a shake and a bowl of oatmeal before working out (20 grams carbs), then after the workout again I have protein shake, oatmeal and then cottage cheese, which is totalling about 54 grams of carbs (30 from oatmeal and 24 from cottage cheese).

Would it be alright to cut the oats out so then I was left with just 24 grams carbs from cottage cheese?

My daily intake of carbs then would be about 70 grams or so plus carbs from vegetables (which I eat quite a bit of so likely put me around the 100 gram mark).

My protein intake would be 175 grams and fats would come in at 75 grams.

What % of carbs is your diet? Would it be okay to get most of my carbs from 'non-traditional' sources (primarily cottage cheese).

Response by Robb Wolf

I've been doing most of my carbs post WO for quite some time. Usually in 60-140g...watermelon is the main source of late and I really like it. I never need more than this level and frequently I am below this level. That seems to fall right into Zone/Protein Power life-plan recommendations and I feel good on this.

Posted 7-23-2007 by Shannon Clark

Thanks for posting all that, it's definitely an interesting read.

So now I'm wondering, you go through the 2 week period of low carbs, feeling not so great and then adapt and performance improves again.

This is assuming you are in ketosis? What would happen if you had low carbs but not under 100, say 150 grams or so. (in order to get to ketosis you need under 100 correct)?

Would you then be stuck waving in the zone of not performing well at all, basically like you are in a long term adaptation period?

Response by Robb Wolf

Shannon-

It's tough to tell...we have seen people all over the place on this. No doubt there is an adaptation period, some seem to fare better than others at very low carb levels even with high intensity activity.

Posted 7-24-2007 by Shannon Clark

Yah, it would make sense for individual variances.

Another thing I was wondering on, so it takes being below 100 grams of carbs to go into ketosis correct?

Now, lets say you eat 120 grams of carbs, but are burning off 40 gram through cardio, would that still enable you to enter ketosis since you are only 'netting' 80 then?

And also, lets say you are eating 80 grams of carbs per day, but your protein intake is higher than 1 gram/lb so some is being converted via gluconeogenesis (for examples sake, lets say 50 grams of protein are being converted).

So would that then net you at 130 total carbs and bring out of fat adaptation and ketosis?

Response by Robb Wolf

Shannon-

It's not a clear cut thing with ketosis. Some of the research into intermittent fasting indicates ketosis can be maintained even during high (60% of carbs) intake. I'd actually say that the main determinants are 1-insulin sensitivity and 2-hepatic glycogen status.

so maintain insulin sensitivity, and minimize fructose consumption. If you REALLY want to evaluate whether you are in ketosis buy some keto strips and monitor pre/post WO ketone levels at various carb intake levels.

Honestly I'd wait for fall and winter to mess with the ketosis thing...that is more the time of year for that anyway.

Posted 7-27-2007 by Ale Dileo

hi guys, i'm actually eating 2000 – 2100 kcal a day, Ifing every day with a 3 hours eating window (i've stretched it after reading your advices and feel even better) ,

130 gr (25 %) carbs (mostly from veggies and fruit, only 30 gr of whole wheat homemade bread),
180 gr (35%) pro

90 gr (40%) fat (olive oil, eggs, fish oil)

my weight is 60 Kgr and my height is 174 cm (sorry!, European metrics)

In this season my daily activities are growing (12 hours moderately hard working) and i need to increase my energy intake to keep my weight stable.

According to you, can i increase my fat intake (about 20, 30 gr)?

Ok, my goal is to maintain the same weight and body comp and actually I achieve this with 2100 cals , but my energy needs are going to grow and i want to compensate increasing fat intake. I'm asking if 110 - 130 gr of fats is too much for health and bodycomp.

Response by Robb Wolf

Ale-

No problem with the increased fat intake, you may even find body comp improvements. If you need to drop a little of the veggies (or cook them)to allow more room for food that is not a problem also.

Posted 8-12-2007 by Steve Shafley

<http://alanaragon.com/an-objective-l...t-fasting.html>

I found this pretty interesting, and it also looks at most major studies regarding this topic.

Worth a read.

Quote:

Summary

Meal Frequency

§ A haphazard/randomly variable meal frequency, not necessarily a lower frequency, negatively impacts thermogenesis, blood lipids, and insulin sensitivity.

§ Within a day, a higher frequency has no thermodynamic advantage over a lower frequency under controlled conditions.

§ The majority of controlled intervention trials show no improvement in body composition with a higher meal frequency.

§ Studies indicating the disappearance or lack of hunger in dieters occur in either complete starvation, or very low calorie VLCD regimes (800 kcal/day or less).

§ Hunger is a persistent problem with reduced meal frequency in non-starvation and other protocols with calories above VLCD levels.

§ For controlling appetite, the majority of research indicates the superiority of a higher meal frequency.

§ The body appears to be "metabolically primed" to receive calories and nutrients after an overnight fast. Breakfast is a particularly beneficial time to have dietary protein, since muscle protein synthesis rates are typically lowest at this time.

§ Overall, both experimental and observational research points to breakfast improving memory, test grades, school attendance, nutrient status, weight control, and muscle protein synthesis.

Intermittent Fasting

§ Animal research has shown a number of positive health effects of ADF and CR.

§ Human ADF research is scarce and less consistent than animal research, showing both benefits (insulin sensitivity is the most consistent outcome) and risks (impaired glucose tolerance in women).

§ So far, control groups are absent in all human ADF studies. Thus, no comparative conclusions can be drawn between ADF and linear caloric intake.

§ The validity of the single published controlled trial to date (Stote, et al) comparing 1 versus 3 meals is heavily confounded by an exceptionally high dropout rate in the 1-a-day group, and the use of BIA to measure body composition.

§ The 1-a-day group reported increasing hunger levels throughout the length of the trial, echoing the problem of hunger with a reduced meal frequency seen in other similar research.

§ Ramadan fasting (12-16 hours per day, sunrise to sunset) decreases daytime alertness, mood, wakefulness, competitive athletic performance, and increases the incidence of traffic accidents. It's difficult to determine the relative contributions of dehydration and a lack of food to these adverse phenomena.

§ The effects of exercise and meal frequency on body composition is an interesting but largely unexplored area of research.

Response by Robb Wolf

Interesting stuff for sure, he is a smart, smart guy to be sure. Is IF a great thing for being heeeeyuge? Not sure...perhaps one day per week? Two days per week? Not sure but I do think the BB'ing boogey man of sliding into catabolism is waaaaay over stated. I maintain a leaner, heavier physique than i ever have with less effort. That is 170lbs sopping wet but it's actually EASY now...I don't know if I could get BIG on this. 185...190 would be pretty damn big for me. That would stick me back up near a 600lb squat...might be worth a shot!

I remember when Devany's new site came out and it was getting very popular and T-nation interviewed him. He was down on PWO shakes, massive amounts of food and supplements. Not great for their bottom line. So Berardi and some tool-box who has a "background in evolutionary biology" come out and explain away paleo diets and shoo everyone back to their oatmeal and GROW!

Meat&Veggies, nuts&seeds, some fruit little starch...no sugar. Brief intense exercise. That shite delivers...I'm pretty sure IF augments beneficial elements of sound nutrition and exercise...no studies to "prove" it but honestly it's tough to "prove" things sometimes.

Good stuff.

Posted 8-13-2007 by Gittit Shwartz

"Human ADF research is scarce and less consistent than animal research, showing both benefits (*insulin sensitivity* is the most consistent outcome) and risks (impaired *glucose tolerance* in women)." Can someone explain the relation between "insulin sensitivity" and "glucose tolerance"? I guess I always thought they were interchangeable.

Response by Robb Wolf

Yea...they are. I have not looked at those studies closely...I suspect there might be some design flaws. It takes a LOT of time to really deconstruct a study and do the process justice.

I've had an idea for a paper I've been rattling around...is insulin anabolic or is insulin sensitivity anabolic? i know BB'ers use whacks of insulin to help partition nutrients (in addition to a few other items) but this is all mediated at the GLUT-4 transporter level....you do not need insulin for this, you need insulin sensitivity. This is much of the post WO feeding strategy....

Posted 8-15-2007 by Patrick Donnelly

I'm looking for some help on transitioning to IF, and this seems to be the best place to go.

This past Friday, Saturday, and Sunday, I was on a trip, and messed up my diet pretty badly (lots of good foods, but in bad proportions, and far too much grain), so I figure now is a good time to fix it up completely. I've tried to cut back the carb intake these past three days, because from what I gather, ~100g is all you *need* and too much more can prevent ketosis.

Right now, I'm eating:

- 50 blocks fat (almonds, Brazil nuts, some natural peanut butter, etc.)
- 25 blocks protein (chicken, tuna, beef, salmon, eggs, cottage cheese ~4 times a week, etc.)
- 15 blocks carbs (mostly fruit, some vegetables, no grain, etc.)

I'm 6'1, 178#, and decently lean already.

I've been doing poorly with this reduced carb intake though. I feel a lot more sore, sleepy, and unable to push as hard during workouts. Will this fade in the next few days? And should I switch to IF after I get acclimated to lower carbs, or should I just do it now?

I know I should get my carbohydrates from more vegetables than I do, and maybe that would help... Do you have any suggestions? I'm really not capable of cooking and eating the required volume, and most of the vegetables around the house are high-GI anyway (frozen peas, corn, cooked carrots, etc.).

Thanks for any help you can give.

Response by Robb Wolf

Patrick-

don;t worry too much about getting the carbs from veggies, especially if you are tinkering with intermittent fasting. Fruit, yams etc are great, especially post WO.

Implementation-

Start slow! 12-13 hrs at first, see how you feel...extend it over time (a few weeks) working up to 16 hrs some days. If you feel good and have good performance/body comp keep at it. If not...back off and find a good spot to stay around.

No hard rules, just tinkering!

Posted 10-27-2007 by Jeff Bearden

Anybody remember this guy. Herschel Walker was a popular football player who ran for UGA and later the Cowboys in the '80's-'90's. I've always seen articles about his workout only being pushups, situps and sprints but I ran across one the other day that I found interesting. He was asked by the media how he found time to do 2000 situps and 1500 pushups per day. And he replied "I only require five hours sleep a night. And **I eat only one meal a day.**"

Just thought that was interesting given his size, strength, and athletic ability.

Well, he began that routine when he was 12 and continued it through high school and **college**. He found the time because he didn't spend as much time as most people sleeping and eating, that was his point.

Response by Robb Wolf

I think genetics played a pretty big role there. I like intermittent fasting, I love sprints...but I'll never be at the level of Hershal Walker. Not without many trips to Tijuana! It's interesting stuff but it's always a hazard emulating the workout and lifestyles of elite athletes. Approach with caution.

Posted 12-27-2007 by Susie Rosenberg

I did a LOT of reading before jumping into this. From an MD's POV, here are my conclusions:

1. Nobody knows for sure what the ideal fasting "dose" is. Nobody knows the minimum number of days/week or fasting hours/day that nets you the purported benefits. Nobody knows, either, how much is too much if you are not starving yourself outright. Ideally, keeping records will provide the feedback necessary to evaluate any given individual's IF protocol. These records could include

- body weight and body composition
- lipid profile
- homocysteine levels
- performance records (max weights, metcon times)
- sleep hours and quality
- number of illnesses/month (colds, GI bugs, etc)

2. My understanding of why it works:

It's not calorie restriction, since most folks compress their daily calorie needs into a shorter feeding window. It seems to be related to two different processes. First, just giving the body a rest from the digestive process is like shutting off the engine of a car. The engine lasts longer because it is resting from the mechanical wear of moving parts, and the accumulated debris of increasingly dirty oil. (For us, that would mean less sludge in the arteries from not carrying around fat particles, and resting the cells from the work of digestion.) Basically, you are decreasing the rate of oxidation in the body (less rust!).

Second, fasting not only is a rest, it's a stress. When we stress, then rest our muscles, they get stronger. Apparently, when we fast, we impose a unique metabolic stress that also makes us stronger in a metabolic sense. We become primed to use food more efficiently. Our sensitivity to the actions of insulin increases---which means we need to put out less insulin to get the needed response. Hormones that have positive effects in our bodies increase: growth hormone increases, as do certain brain neuropeptides that are protective against Alzheimer's. Immunity to disease seems to strengthen as part of this neuroendocrine response to fasting. I haven't seen one study that reported negative effects. (Remember virtually ALL of these studies have been done on rats and other animals!)

Finally, from reading the animal studies, and the anecdotal reports of people who have been doing this,

I've concluded the following about the risks and benefits:

1. Benefits could include: increased insulin sensitivity, decreased body fat, increased muscle mass, better immune functioning, decreased oxidation load meaning lowered risk of cancer and anti-aging effects.
2. Negative aspects: Some studies reported disturbance in sleep, which is why I asked about that in my original question. (Maybe it's only mice that don't sleep well hungry, because I had two really good nights' sleep fasting, and I don't usually sleep that well.) While the majority of people doing IF are happy with their strength gains, I gather if you are not careful about getting sufficient protein and calories to support lean body mass, you could lose muscle tissue. Also, some people respond to the fasting state with overfeeding and gain fat on IF; you have to be careful not to overdo it by telling yourself "I fast, therefore I (over)eat." Some people report that initially, metcon suffers. I don't really know what to say about that, 'cause I haven't gleaned what they did about it.

The science is compelling.

Susie

Response by Robb Wolf

Great thread. Not much to add other than we KNOW a paleo type diet delivers pretty optimal performance. Joe Friel, USA triathlon coach reminds me, Barry Sears, Loren Cordain, Charles Poliquin...folks who make their living coaching people and consulting recommend a very similar approach. Start with that then one can experiment with compressing the feeding window, say from 12-18hrs of fasting, perhaps even just a day or two per week.

Posted 1-17-2008 by Brad Davis

I apologize for kinda double-asking this question. I tacked it onto the back end of an old thread and got no answers, so suspect that it wasn't noticed.

I've read that it's good to eat post-WO to decrease cortisol levels.

Why should we not be concerned about this if we IF, workout outside the feeding window, and wait many hours before eating? For example, several of my workouts lately have been at 11-12 at night and I didn't eat until 1-2pm the next day.

Actually, why should we IFers not be concerned about cortisol in general (as compared to folks who eat normally)? My limited understanding is that cortisol levels are kept under control partly by regular eating.

Thank you very much.
DBD

Response by Robb Wolf

If we are insulin sensitive we should see an easy shift to fat metabolism and possibly ketone production which will keep cortisol in check. As Garrett mentioned, some cortisol is not a bad thing, we just don't want to see things go too sideways.

There are some inexpensive saliva test kits for monitoring cortisol levels but a simple assessment of "am I performing better, worse or the same" can help direct whether one is going to wild with the IF.

Posted 1-24-2007 by Greg Battaglia

Just wondering if anyone (probably Robb) has gained any further insight into methylglyoxal formation and/or regulatory functions in a ketotic state (fasting, ketosis, CR). The topic was discussed in a previous thread that can be found here: <http://www.performancemenu.com/forum...=methylglyoxal>

Robb alluded to the idea that there may be some regulatory mechanisms in action that prevent methylglyoxals from forming AGE's in the case of IF. Any new ideas, theories, facts regarding this topic? Thanks in advance.

Response by Robb Wolf

Greg-

Everything I've researched on this topic points towards ketosis decreasing AGE's both from non-enzyme mediated glycation (glycose) and methylglyoxal. Not surprisingly, high blood glucose levels AND ketosis (ketoacidosis...raging insulin resistance) is REALLY bad for AGE's.

I have a blog post in the works looking at some of the mechanisms in place with low carb eating and potential health benefits.

Posted 3-16-2008 by Craig Van De Walker

Results from another day of glucose testing. Not sure if this thread really still belongs under IF section or not, but.

Night before I went to Dairy Queen and had a pecan cluster blizzard, about 500-600 cal of dairy and sugar laden delight. (I have not had one of these for almost a year). The next day...

83@550

2cups black coffee 6-730

83@730

ate 3blocks oats/berries/protein/flax meal ~740

short w/o

89@1000

ate 4block meat/veggies/laura bar ~1130

87@1240

1330pm Movies kettle corn, steak (yes I brought leftover steak into the theater in a zip lock bag and ate it), diet coke est 4 blocks

103@ 1630

ate dinner steak, cauliflower, yam ~5blocks ~1900/7pm

93@ 2130/930pm

ate 1 block flax berries protein powder

There is one big difference in that this was a relatively relaxing day off work! The other time when I was fasting and had levels I did not like was a day at work which is usually pretty high stress.

Of particular interest to me was that even my postprandial readings were better than fasting levels the other day. This is definitely not a normal day for me as I had many non-paleo/zone non-favorable carbs.

Response by Robb Wolf

Craig-

A more consistent eatign pattern OR something like a compressed feeding window (last meal at 5pm, next meal at 8am) or something like that may be a better option. We are not wired for chronic stress (like damn dirty work!) and fastign can certainly exacerbate that.

Posted 3-25-2008 by Alicia Zhuang

I've been doing 18-21 hour fasts for four months now and am experiencing huge drops in body temperature while fasting. People say our library is cold but they are able to study there in tshirt and shorts and perhaps a light sweater, but I am freezing in jeans, tshirt, sweater, shoes and socks even and my lips turn purple and my hands go numb. Has anyone had this kind of experience?

Further, we're at the end of summer now and I dread to think what winter will be like for me...

Response by Robb Wolf

Fasting will DEFINITELY decrease body temp. Scotty and i have noticed this for a long time. It's nice in the summer, hell in the winter. Shorten the fast periods as folks have recommended...make IF work for you, not against you! Basic paleo/zone eating to far too effective to introduce an undue amount of stress.

Training

Posted 5-21-2007 by: Mike Odonnel (on Endurance)

as i get older...the less I want to do...but the more I want in return....I go for B....more intensity, more recovery.....seems to work for my sanity and keeps me consistent in the long run...which is where my improvement comes in....consistency...

Response by Robb Wolf

Really good thread...I can only throw out a few thoughts right now:

The Power Running guy makes the points:

1-be as strong as possible

2-Do some intervals

3-run your race pace fast

4-substrate utilization/depletion is the limiting factor in endurance performance, not O₂ consumption/utilization.

Many studies of late have shown that neither myoglobin or hemoglobin are depleted in O₂ to a degree that will limit performance, even at extreme workloads.

Ideally one is "very" fat adapted such that, at any given output, one uses more fat and less glucose for activity. As intensity of exercise increases more and more carbs are inevitably used which can cause substrate depletion...also there is the issue of pH change with increasing workloads.

Posted 5-22-2007 by Dave Van Skike

Stop your sceintifical!

I don't have a ton to add but.....My experience is that you can get a lot of bang for your buck with the **occasional really long run/ride/swim**. The advice above is going to be dead sexy for most endurance athletes. However, don't underestimate how much of your ultimate limits are wound up in being mentally prepared to suffer for hours or days.

My first mountain bike race that was over 50k seemed brutal. Once I had done a week long stage race, 50k desert races seemed like a temporary inconvenience that involved some sweating and light chaffing. Overdistance stuff really helped my brain get fitter for the task.

Response by Robb Wolf

Dave-

You are spot on. I remember Mark Twight mentioned that shorter intense work provides adequate machinery for longer efforts but not the mental toughness. Only longer efforts can provide this. Some of the central governor theory (the piece Frank Forenich did for the PM for example).

It's interesting also...we have generally recommended CF type WOD's ~ 3-4 days per week, some sprint work and one long effort every 7-10 days for our endurance folks, particularly multisport. Some of these people are getting to a pretty high level of performance, placing well, improving race to race and avoiding most of the repetitive injury issues. Much more time efficient also.

Posted 5-22-2007 by Dave Van Skike

Good to here that's working Robb. I wish I would have been clued in to that type of training instead of the "*miles on the bike is money in the bank*" mindlessness that permeates roadie culture. especially stupid here and in Cali where there is no offseason.

Are your intense sessions sports specific for the clients at all or are you relying with the typical mix of CF movements?

I had used speed skating off and on to train for cycling but those are very similar limb movements. I do know of one national level Master's cyclocross racer who trained for nationals exclusively on a *stair master* for a month prior due to a broken collarbone. I think he was top 10 maybe top 5 that year.

Response by Robb Wolf

We use pretty standard programming as far as the met-cons but on the shorter side actually. Not many 20-30 min scorches. More in the 10-15 min range. We hit a strength circuit in the beginning which consists of a lower body movement, typically a DL but occasionally back squat, a press and a pull.

Honestly I think these guys have benefited the most from the direct strength work and just improving

their general athleticism. One or two were pretty high level cyclists here but they were borderline feeble on simple movements like air squats. Simple improvements in ROM, recruitment and strength have dramatically improved their on bike performance...and they are generally more capable now.

Posted 5-24-2007 by Paul Kayley

IME the psychological ability to race long distances and suffer really stemmed from how much importance I attached to an event. I have raced Ironmans where I was not in my best shape, however achieved a better performance (Austria 2005) than when in good shape (Austria 2004), because I had simply attached more importance to the race and was willing to hurt myself more for it!

However, having said that, the old adage "Train hard - win easy" really does have some truth to it. The suffering, intelligently calculated suffering that is, should be reserved for training. So that a race, with a well recovered and rested body, just feels easy (ish!). With the right preparation and when in peak condition, even an Ironman can be pushed and feel relatively easy.

I have heard European IM winners being interviewed stating that they just couldn't hurt themselves during the race, saying "It was like a dream - effortless speed!"

But, back to the original question...

When designing a training programme, I like to look at specifically what is required physiologically in the event being targeted, then work backwards from there. A common physiological theme among elite endurance athletes, especially over longer race distances (2hrs+), is muscle fiber composition. Having a high % of type 1 slow-twitch fibers, and well trained type2a fibers being of the upmost importance. Categorising fibers into 3 or 4 sub-types is really a reflection of the means by which physiologists measure, detect, and label the fibers. The reality is probably better described as a sweeping continuum of fibers, ranging in characteristic from highly unfatigable ST to stronger but easily fatigable FT. There are many arguments and counter arguments surrounding the plasticity of muscle fibers, that is their ability to change their characteristics from one type into another... some so much so that they even display altered gene-expression. (This probably only applies in one direction though, FT towards ST, with FT gene expression being the default gene-expression) Personally I like this argument as it puts us back in control. Rather than being victims of our genetics, we may have the ability, at least in this small area to change things providing we are prepared to put in the measured effort.

So, my first step in designing the optimal aerobic training protocol would be to target muscle fiber endurance characteristics through as wide a range within the fiber continuum as possible.

Response by Robb Wolf

Paul-

Yes, absolutely. Much in line with the book you sent me (thank you BTW). Epigenetics/form following function.

Some people obviously have talents with regards to genetics but epigenetics...how the environment influences gene expression is of utmost importance.

Somewhat off topic:

I had an idea for a CrossFit journal piece (way back when) thinking about "fitness" within a group setting...like say a hunter gatherer group. Having a homogenized fitness might not be that desirable...certainly there are some general characteristics that have more value than others but a little statistical outlying, either towards strength/power or endurance could be of enormous benefit to a GROUP. Paul sent me Bruce Lipton's book the Biology of Belief...it talks extensively about systems biology, epigenetics and some other goodies. It really changes the view of simple Darwinian evolution and "survival of the fittest".

Posted 5-26-2007 by Michael Hill

If I wanted to use something like Poliquin's table for the suggested PWO CHO intake how would I factor in 400m/300m sprints into the formula?

I know this may be overcomplicating things, but as far as work/rest differences go the 400m sprints would be done as part of conventional WOD's and the 300m sprints would have 2 min rest periods (I

sub 7x300m for the 5 & 10k WOD's whenever they come up). I'm back to doing an ME BB version of CF w/ triples/singles on the middle day and a short hike (45-60 min) on off days

My idea is to use the table modified for the sprints as a PWO CHO guide (coming from sweet potatoes and/or berries) and then eat as much veggies as I can stand for my remaining meals w/zone levels of PRO and fat. I ran the numbers on this using sample WOD's and it seems to average out to about 70%-75% of zone proportions this way, which I think would be sufficient to support intensity given that I basically have 48Hrs between metabolic work.

Response by Robb Wolf

Michael-

I think you are right on with the 70-80% post WO carb allocation. You may even go lower than that (50%). I would put hard 400's and 300's as "very" glycogen depleting. tough to quantify beyond that. I think a Zone level of blocks is a great place to start and then allocating anywhere from 50-80% of carb block to the post WO window. Works great. If you need to delete any carb blocks for the day due to timing just add 3 fat blocks for each deleted carb block.

Posted 5-31-2007 by Alicia Zhuang

this thread led me to question whether CF has helped me (average person rather than elite athlete) improve in any way.. and i'm changing things up because the answer was "not significantly".

Response by Robb Wolf

Alicia-

I've been doing CrossFit for almost 6 years. When I rolled into the scene the WO's appeared un-doable and it took me about 3-4 months to progress to doing full, unmodified WOD's. From there it was not long before climbing to the top 5% of the CF food chain...this was completely an artifact of my power lifting, OL and gymnastics base. It took me about 2 years to figure out that a VERY good strength base was requisite to top level performance in the Sport of Fitness. RUTMAN actually opened my eyes to this and this is where I started thinking about and tinkering with the Power Bias approach.

Here are some approaches I know have worked with regards to CF success:

1-Show up to the game a strong athlete. Josh Everett, Greg Amundson. Show up to the game strong...graft on strength endurance.

2-Calhoon High School Powerlifting. This was in one of the CFJ's and these folks used some SMART WOD's to increase GPP. If I recall they were using something like a Helen and a Fran mixed among 4 days of periodized block strength work on the squat, DL and bench. These folks make strong PL'ers and some top tier crossfitters.

3-Burgner Franken Fitters. Become an Olifiter with the Burgner camp. Incorporate CF in the off season. Kick everyones ass.

4-RUTMAN's ME-Black Box approach. His kid won a 3rd in state with a wicked double leg take down, gnarly conditioning and national level olifts...using the ME Black box approach.

5-Starting Strength- I know Rip has made some very strong athletes who have consequently posted significant CF performances.

We saw a trend with our clients...folks got a little stronger, dip numbers went up a bit, pull-ups a bit but we had nothing near top tier performance. We had a couple of collegiate athletes roll in who had PHENOMENAL strength and power bases. A volleyball player (female) and a foot ball player (male) I can think of specifically who were both picked up with good schools and both posted very good scores on CF diagnostics. It was relatively easy to turn these folks into top performers due to their strength and power base whereas our mountain bikers and runners were never going to be better than C or D level CF'ers without significantly more strength.

So now most of our non-bariatric/weight loss clients...folks who are actually trying to get high level CF type performance...we have these folks start off with DL, a press and a pull...linear progression until we need to shift to block style periodized training. Then some kind of WOD, sprints or the like. It is very effective. I would not doubt that a Pavelesque approach of 2-3 weeks of strength work followed by 2-3 weeks of met-con might work even better but our clients are crack heads for the Met-cons.

I don't think there is any doubt that for most sports, including CF, being as strong as possible, without limiting sport specific practice, is vitally important for success.

If one looks at the crossfit.com WOD from several years ago to now one will see a dramatic shift in emphasis reflecting the need for more strength.

Posted 5-31-2007 by Alicia Zhuang

that was one of the more informative posts i've ever read on CF and here. it had the kind of objectivity that i was looking for and had specific useful suggestions... plus experience from a personal and trainer's point of view to back it up.

coach rut replied to an email i sent him after posting about this at CF, and he suggested Starting Strength with a 8-15 minute WOD after. i think i'll do that and move to ME Black Box when i stall on it.

when you say smart WODs like helen and fran, what do you mean?

also, you said on the CF forums that you were on the anabolic diet and have moved to zone, cutting down the carb blocks. is there any reason for the move?

Response by Robb Wolf

Alicia-

Thanks for the props! By smart WOD's I mean intensity and brevity...with some not insignificant power and strength demands. Build GPP but leave a little in the tank for other activities. About 3 years ago the WOD's were just becoming more and more volume. Kelly is a perfect example: 5 rounds of 400M run, 30 box jumps, 30 Wall ball.

That is just a shit load of work...great for a gut check and mental toughness but you really need to monitor how and when you drop those in. A few WOD's like that and there is not much left for strength development IMO. I'll likely be called a pussy for that sentiment but from my own experience of coaching folks and trying to maintain/improve my own athleticism and CF numbers those gigantic scorchers take a bunch.

I've bene doing a weighed measure Zoen because we are really pushng our clients to do ti and I felt like if I could nto nut-up an ddo it I had no business recomendign it to others. Lead by example perhaps? I'm adapting...I'm very lean, performance is good but it is a daily struggle. I hate the weighing amd n measurign...always feel a little hungry even at 5x fat...oh well! I just tweak things such that I do ~50% of my carb blocks as fruit in the post WO period and then it makes the later meals easier to manage.

Posted 5-31-2007 by Daniel Myers

I haven't been around CrossFit as long as most on this board -- only about a year -- but even in that time there's been a big shift in that community. *Starting Strength* has had a huge impact, to the point where some people are advocating doing that before moving into the WODs.

You can't argue with the positive results, but this shift does raise some interesting issues. "Constantly varied, if not randomized" is still a key phrase, but once people identify specific goals they seem to move to a specialized plan, and minimize the variation.

For example, the CrossFit Games are coming up. If you wanted to win those events, how would you train? I'm guessing that following the main page WOD wouldn't yield the best performance for the official "sport" of CrossFit. If that's true, what does it say about CrossFit programming in general?

I don't really know, but it makes an interesting thought exercise.

Response by Robb Wolf

Daniel-

I commented on this earlier in the thread. Namely that one is not going to achieve the top levels of performance in CF without a significant strength base and one is not going to develop that base from classic CF programming. The constantly varied element is PERFECT for metabolic conditioning...it keeps the stimulus randomized and avoids adaptation and efficiency. That is not the way to go about

developing maximum strength.

When an analysis of Greg Amundson's performance demonstrates he is capable of 3/4 horsepower output that is testament to his mental toughness, his strength base and his strength-endurance development. He arrived on the scene a BIG strong guy...glazing over that fact does not serve the community of folks who are trying to reach higher levels of performance.

Some of the issues of the CF games were also discussed...I think it is pretty good stuff and worth a read...way back in this thread.

Posted 6-4-2007 by Allen Yeh

That brings me to question...unless you are entering a somewhat LD running race is there any really good reason to get a mile time down to something like 5-6 minutes? Or a person that can sprint the heck out of anything under 100m's and do a mile in around 8 minutes/

In most sports it is a series of sprints up and down field + lateral motion rather than a 5K/marathon. So wouldn't trying to keep the use of the larger, stronger fibers for bursts be more optimal for performance?

Response by Robb Wolf

Oh absolutely IMO. I don't know if it was Kelly's site or the Dos Remedios site but they had a football preseason conditioning program. 3 days per week of HEAVY lifting and 3 days of a boat-load of sprints. Some up to 100m but loads of 10,20 40 etc. SHORT rest periods too. It looked like an ass kicker if one really got in and hustled on the runs. I think a recommendation like the above might be handy if you are fishing for some low level restoration work AND you are trying like crazy to avoid fiber type transition.

It's an interesting balance to keep but one can really enhance that uber explosive fiber expression via tapering. Loads of hard work...even METcon type CF work mixed with heavy training then, drop the GPP way back and taper the strength/power training. In my practice I will have perhaps one person every 2 years that needs that level of tinkering. Most folks will benefit enormously from a generalist approach.

One can also orient training towards a Power Bias. For example instead of a 400m run in a Helen workout one could perform 10x40m shuttle runs, then the rest of the WO. The acceleration/deceleration is likely MUCH more specific to most activities than a hard 400m run.

I could see folks in the military and police really benefitting from a mix of these approaches.

Posted 6-8-2007 by Steve Shafley

I'm trying to teach my 13 year old to swing a kettlebell, perform a deadlift, and a squat, and I cannot get him to maintain a neutral back position.

In fact, I have an extremely hard time even getting him to bend at the hips, rather than at the spine.

Does anyone have any teaching methods they use for this and others for individuals completely unfamiliar with any kind of exercise?

Response by Robb Wolf

This seems to be a really common situation. I've found that a little Glute-ham bench work and reverse hypers "wakes up" the awareness of the hips and low back.

Standing broad jumps can be a nice unladen method for firing those movement patterns as well.

Posted 6-26-2007 by Dave Van Skike

This may seem a little remedial but here goes...I have always wondered if the 3 weeks of strength, then 3 weeks of MetCon approach works. I've seen it advocated but have never seen anyone actually do it. I've read plenty of folks with strength goals who switch to density work every so often to broaden their work capacity but haven't heard any ringing endorsements.

Robb, I had to dig for this one.

"So now most of our non-bariatric/weight loss clients...folks who are actually trying to get high level CF type performance...we have these folks start off with DL, a press and a pull...linear progression until we need to shift to block style periodized training. Then some kind of WOD, sprints or the like. It is very effective. I would not doubt that a Pavlesque approach of 2-3 weeks of strength work followed by 2-3 weeks of met-con might work even better but our clients are crack heads for the Met-cons."

How much disruption in a basic periodization program does this cause, it is person to person? Is the impact of switching mitigated by sticking with largely the same movements~ squat for strength then squats in a MetCon format? It seems like switching protocol would take almost a week to acclimate to. Kind of a stepwise approach, two steps forward, one step back?

Response by Robb Wolf

Dave-

I think One can make some pretty good progress in the strength arena doing a fairly mixed approach. Rutman's ME-black box templates of max effort work mixed with met cons being one example. I think the key is to keep the programming smart...not too much volume in the metcons. Stuff like Diane, Fran etc.

What we do with our clients is blocks of varying intensity and volume in the strength work...5x5->8x3->10x2...some wave loading...80% of our clients are bariatric/rehabs situations so this is not something that is used extensively with our clients.

So...yea, I've not messed around much with 2 weeks of strength, 2 weeks of met-cons as per Pavels recommendations.

Interesting stuff.

Posted 6-18-2007 by Kevin Mckay (On Arthritis)

I found out I have it, was hoping it was gout but no such luck...

Not sure if it is rheumatoid or ostio but it recently moved from my hands and wrists to my elbows. If anybody has experience with this let me know. I am not sure if it is ok to workout with a joint when it is flaring up.

Response by Robb Wolf

RA- Flares from dairy and of course, wheat. Asymptomatic if the diet is 100%.

A little beer (wheat free), wine or tequila over ice with lime juice (precious...) never seems to bother me. Get asymptomatic, then add that stuff and see how it goes.

Posted 7-6-2007 by Tom Furman

Is there a workout template for CF (if you plan your own workouts relative to your job, sleep, stress, etc. not being optimal), that is available??

I mean, you go from 8 singles of the deadlift, to a 5k run, to Fran, to 440/ 50 GH situps/ Hyper, repeat for 3 cycles, to muscles up and overhead squats.

Can you divide up the categories like upper metcon, lower metcon, torso strength, leg endurance, lower limit strength, and then just make up playing cards or dice and let them roll??

I would think if you made them up yourself, you lean towards your strength. Say running and gymnastics, and avoid Olympic Lifts and Military Cal's. A random generator/spreadsheet, would be nice.

Response by Robb Wolf

Tom-

I think there are a million ways to cook those basic principles of intensity, functionality and variance, all to good effect.

Like you said, if there is a specific weakness present one can structure the WOD's or some of the warm-up activities to help shore up missing/deficient elements.

Here are a few things I've tinkered with:

Rutherford inspired-

1-ME Day-upper, lower or full body movement

2-met-con

Simply repeating that format with a day off after days 1 and 2 or BETWEEN 1 and 2 of sleep, stress etc. really messes with recovery.

Scotty Hagnas inspired-

1-gymnastics

2-olift

3-met-con

4-off

frequently i used rounds on the heavy bag as my met-con day on this template...again it lends itself to days off when and where you see the need.

Great to see you BTW and thank you for the EJJ plug on your blog!

Posted 7-7-2007 by Brandon Enos

Just wondering which one everyone chooses and why? Structured routines where you know what you will be doing a month or more from now, or more of a random crossfit style?

I found that so far the best thing for me is a semi-random schedule. I sit down on Sat or Sun, my rest days and figure out my workouts for Mon - Fri using a hard day, easy day, hard day... template. I also try to leave enough room to make subs if things have to change due to school, weather, etc.

I love this style because it keeps things random enough to A.) keep me from getting bored and B.) doesnt let my body adapt to any one thing. It also prevents me from throwing a day out since I know what it is I have to do that day.

Response by Steven Low

You'll make more progress (strength and mass-wise) on a structured routine a la programs like Starting Strength tweak a bit to your conditioning level + massive amounts of food.

Random is EXCELLENT for GPP.

Most people want a decent combination of both.

Response by Robb Wolf

Steven pretty much hammered that. Some consistency and structure is important for strength development, potentially detrimental for some elements of conditioning, especially if maintaining strength/power is important.

This is an important distinction folks need to make between S&C and their chosen sport. We certainly want efficiency at our sportive endeavors.

Brandon-

You might like Rutman's ME-Black Box template.

Posted 7-11-07 by Kevin McKay

Well things may be improving but not 100% sure because it usually cycles.

I have been 100% grain/dairy free since 06-21-2007 I did eat green beans and hummus once each but thats it, not sure if legumes are an issue here as well.

I have cut my multi vitamins that had trace amounts of soy lecithin

alfalfa

yeast

is that overkill?

I have been using what Dr G prescribed.

Question, can I eat real butter?

If things stay the same or improve I will try working out with my arms again next week!

Cheers!

Response by Robb Wolf

Kevin-

legumess can be a problem...I don't notice any issue with green beans or snap peas, but I don't eat them super often.

I definitely notice problems using cream in my coffee...I rarely use butter so not sure there. It is a source of a small amount of dairy proteins...I'd try to keep that stuff as clean as possible and then reintroduce and monitor results. No idea on the multi.

Posted 7-15-2007 by David Gutierrez

Long time lurker, big fan of the PM ...

Background ... I try to keep with a 3 on 1 off cycle as much as possible, but it doesn't always work. It usually jumps between 2-4 days on, 2-4 days off, then 2-4 days back on. The first day back is usually a crapshoot and the workout is scaled to compensate for a shitty sleep cycle, fatigue and poor nutrition. I'll usually cut rounds, reps or weight accordingly to allow for a bit of "reintegration".

Because of this, I have started using the "intervals within intervals" as a way to either regulate fatigue, or maximize power output depending on the day and how I feel. I've kept it pretty simple, generally applying it to WODs where there is a run followed by a weighted exercise/gymnastic movement.

Example:

5 rounds:

400m run

95 lb thrusters x 15

pull-ups x 15

If I'm feeling good, I'll usually do a 1:1, maybe 1:2 work/rest ratio (or I'll just pick something like 1 or 2 min as the standard). What I've noticed here is that the times will remain fairly consistent across the board, with the exception of the last 1 or 2 rounds—there I've noticed a significant burn out in the runs the last 100 meters. The times in the other exercises have remained steady.

If I'm not feeling as sharp, I'll increase to a 1:2, 1:3 or full recovery between intervals. I'll usually drop the weight or cut a round off the workout as well.

So far, this has been helpful in regulating fatigue. I could use a bit more strength-specific work ... perhaps ME/OLAD integration, but that is a different topic. Not sure if the poor food/sleep cycle would result in this causing more harm than good. Either way, I am a big fan of the "intervals within intervals" concept and will start using this, as well as the power-bias influenced workouts more often. Input always welcomed.

Response by Robb Wolf

David-

Great first post and yes, sleep deprivation can crush your performance. We just took a week off over July 4th and we literally slept 12+ hrs per height the whole week. I did No training, walked into the gym and smoked stuff I was struggling with previously...one week back to our 5am wake-up and looong work days and I feel like a 3pack/day smoker.

What is nice about the way you are breaking things up is the intensity is high and the total workload is high but it is not as systemically crushing.

The joys of micro-gym/fitness publication lifestyle!

Posted 7-17-2007 by Ron Nelson

Robo,

I like what you and Scotty have come up with. It reminds me of EDT with a slight power twist. So, it's what I tried yesterday in the gym. Limit time, reps, and rest to maximize power. Go hard with moderate weight, keep reps fast; keep effort at a maximum, or near maximum.

I did this with SGDL's at a moderate weight to avoid injury, and paired it with db push presses (single arm). Did 3 reps of each per round. Limited rest to about 20-40 seconds between rounds. Got 11 rounds in 15 minutes.

Tried the same thing with pull ups and split squats, but got 12 rounds.

Think I'll try the Helen break up one day this week.

Response by Robb Wolf

I think it's a pretty cool way to plow through a boat load of work but keep things short. Is it how you will develop a top tier Olyifter or sprinter? Na, but it does shift things more towards the power side of things will allowing for some met-con type elements.

Posted 7-23-2007 by Pat McCarthy

I've recently begun to focus heavily on my pull-up form and endurance as I felt my pressing was being limited by weakness in my upper back (by recently I mean within the last 12 months). I've seen great progress, and it has paid dividends in my pressing, but I am having some problems with my pull-ups.

I'm a stickler on range of motion and feel I am short-changing myself whenever I do not perform each rep perfectly. However, with pull-ups, after 5 or 6 reps, I find it almost impossible to get the last 2-3 inches of the movement (I can't seem to get the bar all the way to my chest). I feel this is due to weakness in my middle upper back and I was wondering if anybody has some suggestions on how to develop that final portion of the pull.

Response by Robb Wolf

Pat-

Are we talking weighted pull-ups? You might try jumping above the bar and lowering into the problem area with supra-maximal loads...only 5% above current max should be enough. One day per week and perhaps 10x1.

Rope climbs really seem to help my dead hangs as well.

Posted 7-21-2007 by Brandon Enos

Okay, I started a 5x5 type of program this week. On Wednesday, my press was the bench. I used to have problems with it, but I went back and worked on my form, no more shoulder problems, but thats beside the point.

I know in the 5x5 post earlier, the bench was brought up a lot. I know in Starting Strength (great book btw), it is part of the program, but when Mark Rippetoe talks about it, its almost as if he dislikes it and is including it for no other reason then its popularity.

My questin is, since I am not trying to become a powerlifter, nor am I in any kind of sport or group where the bench will be a measure of "manliness", should I just do away with it and work on dips and eventually weighted dips in its place?

What do you think?

Response by Robb Wolf

I just like dips and standing press more at this stage of the game...although physio ball DB press is actually kinda fun.

Here is an interesting [article](#) that advocates....bench press to enhance gymnastics performance. It's essentially a conjugate approach and i think the main point is to use exercises that are close enough to your "sport" to move towards your goals.

Posted 8-4-2007 by Ross Hunt

Do any of you like to do multiple-set, low-rep circuits for cardio sometimes?

I got good bang for my buck out of these in the past and I just started doing them again, out of boredom and a desire to get in a little more strength volume at a low intensity. Keeping the reps low while continuing to do a lot of volume seems like it would have the potential to build up some CV fitness without messing with strength and speed as much as higher-rep cardio.

What I have in mind is sets of 5 with a bunch of exercises for time. Yesterday I did this, for example:

5 rounds of:

5x Back Squat 100kg
5x Overhead Press 50 kg
5x Chin w/ 10 kg

I finished in just under 11 minutes--squats were light but I lost all coordination on the overhead press and had to break it starting on the fourth set.

Response by Robb Wolf

Ross-

I've played around with density training in this format before and really like it. Although Staley warns against using movements like cleans, snatches & jerks I find them very productive and fun.

Posted 9-1-2007 by James Climer

Should you do a lot of direct deadlifting
Or something along the lines of Bill
Starr's Heavy Good Morning/ Heavy shrugs
and Power Clean/ High Pulls method? This is
supposed to improve strength in the deadlift
pulling muscles without the whole body crash that
too much direct deadlifting can induce
(in my case anyway).

I would also have to guess that progressing toward the
freestanding handstand pushup (as complimentary to the
press) would take the pressure off the low back, teach
whole body tension and work the stabilizers. Comments?

Response by Robb Wolf

James-

When I was doing capoeira 5X/week and training a mountain of handstand variations I had a 180lb standing press at 165. I'm not where near that level now. I find the HS work to be very productive for the press.

Negatives on the paralettes were very productive for me. GTG style if possible, if not something like 10x1-2 two to three times in a week. Every 3rd WO cut the volume in half...Louie Simmons had a nice article on I think bench assistance exercises and talks about his guys working up to HSPU's on rings...like sets of 15. That is freaking strong.

The various bent arm/leg options are more for free standing press to handstands.

Posted 2-27-2008 by Coach Sommer

If you have ever considered how far and how long to pursue maximal strength for increasing athletic performance, you may find the following discussion interesting.

<http://gymnasticbodies.com/forum/viewtopic.php?t=305>

Yours in Fitness,
Coach Sommer

Response by Robb Wolf

Great stuff coach. That USA gymnastics paper is a great one. I was crunching some numbers on the crossfit games winners and there is an obvious need for a certain level of strength to have the engine to

perform, but beyond a certain point additional strength either blunts metabolic conditioning or takes away from time that could be devoted to skill work. I suspect this strength-needs curve is shifted up for gymnasts but a similar scenario is seen.

I've been thinking about this in terms of evolutionary biology also in that endurance adaptations come and go quick and easy but strength, especially beyond a certain point is very slow and tough to bring about.

Posted 2-15-2009 by Andrew Wilson

[Here](#) w/f/s. Starts halfway in the podcast

Talks about CrossFit

Explosiveness

Training GSP mixed with sport training

GPP/Strength phases

Sports specific training

Mistakes by strength coaches (mentions CrossFit style & hard circuits, no periodization, long distance training...)

He's good, but then again he's sport specific.

Response by Robb Wolf

Glen Cordoza (one of NorCal's athletes) just won his MMA fight in Louisiana. We followed much the same template we outlined in the Fight Prep guide I wrote for the PM with the main changes being olympic lifts for the base strength work and the removal of the SDLHP from Fight Gone Bad, now substituting a 95# hang power clean (calling this one "Fight Gone Better").

FGB was used once per week as a non-sport conditioning session and as a diagnostic. Glen did very little "Crossfit" type training during the last 8 weeks of training as fight pre (time indexed for a 3 round, 5 min/round fight) took up the bulk of his time. Interestingly he managed to score over 400 on FGB on this schedule.

He has another fight in a month. One week of lite recovery work, then ramping back up for the next go-around. His off season is shifted to maintenance work for fighting, heavy duty crossfit. It works great for his mental state and keeps him constantly challenged.

I really like the work GSP's guy is doing...great stuff there. New coaches really need to keep an eye on recovery and what the weaknesses are in their athletes. "More Work" is not a smart way to tackle that issue!

O-Lifting

Posted 5-30-2007 by Dave Van Skike

I lift at lunch a couple days a week with a female olympic lifter (she weighs about 135-140) , she lifted in college and does a little for fun now at what was until recently Crossfit North.

About a month ago, she talked about wanting to get her back squat up. At that time she was back squatting 80k. We started doing ladders, she did them three days a week, 1,2,3 three progressions or "rungs" total. added weight when she got all 3 rungs of the ladder (18 reps)

She started out with 70k. One month, three days a week and Oly lifting on Saturday. Now four weeks later she did two rungs (1,2,3) with 80 K (her old max from college I think) She says her second pull is getting way faster....

Response by Robb Wolf

Ladders are awesome. I use these in a density training format also...easy way to both keep track of how much I'm doing and regulate the intensity. It's a lot more fun than gutting out an 8x3 or 10x2 for me. Wave loading is nice in this way also.

Posted 8-31-2007 by Ross Hunt

What do you say? Are high-rep barbell clean and jerks and snatches a solid, hardcore way to develop

metcon, or do they just deliver all the pain of a metcon workout and all the pain of an oly workout with none of the benefit of either?

I saw good metcon results from doing Grace on a regular basis a couple years back. I recently did Isabel on a dare and was underwhelmed by the metabolic impact. Of course, I could always just do it faster... I guess. I knocked it out in 4:50, and I was breathing hard, but I definitely wasn't flatlining the way I would during a workout where I wasn't constantly dumping the bar and refixing my grip. Indeed, it seems to me that constant loading of the body greatly intensifies metabolic impact. Any exercise where the body is still loaded while you're resting, or where the athlete is otherwise 'punished' for resting (e.g. repetition full squats-to-broad-jumps for distance with added load) seems to be more productive for metcon.

Response by Robb Wolf

I like them a lot. Although they may not be as big a scorcher as other WOD's, they are a nice one-stop-shop. Add pull-ups, dips or HSPU and you have a great all around WO.

Posted 1-29-2008 by Arden Cogar Jr.

Hello all,

I'm new to olympic lifting - a complete novice. Lots of years of powerlifting and strength training under my belt, so lots of bad habits to get rid of.

In any event, I'm trying to get better at getting into the hole with my squat cleans and my squat snatches - or full cleans and snatches would be a better way too look at it.

One of the things I'm finding myself wanting to do is pause at the bottom of each of my regular front squat and back squat workouts to get set before I ascend with the weight. I found myself doing that with my OHS's too.

Is this wise?

I know that I have to steady myself before I come out of the hole with a heavy squat clean. I've yet to get even remotely heavy with a full squat snatch. Most of my snatches are power snatches if not muscle snatches. But I'm learning.

I'm trying to find a more comfortable way of getting down with the weight.

Thanks in advance for any input.

All the best,
Arden

Response by Robb Wolf

Arden-

I think some focus on OHS and snatch balances will really help things. You likely have tons of pull but the comfort to pull under the bar will be a limiting factor and at some point a safety issue. Cleans can be worked from the high hang position and take those to the squat. Empty bar first, then some weight.

Strength Training

Posted 6-19-2007 by Pavel Saenz

I just wanted to pick the brain of the expertes here.

I am following the Mass Gain Template and Im really happy with the results so far, in three weeks I have gained a little more than three kilos (around six and a half pounds?). I have dimished drastically aerobic type workouts and a question arose, since I dont know much about biology 🤔, what are the differences in the hormonal effects when one follows the Mass Gain workout compared to the ones that also have the aerobic side (say CF)?

And if anyone has an article on the subject It would be awesome.

Response by Robb Wolf

Pavel-

the two approaches need not be exclusionary...it all depends on loading, volume rest periods etc.

Look to some of the Density training threads for information...also the "Bear" program in Power To the People.

Posted 7-30-2007 by Joe Hart

I know picking up stuff and holding it over your head is good for the core. My question is...Using GHD, Situps, back extensions for other core exercises how would you keep that in the Power Bias and strength side of the house? Low reps and higher weight, but what kind of rep range would you stay in? What would be some other lower back and ab exercises?

Response by Robb Wolf

I really like foot anchored, medicine ball-chuck-sit-ups. If you can throw the ball against a pad and get a quick return this will allow for quick cycle time. Certainly a fave and I'm not averse to working these at pretty high reps (20-30) due to the ballistic nature.

Posted 8-13-2007 by Brandon Enos

So far, I've only seen ME Black Box designed with two groups of exercises. For example, first group; clean, back squat, press, second; dead, front squat, dip. Could you do three groups of exercises? For example, 1.) snatch, back squat, press, 2.) clean, front squat, weighted dips, 3.) dead, OHS, weighted pull-ups? The only down side I can see is that it would be kind of a long gap in between groups.

Response by Robb Wolf

Brandon-

I think the plan is to run with the movements 2-3 weeks to get some exposure and depth and then rotate before stagnation sets in. The movement you are talking about have so much overlap you will maintain, perhaps even improve with the rotations. Much of the magic behind conjugate training and CF.

MMA Stuff

Posted 6-13-2007 by Sam Cannons

Okay i have been rolling for a while but just recently started to get some inflammation in my left ear that looks suspiciously like cauliflower ear. It has only just came up in the last few days and i was wondering if any one had any advice on getting rid of it ? I have heard of people draining the fluid, is there any truth to this, has any one had any experience ??

Response by Robb Wolf

Yep...a trip to the doc...or someone you trust wielding a syringe and needle to drain the fluid. Ice and rest can help but once it is angry its tough not get it going again.

Time for head gear perhaps.

Posted 8-30-2007 by R. Alan Hester

(On Strength Standards MMA?)

Do they exist? Is it too broad of a group to say?

Do you think there is a requisite base to allow power production measured against a point of diminishing returns?

Ross Enamait quoted a study that stated, "Excessive maximum strength training can impair speed-strength and technical skill in boxers."

So what would be excessive?

Alan

Response by Robb Wolf

This would be a great article topic. I think someone over at T-nation cooked something up on this topic a few years ago and the strength standards were pretty high IMO.

This will vary depending upon the size of the athlete but if you can get a 2xBW squat, 2.5 BW DL, BW standing press and or 1.5-1.75BW bench you will have about all the foundational strength you will need to crush. All that without compromising skill training and sport specific power development.

Keep in mind that once a strength base is established (off season) it can be maintained with a relatively small maintenance volume (in season).

Ross is just a fucking stud coach...that guy really knows his stuff. I futzed around on this topic a lot and he really clarified some things for me. People cite Siff and Super training regarding the inferiority of concurrent training methods for athletes. Ross made the point that this is true for elite strength athletes but it is sufficient for elite strength levels for OTHER athletes...such as fighters, runners etc.

Simple distinction but it eluded me for a very long time. I think that was due in part to a desire to produce an athlete with a top tier PL/OL strength level with crushing levels of metabolic conditioning. VERY tough to do.

Posted 9-6-2007 by Mark Limbaga

A strength foundation is definitely important to a fighter. however, let us also consider another factor that we must address: Work capacity

It would be very beneficial to a fighter if you can increase his work capacity since this will make him a stronger and more conditioned fighter.

For the off-season, a starting strength type program would do great and for the pre-fight roughly 16 weeks away, ME black box type training and for roughly 12 weeks till a few days to a fight, a density training type program may work really well.

I've used this on a couple of fighters, swimmers a triathlete and a whole collegiate basketball team, so far its been working wonders.

The one thing I have noticed is that if you do it right, you can increase the conditioning of the fighters while increasing their strength at the same time. A big plus for any fighter since this would just mean more and harder strikes, more ground control and stronger slams.

Response by Robb Wolf

Mark-

Do you track training volume any specific way? how do you vary the workloads...just by feel or any planning?

I found Glen's training to necessitate a day to day approach. A general plan but he might be so torched from the previous evenings sparring we had to completely shift gears for today's training.

Category X

Posted 7-12-2007 by Chris Hill (Patellar Tendonitis)

can anyone advise on the immediate treatment for this? It seems to have crept in with an increase of training frequency and intensity after a lay off. Any hints or tips for treating it?

Response by Robb Wolf

Chris-

Not to dog pile, but if you are doing any type of high rep squat'n ala-crossfit (squats, thrusters D-bal etc). It's imperative that you experience NO anterior knee translations during your movements. Again from the gaping maw of Kelly Starrett, this appears to wickedly tighten the R. Femoris and can contribute to significant knee dysfunction.

Posted 7-27-2007 by Allen Yeh

I was looking at a Mens Health the other day and came across a brief little blurb that compared 4 natural sweeteners, anyone else used these?

Oligofructose - They said it was 100% fiber?

Agave nectar - Similiar to honey and still fructose so why not just use honey?

Erythritol - sugar alcohol but I can't recall what else they said

stevia - not a big fan the few times I have tried this

Response by Robb Wolf

Welcome to the PM. Agave, like all fructose sources can be a bit misleading if looked at through the lens of Glycemic Index. GI refers to how much an item raises blood GLUCOSE levels. Since agave is a form of fructose it is very slow to raise blood glucose as it must pass through the liver and be converted to glucose. This is a slow process but it does not account for the large insulin response fructose causes nor the hepatic derange that can occur with large fructose intake (think high fructose corn syrup).

From a metabolic standpoint one is almost better off using a glucose based sweetener over a fructose sweetener...although fructose does register as sweeter to the taste buds and thus one can get away with a little less of it in some instances. This is why cooks will use "convert sugar" in recipes which is introducing a small amount of acid to regular table sugar to cleave the glucose/fructose, yielding a sweeter concoction with no additional sweetener. My Coffee appears to have kicked in...

Posted 8-12-2007 by Nikki Young


I have a new client who takes ranitidine for high stomach acidity.

I was wondering if anyone knows if this drug is something which could be faded out through a diet rich in alkaline foods and lower in acidic foods?

I would like to let her know that an altered diet could potentially stop her from needing the drugs, i presume if she doesn't make changes to her diet the acidity in her stomach would keep on building up. Just wanted to get a second opinion on it all though in-case there are other medical situations to the problem which would need to be taken into consideration.

Response by Robb Wolf

Nikki...you are looking at someone with metabolic derangement. GERD is a symptom of hyperinsulinism. This person is eating too many carbs, too much refined carbs and I'd bet Greg's testicles, this person is celiac also. Give this a looksie:

1: J Gastroenterol. 2007 Apr;42(4):267-74. Epub 2007 Apr 26.  [FULL-TEXT ARTICLE](#) [Links](#)
Metabolic syndrome and gastrointestinal diseases.

[Watanabe S](#), [Hojo M](#), [Nagahara A](#).

Department of Gastroenterology, Juntendo University, School of Medicine, 2-1-1 Hongo, Tokyo 113-8421, Japan.

Metabolic syndrome is a cluster of metabolic abnormalities consisting essentially of obesity, especially abdominal obesity. Metabolic syndrome has been highlighted as a risk factor for cardiovascular and other chronic diseases. Obesity has been implicated in various gastrointestinal diseases such as gastroesophageal reflux diseases and colorectal cancer. Recently, abdominal obesity has been shown to be more important than obesity as expressed by an elevated body mass index as a causative factor for the development of these diseases. In addition to the mechanical effects of obesity, such as an increase in intra-abdominal pressure from large amounts of adipose tissue, substances that adipose tissues secrete, such as tumor necrosis factor-alpha, interleukin-6, leptin, and insulin-like growth factor-1, have been proposed to be pathogenic links to these diseases. In this review, we discuss the association of metabolic syndrome or the individual components of metabolic syndrome, focusing on obesity and abdominal obesity, with gastrointestinal diseases.

PMID: 17464454 [PubMed - indexed for MEDLINE]

This is where treating symptoms gets VERY tricky and leads to supression of the issue instead of addressing the underlying causes. It seems simple:

too much acid, so consume or alkaline items. This leads ultimately to things like Tums (popular antacid in the us...not sure if you have it down under) and sodium bicarb. These are both massively alkaline...and will only make things worse. Put out the stomach acid (fire) and you get large intact food particles crashing into the small intestine...this is where more potent food allergies take root.

I swear...any issue a client has look for metabolic derangement FIRST.

Posted 8-27-2007 by Eric Jones

What does everyone think of skim milk and whole foods within ~ an hour post-workout for protein/carb replenishment versus protein powders and what not?

I weigh about 165lbs and try to follow an 18 block Zone (in a 6-7 hour IF window. Thats 9 blocks of carbs PWO, which would be 5 cups of milk (at 1 block per cup) and 4 blocks of fruit or sweet potato (typically for me, banana, raisins, figs or a combination of those to get 4 blocks). That quantity of milk also provides 35g (5 blocks) of protein.

I haven't started this yet, but would like to replace my protein powder and Amino supplements with skim milk once I finish my tub of whey. It makes so much more sense to me to eat whole foods, especially milk, versus powders and isolated vitamins and aminos PWO. I also find it ironic that nature made milk in Zone proportions.

Just wondering everyone's thoughts on this....

Response by Robb Wolf

I tend to have my best results with whole foods. Shakes and other liquids pork me up right in the midsection. I think I am as insulin challenged as a person can be! Tinker with it and see. Similar to mods suggestion I know many folks really swear by the PWO LF chco-milk. Can not say that plays towards the health and longevity bias but DAMN yummy!

Posted 3-17-2008 by John Velandra

Hi all!

I have a client that has vitiligo along with a ton of upper respiratory issues, neuro-muscular imbalances, weakness, etc..... just started my research on vitiligo, and it's issues, etc.

Any help out there???

Response by Robb Wolf

John-

Vitiligo has a strong autoimmune component exacerbated by....insulin. Drop insulin levels and the progression will cease. Some folks have noted a recovery of the normal pigmentation with time, others not. There tends to be a high prevalence of Raynauds (a vascular condition that occurs when going from hot to cold environments).

Search under "vitiligo and insulin/hyperinsulinism".

Posted 4-28-2008 by Jeff Evans

I originally asked this on the Crossfit nutrition forum but didn't get any responses there.

I can't reconcile this. In Nutrient Timing, Dr. Ivy basically argues that it's ideal to raise your blood sugar level just at the end of a workout, because your muscles are more receptive to glycogen intake during that window, which closes quickly (like within half an hour of the end of the workout). Also you need insulin to build muscle, so increasing your insulin window during this time means your muscles will regenerate more effectively during the recovery and eating period to follow. This all *seems* to make sense.

On the other hand, in Protein Power, Eades/Eades argue that the critical component in muscular development is HGH (human growth hormone, generally recognized as very good stuff), and that the release of HGH is attenuated in the face of high blood sugar. Therefore you shouldn't eat any carbohydrate before, during, or after your workout. You should just have a high protein/fat meal an hour after lifting because HGH will be manufactured if you keep your blood sugar low.

OK so what am I missing? If one of them is wrong then which one? If they're both right then which negative (or positive) factor is dominating?

Response by Robb Wolf

Jeff-

This topic gets hashed about a good bit and for good reason: it depends. There is no doubt that carbs post WO, particularly a hard metabolic session ala-crossfit, will improve recovery...both in terms of glycogen repletion AND muscle recovery/growth. That said we also see some very interesting adaptations with a low/no carb post WO period with regards to fat adaptation and some cellular stress adaptations that might be quite favorable for health and longevity.

There is likely some break-even point of being able to sneak in some carbs post WO without perturbing the whole insulin situation such that we get serious downsides. The solution I've found in this regard is to eat most of my carbs post WO and i keep this to REAL food. A portable non-retch inducing meal I've been using lately is a small pop-top can of salmon from trader joes (wild salmon) and ~100g of carbs from a yam. The remainder of my meals are protein and fat...some greens. Performance is good, I feel good...sleep is good etc. No symptoms of elevated insulin levels as evidenced by leanness and clear thinking.

You can find more info on this topic in threads like the health and longevity bias...i think I had something on my blog a while back also.