

They're All MAD!



**Forsaking Science For Dogma: A Revealing
Exposé of the Metabolic Advantage
Movement.**

***Find out why listening to those who promote Metabolic
Advantage Dogma (MAD) could destroy your fat loss
dreams!***

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"What is it that compels a person, past all reason, to believe the unbelievable. How can an otherwise sane individual become so enamored of a fantasy, an imposture, that even after it's exposed in the bright light of day he still clings to it - indeed, clings to it all the harder?"
M. Lamar Keene.

Introduction

There exists a group of individuals, whose ranks spread across the globe, who earnestly believe in a theory known as the 'metabolic advantage'. This term was popularized by the late Dr. Robert Atkins, who claimed it was possible to gain weight on a high-carbohydrate diet but lose weight on a low-carbohydrate diet *even when the 2 diets contained the exact same number of calories*[1].

Atkins' theory has never been validated. In fact, repeated metabolic ward studies – the most tightly controlled type of dietary study – have repeatedly shown *no* difference in fat loss among low- and high-carbohydrate diets of identical caloric content. If you've read Chapter 1 of *The Fat Loss Bible*, you'll know about each and every one of these studies. You'll know that, over the last four decades, the metabolic advantage dogma (MAD) has had ample opportunity to prove itself in tightly controlled research with real live *humans* – and that it has repeatedly failed to do so.

Despite this failure, the metabolic advantage movement simply refuses to discard its cherished belief that isocaloric low-carb diets offer some sort of magical weight loss advantage.

My own experiences with the metabolic advantage movement are especially enlightening. In 2003, I launched the first of a number of websites, most of which contained information favorable to low-carb diets. I began writing articles highlighting the potential health benefits of intelligently implemented low-carb diets, and posted article after article highlighting the scientifically untenable nature of the campaign against cholesterol and animal fats. Not surprisingly, I quickly became a darling of the low-carb movement. Evidently, I was telling these folks just what they wanted to hear. My articles were routinely cited

and reprinted on low-carb forums, where the subsequent commentary was almost always of an overwhelmingly positive nature.

The picture changed somewhat in late 2005, when I posted an impromptu ab shot on one of my web sites. In response to the subsequent flood of emails offering glowing praise and wanting to know how I got so lean, I wrote a brief article highlighting several key principles that I used to achieve single-digit body fat levels.

One of these principles was to establish a calorie deficit. I pointed out two unassailable facts:

- 1) Without a calorie deficit, no weight loss would occur, and;
- 2) Altering the ratio of protein, fat and carbohydrates would have little to no effect on the rate of fat loss when calories were held constant. The fundamental requirement for fat loss was, and always would be, the establishment of a calorie deficit.

When I wrote that, I had no idea of what was about to follow.

As soon as I posted the article, web forums around the world lit up in heated disagreement. Hey, there's nothing wrong with spirited debate, but my detractors went way beyond simply disagreeing with me – my character was assailed and I was accused of being dishonest. Now I'll be the first to admit that my own writings are unlikely to win any prizes for social nicety, but I always make sure I have my facts straight before calling someone out. And unlike the disgruntled MAD folks, I do not target someone simply because that person is saying things I do not want to hear. As a person of robust mental health, I simply do not feel the need to criticize people who do not make fallacious claims.

When I challenged my detractors to provide me with the evidence that validated their accusations of dishonesty, they provided none. I even went so far as to publicly offer to roller blade naked down one of Melbourne's busiest entertainment precincts (the famous Chapel Street) if my critics could prove me wrong! Given the vitriol these folks displayed towards me, I figured they'd jump at the chance to see me

make a fool of myself. I sat back and waited for the supportive evidence that I had allegedly missed to come flooding in. It never did.

But, of course, that didn't stop the vitriol.

The whole experience was an extremely enlightening one. Over the years I've had dealings with dietary dogmatists of all stripes, and can earnestly say that, in my experience, the most fanatical and irrational of all are those who believe in and promote MAD. I have inspired vegans and vegetarians to begin eating meat again, I have caused medical doctors to begin questioning one of the most central tenets of modern medicine (the cholesterol theory of heart disease), and I have convinced strict low-carbing athletes to abandon their carb-phobia and start ingesting carbs after workouts.

In contrast, I could count the number of metabolic advantage believers who have given my arguments a fair hearing on one hand – with most of the fingers cut off! Contradictory evidence is to these folks what garlic and crucifixes are to vampires.

In my opinion, the metabolic advantage movement is not unlike a fanatical religious movement. Anyone who acts to improve the status and standing of the cult is adored and considered a hero, but anyone who questions the cult's central teachings is quickly derided as a heinous villain. Those who speak out against MAD can expect to attract fanatical denunciation and venomous hostility.

Indeed, it was not the vegan/vegetarian/low-fat/raw food movements but the metabolic advantage movement that, in 2007, awarded me with my first and (so far) only Internet stalker! To say that I have serious concerns about the mental stability of many metabolic advantage dogmatists would be somewhat of an understatement.

This kind of behavior would at least be partially understandable if the metabolic advantage movement was right and detractors like me were wrong. But that simply is not the case. As you discovered in Chapter 1 of *The Fat Loss Bible*, and as you will further learn in this book, the preponderance of scientific evidence shows that the metabolic advantage theory is pure fantasy.

This matters little to the metabolic advantage dogmatists. By selectively filtering out non-supportive evidence and citing supportive evidence, they keep their theory alive. Evidence that supports MAD is warmly embraced, no matter how hopelessly flimsy and unscientific. Meanwhile, evidence that disputes the cult's teachings is ignored, rationalized away, or vigorously attacked – even when it is of far higher quality than the evidence used in support of MAD!

My experience with the metabolic advantage dogmatists has given me unique insight into the lengths people will go in order to justify untenable but deeply cherished beliefs.

This book focuses on the leading promoters of the metabolic advantage theory. Not all of them specifically use the term “metabolic advantage”, but they all enthusiastically endorse its key precept: the belief that one can lose more fat on a low-carbohydrate diet than on an isocaloric high-carbohydrate diet. Some claim the key mechanism is insulin, others believe the prime factor is increased protein intake (a rather disingenuous argument, for there is nothing to stop one from eating more protein on a high-carbohydrate diet...), while others embrace both these and other explanations.

But the end result is the same: the continued propagation of a fallacious theory that unfortunately distracts many people from doing the things they *really* need to do in order to lose fat. The metabolic advantage theory might attract wealth and status for its promoters, but it could very well sabotage your attempts to achieve a lean and healthy body. So don't believe the dogma – it's pure MADness!

Best of health,

Anthony Colpo,
Independent researcher and author of:

The Fat Loss Bible

<http://www.thefatlossbible.net/>

The Great Cholesterol Con

<http://www.thegreatcholesterolcon.com/>

Chapter 1

Richard Feinman and Eugene Fine

A Not-So-Fine Example of Scientific ‘Research’

Richard Feinman and Eugene Fine are to the scientific community what Dr Robert Atkins and his ilk were to the general public: unabashed proponents of the metabolic advantage concept. Since 2003, the duo have authored a series of papers in mostly open access journals, along with a letter to the *American Journal of Clinical Nutrition*, that assume the metabolic advantage theory is a given[2-6]. In their most recent paper, they claim that: *“The extent to which carbohydrate restriction is successful as a strategy for control of obesity or diabetes can be attributed to two effects. The strategy frequently leads to a behavioral effect, a spontaneous reduction in caloric intake as seen in ad lib comparisons. There is also a metabolic effect, an apparent reduction in energy efficiency seen in isocaloric comparisons, popularly referred to as metabolic advantage.”*[6]

Feinman and Fine attempt to explain this advantage with appeals to the Second Law of Thermodynamics (*“The entropy of an isolated system not in equilibrium will tend to increase over time, approaching a maximum value at equilibrium.”*), elaborate discussions of dietary-induced thermogenesis, and fatty acid and insulin metabolism.

There’s just one wee problem with the theoretical musings of Feinman and Fine: *They are based on an entirely false premise.*

Feinman and Fine appear to sincerely believe that the superior weight loss seen with low-carbohydrate diets in *some* free-living clinical trials is a demonstration of the so-called metabolic advantage. They evidently accept at face value the self-reported dietary intakes in these studies. They appear to be oblivious to the fact that dietary underreporting is the norm, not the exception, in such studies and

that this phenomenon is most pronounced in those attempting to restrict fat and/or total calories.

Even if they believe the self-reported dietary intakes in free-living studies to be accurate, Feinman and Fine offer no explanation of why there are just as many free-living studies that have shown *no* greater weight or fat loss even when the subjects in the two groups reportedly ingested similar calorie intakes.

More importantly, Feinman and Fine make no mention of most of the tightly controlled metabolic ward trials listed in Chapter 1 of *The Fat Loss Bible*, excepting the studies by Rabast et al, Golay et al, and Piatti et al. They also readily cite the flawed trial by and Kekwick and Pawan. Rabast et al claimed to have found statistically significant differences in weight loss on isocaloric low-carb diets versus high-carb diets, but as Chapter 1 of *The Fat Loss Bible* explains, the difference could not be attributable to anything other than greater muscle, water, and/or glycogen loss. Losing water, muscle and glycogen cannot be considered a metabolic 'advantage' of any sort; in fact, if you desire optimal body composition and performance, then loss of muscle and glycogen is definitely a *disadvantage*!

Amazingly, Feinman and Fine discuss the non-supportive trials of Golay et al and Piatti et al as if they were supportive, brushing aside the statistically non-significant findings as if they were a mere inconvenience. In a 2004 paper, they present the results of a mere ten clinical trials of isocaloric diets comparing lower versus higher carbohydrate groups[3]. They write: *"It can be seen that the lower carbohydrate arm in 9 of 10 studies demonstrates increased weight reduction in comparison with the higher carbohydrate arm. Three of the studies show statistical significance ($p < 0.05$ or better). Even without statistical significance of individual studies, however, the likelihood that the lower carbohydrate arm would have an advantage in 9 of 10 studies is equivalent to the likelihood of 9 coin toss experiments having excess heads in comparison to excess tails."*

While the researchers admit these results don't prove their theory, the implication is clear: The statistical probability of the insignificant differences being truly due to chance is highly unlikely. The authors believe a metabolic advantage is a far more likely explanation.

But again, Feinman and Fine's approach is hugely flawed. Selecting such a small sample of supportive studies makes it easy to reinforce their argument. But one could just as easily pick a sample of studies that found statistically non-significant greater weight and/or fat losses in the high-carbohydrate groups. If one is going to place unwarranted emphasis on non-significant results, then one could claim the non-significant results of Yang et al (2.5 kilogram greater weight loss in the higher-carbohydrate group), Rumpler et al (500 gram greater fat loss in the higher-carbohydrate group), Johnston et al 2006 (900 gram and 2.1 kilogram greater weight and fat losses, respectively, in the higher-carbohydrate group), Johnston et al 2004 (1.9% greater fat loss in higher-carbohydrate group), Torbay et al (600 and 500 gram greater weight and fat losses, respectively, among normo-insulinemic men on higher-carbohydrate diet), Meckling et al (1.3 kilogram greater fat loss in higher-carbohydrate group), Petersen et al (600 and 500 gram greater weight and fat losses, respectively, among female participants on higher-carbohydrate diet) as supportive of higher-carbohydrate diets![7-13].

When assessing the validity of a hypothesis, good science dictates that you assess *all* the available relevant evidence, not just that which supports your preconceived beliefs.

Good science also precludes one from regarding non-significant results as significant in order to bolster a favored theory. Research findings are deemed statistically significant or non-significant for a reason: We need to be sure that research findings are real and not a result of chance before we use them to start making claims or recommendations. Wishing or rationalizing away those results that don't suit our hypothesis and embracing those which do, regardless of their probability level, is not good science.

As for citing the Kekwick and Pawan study...well, common decency forbids me from stating what I truly think of any trained researcher who cites this madcap study as proof of anything.

The only way for Feinman and Fine to present a convincing case for MAD is to ignore the numerous non-supportive metabolic ward and free-living studies that show no difference in weight or fat loss with

isocaloric diets of varying macronutrient composition. All their elaborate theorizing quickly becomes moot when one realizes there is no greater weight or fat loss to be derived from lowering one's carb intake on an isocaloric diet.

In their defense, perhaps Feinman and Fine are simply unaware of these trials. However, for someone who boasted in an email to yours truly that he (Feinman) has been “*teaching bioenergetics for thirty years*”[14], such an inability to hunt down relevant research is most worrisome. I've not taught a single university lecture in my life, but I had little trouble getting my butt down to the library and pulling up the relevant studies. Some of them did not even require a trip to the library – the full text for many of the studies in Chapter 1 of *The Fat Loss Bible* can be retrieved by Googling or visiting the PubMed web site. Someone who has been teaching at educational institutions almost as long as I have been alive should have no difficulty whatsoever accessing these same studies.

Furthermore, I know for a fact that Feinman reads my newsletters (he has emailed me regarding their content on a number of occasions), so he would be well aware of my repeated assertions that metabolic ward studies completely fail to support the metabolic advantage theory. Feinman obviously has my email address, but he never bothered to write and ask for the citations of these studies. Oh well, maybe someone might buy him or Fine a copy of *The Fat Loss Bible*...

I don't know either Feinman or Fine personally, so I can't comment on whether their misinterpretation of the literature is a product of accident or design. What I do find most interesting is that the metabolic advantage believers accuse yours truly, who has thoroughly searched for and cited all the relevant free-living and metabolic ward studies he could find, of bias and even impropriety. These same critics, however, are more than happy to cite Feinman and Fine's hopelessly one-sided research in support of their stance. Evidently, in the eyes of the metabolic advantage believers, only those who present research that contradicts their cherished beliefs are capable of bias and shoddy research!

Chapter 2

Dr. Michael Eades



Master of Selective Citation?

Dr Michael Eades and his wife Mary Dan Eades co-authored the best-selling book *Protein Power*, along with a string of spin-off books. Their book sales have run into the millions, which means the Eades have exposed their weight loss theories to an extremely wide audience.

In *Protein Power*, the Eades make no bones about what they believe to be the true cause of fat gain:

“Although it’s almost always attributed to excess calories, obesity is more related to the multifaceted actions of insulin and glucagon on the storage of fat.”[15]

The Eades are hardly alone in perceiving insulin as weight loss public enemy number one. If you’re even remotely familiar with the low-carb movement, you’ll know that many of its members have a preoccupation with insulin that often borders on obsessive. Ask them about fat loss, and you could almost set your watch by the answer.

Invariably, you'll be told that insulin is a hormone that blocks fat breakdown and promotes fat storage, and that eating carbohydrates increases insulin while cutting carbs lowers insulin. Therefore, by deduction, carbohydrates make you store fat while low-carbohydrate diets make you burn fat.

This type of simplistic logic is typical of the second-rate pseudo-scientific thinking that pervades the health, nutrition and fitness arenas. It sounds great to the uninitiated, but it's wrong, and here's why.

The Great Insulin Myth is predicated on the fact that eating carbohydrates increases the amount of carbohydrate that your body will burn for energy. Cutting carbohydrate and replacing it with an isocaloric amount of fat, on the other hand, will lower insulin, which in turn allows more fat to be oxidized for energy. There is little controversy about this part of the equation – the fact that low-carb/high-fat diets can cause an increase in fat oxidation has been demonstrated time and time again.

The problem is that, at this point, the insulin-makes-you-fat theorists go on to make a massive and unsubstantiated leap of faith: they claim that the increase in fat oxidation seen on low-carbohydrate/high-fat diets is due to heightened oxidation of dietary fat *and* body fat.

All the evidence suggests that any increase in fat oxidation on low-carb/high-fat diets simply reflects the change in dietary substrate availability. In other words, your body has to work with what you feed it. If you cut the amount of carbohydrates in your diet, and instead eat more fat, your body will not surprisingly oxidize a greater portion of ingested calories for energy in the form of fat. Insulin and glucagon are the 'gatekeepers' that help regulate this shift in substrate oxidation in response to changes in dietary macronutrient ratios. There is no evidence to support the belief that eating more fat will somehow set the oxidation of *body* fat into high gear.

The insulin-makes-you-fat crowd will no doubt strongly object, but where is their supportive evidence? While they jump up and down in protest, I urge the rest of you to take a look at the non-supportive

free-living and metabolic ward studies that compared high and low-carb diets *and* measured insulin responses to these diets. Specifically, take a close look at the studies in which the low-carb diet caused greater reductions in insulin. Despite the marked differences in insulin output, there was no difference in weight or fat loss! Among the metabolic ward studies, the trials by Grey and Kipnis, Golay et al, Miyashita et al, and Stimson et al all found greater reductions in insulin on the isocaloric low-carb diets – but no difference in fat loss[16-19]. Among the free-living studies, Golay et al, Torbay et al, Noakes et al, and Meckling et al all found greater reductions in insulin on the low-carb diets – but again, no difference in fat loss[20-23]. The participants in these free-living studies were given dietary advice intended to make the high- and low-carbs isocaloric.

If insulin, and not calories, was the key factor in fat loss, then there should have been a clear and decisive advantage to the lower-carb group every single time. There wasn't. The reason for this is that the insulin-prevents-fat-loss theory is rubbish. It is calories, not insulin, that determine whether or not you will lose fat.

Despite the fact that it is nonsense, the Eades still vigorously promote the insulin theory of weight loss – and a whole host of other absurdities.

The Bizarro Fantasy World of Dr. Michael Eades

Those who have grown attached to untenable theories will often go to remarkable lengths to protect them against epistemological threats. They will ignore or rationalize away conflicting evidence, no matter how meticulous, whilst vigorously embracing evidence that appears supportive, even when it is of an extremely flimsy nature. In the worldview of such folks, the ultimate determinant of good or bad research is not the scientific and ethical rigor with which that research was conducted, but simply whether or not it supports their pet beliefs. Study results that support their cherished dogma are warmly welcomed, while those that do not are ignored, rationalized away as inconsequential, or vigorously attacked. Supportive evidence is good evidence, non-supportive evidence is bad evidence, quality be damned.

In my opinion, Dr. Michael Eades is a classic textbook example of this phenomenon in action.

On September 11, 2007 Eades posted on his blog one of the most absurd pieces of dietary commentary I have ever read – and I've read some absolute howlers in my time[24]. Eades began his post by discussing the results of the Minnesota Experiment, a study headed by the famous Ancel Keys[25]. The Minnesota Experiment was undertaken in 1944 and involved 36 conscientious objectors who refused participation in military service during World War II. These young men were given the option of participating in a study examining the effects of semi-starvation, and many clearly had no idea what they were in for.

The study involved an initial 12-week run-in period, where the men were fed maintenance-level caloric intakes. It is important to note that at the beginning stages of the study the men were, on average, already fairly lean individuals. Body fat ranged between 6.5%-26%, with a group average of 13.9%. The subjects who were overweight were given a diet that incorporated a caloric deficit to lean them out, while subjects who were considered underweight were fed a calorie surplus. The average energy intake during this initial phase of the study was 3,492 calories per day. It's also important to remember that the subjects were physically active and spent their days, not watching TV or sitting at office desks, but performing manual labour.

So to recap: the subjects in this study were relatively lean, physically active young men who required an average of almost 3,500 calories per day (the importance of these factors will be discussed in more detail shortly).

After the initial 12-week weight maintenance/adjustment phase, the real 'guts' of the Minnesota Experiment got underway. This was a 24-week phase in which the men's daily caloric intake was unmercifully slashed overnight down to only 1,570 calories. That is a massive drop of almost 2,000 calories per day. Not surprisingly, the men began losing weight at a rapid rate. It should also come as little surprise that the men began losing muscle at an alarmingly fast rate. If you've ever seen photos of the subjects in the Minnesota experiment, you were probably startled at the degree of emaciation these men suffered.

After being subjected to semi-starvation diets, these men did indeed look like starvation victims – and they felt it too. The formerly healthy and psychologically robust young men became weak and lethargic, intensely pre-occupied with food, and disinterested in sex. They experienced mood swings and even depression, and two subjects developed psychiatric disturbances of "*psychotic*" proportions. During the final 12-week re-feeding phase of the study, one of the subjects remained so depressed by the experience he deliberately cut off 3 of his fingers!

Eades discussed much of this on his blog, and included some eye-opening photos of one of the emaciated Minnesota subjects. Nothing wrong with that: it's what Eades proceeded to do next that completely strained the boundaries of credulity.

Eades then discussed the results of a British study published in 1970 by Anne Stock and John Yudkin[26]. Stock and Yudkin had taken 11 subjects and advised them to follow an *ad libitum* (unrestricted calories) low-carbohydrate diet. Unlike the Minnesota subjects, the participants in this study were free-living. The subjects were aged 21 to 51 years and 8 of them were *female*. Five of the subjects were nutrition students; no information was given regarding the occupation of the remainder.

The subjects were asked to eat their normal diet for the first 2 weeks, then to follow a low-carbohydrate diet for the remaining 2 weeks. While the Minnesota men were given 275 grams of carbohydrate daily, Stock and Yudkin's subjects were told to limit daily carbohydrate intake to only 50 grams, but no restriction was placed on their intake of protein and fat. Despite the allowance of *ad libitum* protein, fat and calories, food records indicated that during the 2-week low-carbohydrate phase the participants spontaneously reduced their calorie intake. So while the calorie restricted phase of the Minnesota Experiment extended for 6 months, the corresponding phase of the Stock/Yudkin study lasted only 2 weeks.

During the initial 2-week phase, the researchers estimated from the subjects' self-reported dietary records an average daily caloric intake of 2,330. During the 2-week low-carbohydrate phase, the average daily energy intake was estimated to be 1,560.

Stock and Yudkin noted that “...*none of our subjects complained of hunger or any other ill effects; on the other hand, several volunteered statements to the effect that they had an increased feeling of well-being and decreased lassitude.*” Nothing revolutionary there; these observations are in line with other studies showing that low-carbohydrate diets can enhance satiety and improve feelings of wellbeing.

But it is at this point that Eades made a comparison, and a conclusion, that boggles the mind of any remotely intelligent observer. Eades noted that the participants of the Stock and Yudkin study did not develop the extreme hunger and obsession with food that the Minnesota subjects did, and that there was no evidence of any psychiatric disturbances or emaciation in the former. He noted that the average daily caloric intake among the Minnesota subjects was 1,570 and that the corresponding intake among Stock and Yudkin’s subjects was 1,560. This, he concluded, was evidence that low-carbohydrate diets produce far superior psychological and body composition outcomes than isocaloric high-carb diets. The inference was clear: follow a 1,570 calorie low-carb diet and you will feel better than ever, but follow a 1,560 calorie low-fat diet and you risk shrivelling away into a skeleton-like psychopath who chops off his own fingers.

Eades concluded with the cocksure statement: “*It’s not simply a matter of calories, and anyone who says it is is a fool.*”

I hope that most of you, after reading Chapter 1 of *The Fat Loss Bible*, are sufficiently equipped to understand just why Eades should look inwards when he wishes to issue accusations of foolishness. In case not, let me explain it to you.

Ignorance is Bliss

If you want to compare the effects of isocaloric diets of differing macronutrient composition, good science dictates that you do it within the *same study* by randomly assigning a group of *similar* subjects to follow the 2 diets – or by assigning each subject to follow both diets in alternating fashion. You do *not* compare the results from 2 cherry-

picked studies conducted decades apart on 2 different continents using dissimilar subjects living under totally different conditions, and conducted for vastly different lengths of time!

The subjects in the Minnesota Experiment were relatively lean young men who were physically active. Their average daily maintenance caloric intake was 3,492 calories, and this was cut by a whopping 1,932 calories overnight. The research clearly shows that lean individuals lose far more lean mass in response to caloric restriction than do overweight subjects (see Chapter 8 of *The Fat Loss Bible*). And 1,932 calories is an *extreme* cut in energy intake! No trainer with even a modicum of experience (and intelligence) would ever advise his lean, highly active clients to engage in such gonzo calorie reduction for months on end; doing so is a sure-fire route to rampant muscle loss.

In contrast, the participants of the Stock/Yudkin study were mostly female. Because of her significantly lower degree of lean mass, the average female exhibits a far lower calorie requirement than the average male. Females, on average, exhibit higher body fat levels than males. We know that 5 of the subjects in this study were studying nutrition, an endeavor that requires little physical activity. The age range in the Stock/Yudkin study extended to 51 years; it is widely known that due to loss of lean mass and reduced activity, older subjects often exhibit a lower daily calorie burn. The average reported daily caloric reduction in the Stock/Yudkin study was 770, only 40% of the average drop in the Minnesota experiment!

In short, by comparing the Keys and Stock/Yudkin studies, Eades was truly comparing apples with oranges.

Eades blissfully ignored the fact that numerous dietary studies have in fact directly compared the weight loss effects of low- and high-carbohydrate diets among similar subjects. *None* of them had ever reported results anything like those seen in the Minnesota experiment, in neither the low- or high-carb groups. As for the potential of muscle loss on low- versus high-carb diets, Chapter 9 of *The Fat Loss Bible* explains why it is ketogenic diets that actually appear to cause the greatest loss of lean tissue. In studies comparing ketogenic versus non-ketogenic diets, using both very low calorie

intakes and eucaloric (maintenance) intakes, it is the ketogenic diet that has delivered the most unfavorable changes in markers of lean mass loss.

In a May blog article, Eades claimed that if you are following a low-carb diet, *"The protein you eat is converted to glucose instead of the protein in your muscles. If you keep the carbs low enough so that the liver still has to make some sugar, then you will be in fat-burning mode while maintaining your muscle mass, the best of all worlds."*[27]

Note the double standard here, one that is routinely employed by MAD proponents: Eat a low-carb diet and your body will begin burning more dietary fat and *body fat*. But even if it increases the need for gluconeogenesis (increased production of glucose from non-carb sources such as protein), that same low-carb diet will not increase the breakdown of bodily protein, no sirree.

This claim stands in stark contrast to the available evidence. While Eades' claims about carbs and insulin are contradicted by clinical evidence, there does exist research showing unfavourable changes in markers of lean mass status during ketogenic eating.

Eades' ludicrous Keys versus Stock/Yudkin comparison had already established itself as being among the most amateurish nonsense I'd ever read. But as it turns out, the famous diet author was only getting started.

Leave Your Brains at the Door, Thanks!

Perhaps the one thing even more pitiful than Eades' utterly absurd dietary comparison was the response of his blog readers. In the comments' section, reader after reader congratulated and praised Eades for his *"great"* article. Eades had just fed them a load of outrageously biased hogwash, and not only had they fallen for it hook, line and sinker, but they were profusely thanking him for it!

As I scrolled through this online orgy of stupidity, I saw something that abruptly interrupted my alternating pattern of head shaking and eye-rolling: my name. Yours truly was mentioned by one of Eades' readers, who asked the great one-sided one what he thought of my

contention that the metabolic advantage theory was rubbish. Eades replied:

“I’m very familiar with Anthony Colpo and his work. I think he’s a very smart guy and I think he’s right on the money on a lot of issues, but I think he’s wrong on this one. If you give one group of people a 2000 kcal diet and another a 1500 kcal diet of the same composition, the ones on the 1500 kcal diet will unquestionably lose more weight. If you start changing the diet composition, though, your outcome may change.”

So there it was: a famous diet book author who has profited handsomely from books peddling the metabolic advantage myth, who had just presented an extremely biased comparison, now telling the world that people who emphasized the primacy of calories were fools, and that it was I who had it wrong on the calories issue.

To say that I have a poor opinion of diet authors who make a fortune peddling fallacious garbage would be a massive understatement. And to say I have a low opinion of diet authors who peddle such garbage but then turn around and label those who actually know what they are talking about as “*wrong*” and a “*fool*” would be an even greater understatement.

One of the problems with people like Atkins and Eades is that, even though their weight loss ramblings would attract hearty laughter from any serious researcher, a lot of gullible people take them seriously, as evidenced by the comments on Eades’ blog. People who believe the metabolic advantage myth are being distracted from the real requirements of weight loss. Instead of being enlightened as to the critical importance of establishing a calorie deficit, these people are being encouraged to disregard calories and to instead focus on carbohydrates. Some people follow such advice and still inadvertently lose some weight due to the satiating effects of low-carb diets. Whether they realize it or not, during their switch to a low-carb diet these folks lower their caloric intake sufficiently to begin losing weight.

However, many do *not* experience this spontaneous reduction in caloric intake. They keep eating just as many calories as before, and

why wouldn't they? According to the diet 'gurus' that they look to for advice, it's carbs and not calories that really matter.

These folks, if they are ever to achieve their weight loss goals, must be made aware of the overriding requirement of weight loss: *a calorie deficit*. The metabolic advantage crowd have clearly demonstrated they have no intention of enlightening people to this critical information. They have instead signalled their full intention to keep peddling the "*carbs-not-calories-make you-fat!*" tripe.

So after being the target of constant virulent antagonism from the metabolic advantage movement, and after suffering through Eades' bizarre exercise in pseudo-science and reading his description of people like me as foolish and wrong, on September 17 I typed the *Protein Power* author a scathing open letter. In it, I asked Eades to explain why he had conducted such a blatantly one-sided and misleading comparison. I asked him why he continued to peddle the metabolic advantage myth when four decades' worth of tightly controlled metabolic ward studies had completely disproved it.

I also sent Eades details on how to access a free copy of *The Fat Loss Bible*, and explained that Chapter 1 alone would provide him with all the evidence he would ever need to learn just why the metabolic advantage theory is completely wrong. As of Thursday, November 2, 2007, Eades has still not registered and downloaded the ebook. It can't be because he holds my writing and scientific abilities in poor regard; he himself has described me as "...a very smart guy [who is] *right on the money on a lot of issues.*" And Eades has publicly acknowledged that he liked my first book, *The Great Cholesterol Con*. So a disdain for my writing and analytical abilities cannot be the reason for his unwillingness to read my book, nor can a lack of resources; having sold millions of books, I'm sure Eades has the ability to get the book viewed or printed on a Windows-based computer.

I strongly suspect the real reason why Eades won't read my book is simply because he is afraid of what he might learn. As Upton Sinclair once remarked: "*It is difficult to get a man to understand something when his salary depends on his not understanding it.*" As a highly visible individual who has publicly promoted the belief that isocaloric

low-carb diets lead to greater weight loss, and profited handsomely from doing so, Eades has a huge incentive *not* to consider discomfoting contradictory evidence. While this “*see no evil, speak no evil, hear no evil*” approach appears to be instinctively embraced by Eades and his followers, it should be abhorred by those whose highest priority is, not the defense of cherished dogma, but the truth.

It’s interesting that, whilst happy to use the Yudkin paper in a manner that supported his own claims, Eades does not cite a rather pertinent comment by Yudkin himself in an earlier paper describing a study similar to that reported in his 1970 paper:

“The alternative explanation is that the “high-fat” diet leads to weight-loss because, in spite of its unrestricted allowance of fat and protein, it is in fact a low-calorie diet. This was the explanation that one of us had already put forward (Yudkin 1958). Such a view is simple and orthodox, and therefore unspectacular. This is probably one of the reasons why many have preferred to accept the more exciting theories based on some postulated but unproven defect in metabolism.”[28]

Yudkin’s words ring as true today as they did back in 1960. MAD still lacks anything even resembling tightly controlled scientific support, but evidently it still has enough ‘novelty factor’ and gimmicky appeal to capture the attention of ‘researchers’ and public alike. There’s always good money to be made in telling people what they want to hear, and an author peddling a manuscript with the tantalizing “*eat more, weigh less*” message will always receive far more attention from a major publishing house than an author who tells the plain boring truth that calories are king. Thus, the metabolic advantage theory continues to be perpetuated long after it should have died the quick death it deserves.

Wait, There’s More!

Eades flatly refused to answer my open letter. Instead, he called me a “*pipsqueak*” on his blog and vigorously attempted to portray me as a rude, ill-mannered upstart (despite the fact that Eades himself is ready to unmercifully rip on others at a moment’s notice when they make a statement he finds disagreeable). Hey, I’ve never claimed to

be a paragon of diplomacy and social nicety; I write to make the plain facts available to those who are interested, not to win new friends. Whether or not my writing style offends the tender sensibilities of people like Eades is utterly irrelevant. The real issue is why Eades felt compelled to post such a blatantly misleading and biased dietary analysis.

Eades' answer to this question was, and remains: no answer.

However, several days later, Eades did post a follow-up article on his blog[29]. While he didn't mention my name, and while he didn't answer the specific questions I raised, it is clear the article was an attempted rebuttal to my open letter. By trying to salvage whatever credibility he still had left, Eades proceeded to dig himself into an even deeper hole.

Eades' began with a rant about "*obnoxious*" and "*lazy*" teenagers, one of highly questionable relevance. Somehow, this was supposed to demonstrate a reversal of the " $\Delta \text{Weight} = \text{Calories in} - \text{Calories out}$ " equation. Which of course, it didn't. The indisputable truth is that many teenagers do get fat, and when they cut calories and/or increase their activity levels, they promptly begin shedding that fat[30-32]. If they return to their old dietary habits and slack off on the exercise, they start regaining the weight they lost – just like adults do[33]. Except for suggesting that Eades has a problem relating to teenagers, his diatribe about adolescents revealed nothing of value.

Next, Eades quoted the philosopher Karl Popper, and whined that the absence of positive proof of a hypothesis does not automatically mean the hypothesis is wrong. Sure, but that's still no excuse to take a fallacious theory and assume it's true, when all the available evidence indicates otherwise. And attempting to salvage a fallacious theory with more sloppy evidence is exactly what Eades proceeded to do.

In a thinly disguised snipe at yours truly, Eades wrote:

"Some misguided 'experts' have been known to say that there is no such thing as a metabolic advantage, despite it's having been demonstrated in many studies of free living people."

Note what Eades is saying here: that the metabolic advantage has been demonstrated – i.e. proven – in free-living studies! In making this claim, he completely ignores the inescapable fact that there are literally no controls on the dietary intake of people participating in free-living studies. He completely ignores the massive volume of literature showing dietary underreporting to be the norm in free-living studies. He does not consider the fact that the worst underreporters include those who attempt to limit fat and total caloric intake, which means low-fat dieters are more likely to underreport than low-carb dieters. Which means that free-living studies will often give the false impression that low-carb dieters lost more weight eating the same or greater amount of calories than the high-carb subjects.

He refuses to read his complimentary copy of *The Fat Loss Bible* in which this is all carefully explained and fully referenced. He refuses to explain why, if free-living studies constitute acceptable proof despite their numerous documented flaws, there are just as many non-supportive as supportive free-living studies? That's right – there are just as many free-living studies in which low-carb diets did *not* induce greater weight loss as there are studies in which they did (see Chapter 1 of *The Fat Loss Bible*). Of course, the MAD folks never seem to mention these studies – heck, what you don't know won't hurt you, right?

Eades consistently deals with all these uncomfortable contradictions using the following simple method: by pretending they don't exist. And he then has the arrogance and gall to suggest that those who do take these factors into account, and arrive at the only sensible conclusion possible – that these free-living studies are *not* proof of anything - are “*misguided*”!

Just how desperate Eades was becoming in his quest to save face became apparent when he tried to discredit metabolic ward studies: “...*metabolic ward studies on humans are fraught with inaccuracies. Why? Because people cheat - even in a hospital. The subjects on Keys starvation experiment were under lock and key and they cheated. Keys dropped some from the study because they cheated. And he threatened others. People on ‘metabolic ward’ are simply inpatients in a hospital. They have visitors. They sneak foods.*

Subjects participating in free-living studies under report their food consumption; those in metabolic ward studies don't report. As I say, we'll go into this in a later post, but just because something is a metabolic ward study doesn't mean it's infallible."

Read the full text of each of the metabolic ward studies cited in Chapter 1 of *The Fat Loss Bible*, and you'll see that none of them report any incident of cheating. However, there is one metabolic ward study whose authors *did* report cheating among the participants, the famous Kekwick and Pawan study (discussed in Chapter 1). This study claimed to have found greater weight loss on low-carb diets, but given the madcap nature of the trial, the results simply cannot be taken seriously. Yet the Kekwick and Pawan study is cited *ad nauseum* by metabolic advantage proponents, including Richard Feinman, with whom Eades has signalled his intention to co-author a textbook on the metabolic advantage theory!

So what Eades is basically saying is: Don't trust the results of tightly controlled metabolic ward studies for which there is little evidence of cheating, but go ahead and believe the results of a metabolic ward study in which the authors explicitly acknowledge that cheating did occur! (And despite his disdain for metabolic ward studies, Eades also appears to have little to say about Feinman's questionable citation of three metabolic ward studies yielding non-significant results in support of MAD).

After Eades made his claim that metabolic ward studies are "*fraught*" with inaccuracies, I began writing to the authors of the more recent metabolic ward studies, where email addresses were available. The only author to report back any incident of cheating was Dr. Roland Stimson, who told me: "*We knew of only one person who cheated with one meal, but they promptly felt guilty and told us. During the low carb diet, urine collections were performed very frequently and checked for ketones (the volunteers wished to eat carbs while on this diet so would have cheated with these foods), and these always showed ketones which is a good indicator of compliance. Of course, this would not allow us to detect cheating on the other diet. Weight loss was measured daily and tracked to predictive charts based on the amount they ate with us so any substantial cheating*

would have showed deviation from our charts which did not occur. Thus, I feel very confident they did not cheat on these diets."

It's important to note that during the Stimson et al study, the subjects ate all meals in the ward and stayed there overnight, but went to work during the day equipped with snacks provided by the researchers. So, in effect, this was a 'semi-metabolic ward' study. Even then, there is absolutely no evidence to suggest that it was "*fraught with inaccuracies*". Indeed, all the evidence indicates that cheating was a rare occurrence during the study.

My online dictionary gives the following definition for the word 'fraught': "*full of or accompanied by something specified*". In other words, Eades is claiming that metabolic ward studies are *full of inaccuracies*. He has given no evidence whatsoever to show that this in fact the case. Instead, he embraces the results of free-living studies that an abundance of research shows are indeed *fraught* with inaccurate reporting!

For Eades' edification, it is *free-living* studies where the participants are routinely exposed to the temptation of non-allowed foods. It is *free-living* studies where researchers are basically powerless to stop the subjects eating the sweet treats lurking in their pantries, dialling for home-delivered pizza or Chinese food, to go to a business lunch or dinner on Saturday night and eat non-prescribed foods of unknown caloric value, or to go to Sunday family lunch at Mom's place where they will be heartily urged to have another serving of food ("*c'mon, a little bit more won't kill ya!*"). Metabolic ward residents simply do not have the freedom to do these things. While not infallible, the metabolic ward environment removes most instances of temptation that are commonplace in every day life, and drastically curtails access to non-allowed foods.

Yet Eades would have us believe that rare instances of non-compliance in metabolic ward studies are proof that these trials are "*fraught with inaccuracies*", and that free-living studies are more reliable endeavours that "*demonstrate*" the existence of a metabolic advantage.

Yeah, sure.

That cheating occurred in the Minnesota study is no surprise: if someone locked Eades up for a year simply for standing up for his beliefs, and starved him to the point of emaciation for 6 of those months, I bet he'd start looking for ways to sneak some extra calories too! As for the participants in the Kekwik and Pawan study, the researchers themselves wrote: "*many of the patients had inadequate personalities*". Either the researchers were being unnecessarily harsh, or many of their study participants leaned towards the screwball end of the personality spectrum.

I'm not stating that cheating has *never* occurred amongst any of the other metabolic ward studies cited in Chapter 1 of *The Fat Loss Bible*. To make such a claim, I would need to be omnipotent. However, there is absolutely *no* evidence to support Eades' totally unfounded claim that these studies were "*fraught with inaccuracies*". The evidence would indicate that any instances of cheating were rare and isolated. I cannot help but wonder as to the cognitive status of someone attempting to claim that uncontrolled free-living studies constitute more reliable proof than the tightly controlled metabolic ward studies discussed in *The Fat loss Bible*.

In free-living studies, there is simply no control over what the participants do when they are away from a research facility. Metabolic ward studies with humans are unquestionably the ultimate form of trial when examining this issue. They are the only way one can ensure the subjects actually ate isocaloric diets. If Eades has actual evidence, as opposed to unfounded speculation, that the subjects in the trials I cite did in fact routinely cheat, then he should be calling for further metabolic ward studies in which the possibility of cheating is *totally eliminated*.

But Eades does not even begin to do that. Instead, he resorts to what may be the most irrelevant evidence of all: rodent studies.

I Smell a Rat!

Maybe deep down inside, Eades does know that free-living studies don't prove a thing. Which may be why he finally resorts to citing rodent studies. If you have a hard-time finding tightly-controlled

human evidence to support your dodgy theory, don't despair; look long enough, and you'll eventually find animal studies to support your case.

Eades justifies his use of rodent experiments by stating: *"Lab animals can be kept with whatever amount of food the researchers want to give them. They don't have visitors, they can't sneak off to the vending machines and they can't smuggle in food. Most importantly they are usually all genetically the same and should respond to any intervention in the same way, which can't be said for human subjects (other than identical twins) in almost any study. Lab animals are excellent study material for evaluation of a hypothesis such as the one we developed."*

Eades then goes on to cite a study in which mice eating a ketogenic diet lost more weight than those eating an isocaloric high-carbohydrate diet. Eades points notes *"the laws of thermodynamics weren't violated because the mice on the ketogenic diet ran at a hotter temperature than did the other mice."*

Eades sounds like he's wetting himself with delight when he triumphantly proclaims: *"It sounds like a metabolic advantage to me. It sure does. It sure does...Karl Popper would be proud of us."*

Actually, I suspect that if Karl Popper were alive he'd be shaking his head in pity.

Why You Shouldn't Give a Rat's Rectum About Fat Loss Studies Conducted With Rats and Mice

If you take away only one thing from this chapter, let it be this: rodents are *not* a good proxy for humans when it comes to studying weight/fat loss. Rodents stand out from other animals in having an unusually high rate of glucose-to-fat conversion, and are able to perform this conversion at a rate up to *ten times* greater than humans![34,35] So it's hardly surprising they will lose more fat on a ketogenic diet! The fact that rodents differ greatly from humans in their glucose/fat metabolism isn't exactly breaking news. It has been known for decades, but that doesn't stop folks like Eades from using rodent studies when they think it will support their case.

As for the marked increases in body temperature seen on the mice following the ketogenic diet, this indicates that keto diets do indeed have a significant metabolism-boosting effect - in *mice*. Low-carb diets, ketogenic or otherwise, have *never* been shown to cause any measurable increase in resting metabolism in *humans*. Remember the research of Bonnie J. Brehm and her team cited in Chapter 1 of *The Fat Loss Bible*? They actually bothered to find out whether the alleged low-carb-induced increase in metabolism existed, and found it did *not*. Using indirect calorimetry, they measured the actual resting energy expenditure (REE) of the low- and high-carb participants at baseline and again at 2 and 4 months. There were no differences between the low-carb and low-fat groups at any time point. Post-meal energy expenditure was then measured in a subset of subjects by indirect calorimetry, and again there was no difference (dietary-induced thermogenesis was actually higher after the high-carbohydrate meal but the difference was miniscule)[36].

Ketogenic diets might kick a rodent's metabolism into turbo boost, but if you think it will do the same for you, you're dreaming. Eades needs to decide who is really writing for: rats, mice, or humans?

Keep Trying, Doc

In an attempt to defend his cherished metabolic advantage, Eades has pulled all manner of shaky arguments from his hat. In every instance, these arguments rapidly disintegrate when subjected to the bright light of scientific scrutiny. Eades appears to have great difficulty impartially considering evidence that runs counter to his preconceived beliefs and he has a history of getting it wrong. In *Protein Power*, the Eades claim "*Each pound of muscle mass you pack on becomes a fat-burning dynamo, allowing you to increase your food intake without fear of fat gain.*" Chapter 6 of *The Fat Loss Bible* explains why such exuberant claims are very often misleading. It explains why, regardless of whether they put on several pounds of muscle or not, many people who lose significant amounts of weight will have a *reduced* calorie burn due to a reduction in resting metabolism and from not having to cart around so much excess chub.

On March 30, 2007, Eades took aim on his blog at a couple of female exercise physiologists who presented what they considered to be the “*Top 10 Nutrition Myths*” at an American College of Sports Medicine Summit in Dallas, Texas[37]. Eades - the same man who so deeply resents me for unmercifully calling him out on his untenable claims – had no qualms about referring to these 2 “*chicks*” as “*idiots*” who displayed “*breathhtaking stupidity*” (evidently, it’s OK for Eades to be hostile towards female commentators, but anyone who addresses him in a similar manner is automatically considered a villain).

One of the heinous sins committed by these physiologists was to recommend post-workout carbohydrate consumption. According to Eades, this is a big no-no because “*If you down a high-carb snack or drink immediately after your workout, it is adios growth hormone.*” If you’ve read Chapter 13 of *The Fat Loss Bible*, you’ll know this is rubbish. The studies that have been conducted looking at this very issue have shown that taking carbs along with protein immediately post-workout either *increases* growth hormone release or leaves it unchanged. Clearly, Eades is unaware of these studies. Any hard-training athlete following his advice, based as it is on a deficient knowledge of the relevant literature, can expect impaired glycogen replenishment and reduced rates of muscle growth and strength.

Thanks, but no thanks...

Chapter 3

Gary Taubes



Good Science, Bad Science, and Utter Nonsense

As I write this in November 2007, the current darling of talk shows and newspaper “health” sections is Gary Taubes, who recently released a best-selling book titled *Good Calories, Bad Calories*. The vast attention given to Taubes and his book further highlights the extremely low standard of dietary advice accepted by the media and general public.

Gary Taubes is a science journalist who specializes in articles that supposedly expose shoddy scientific practices. Taubes is probably best known for his controversial article *What if it's all been a big FAT lie?* which appeared in the *New York Times Magazine* in July 2002[38]. Soon after the article was published, Taubes scored a book deal that reportedly included a \$700,000 advance. The end result, released in September 2007, was *Good Calories, Bad Calories*.

Like Eades (who, not surprisingly, enthusiastically endorses *Good Calories, Bad Calories*), Taubes jumps on the insulin bandwagon and claims that this hormone, via a high-carbohydrate diet, is the true cause of weight gain. Forget calories; according to Taubes, the true cause of the obesity epidemic is carbohydrates.

Here we go again....

For the record, USDA food intake data shows that the average per capita intake of carbohydrates in 1909 was 501 grams; in 2000, it was 493 grams[39]. To the best of my knowledge, there was no obesity 'epidemic' in 1909. Carbohydrate consumption cannot explain the increase in overweight that has occurred over the last century.

Let's take a look at what does explain this increase.

In 1909, the average daily caloric intake was 3,500. In, 2000, it was 3,900[39].

In 1910, over half the U.S. population lived in rural areas and farmers comprised 31% - almost a third - of the workforce[40].

In 2000, 33.6% of the workforce (16 and older) worked in management, professional and related occupations, followed by 26.7% in sales and office occupations, 14.9 % in service occupations, 14.6% in production, transportation and material moving occupations, 9.4% in construction, extraction and maintenance occupations, and only 0.7% in farming, fishing and forestry occupations[41].

In other words, the average worker in 1909 was physically active; the average worker today spends most of his/her day seated or engaged in very light activity, with occasional breaks to shuffle his/her fat sedentary butt over to the food vending machine. Industry (and domestic life) has become increasingly mechanized, automated, and sedentarized over the last century. Even children and adolescents, who once spent most of their leisure time outdoors, are now spending increasing amounts of time sitting indoors mesmerized by televisions, computers, and Playstations.

The average person is eating more calories, and expending less of them through physical activity – a classic textbook scenario for facilitating weight gain. But according to Taubes, this has nothing to do with ever-growing obesity rates. In an interview with journalist Howard Cohen titled *"Author says cutting out carbs is all one need do to lose weight"*, Taubes claimed that *"...overeating and sedentary behavior are not the causes of obesity."*[42]

It's the insulin you see...

It Gets Worse

Along with attempting to revive the disproved insulin myth, Taubes drops a new bombshell. According to Taubes, all of us who regularly exercise in an effort to stay lean are wasting our time. Yep, you heard right! According to Taubes, *"exercise does not lead to weight loss"*[42]

In the Cohen interview, and in a September 2007 *New York Magazine* article[43], Taubes is adamant about the alleged inability of exercise to induce weight loss. According to the author, exercise merely increases one's appetite, which negates any possibility of fat loss.

What if Taubes is suffering a big FAT delusion?

I suspect Taubes has become so addicted to the role of 'myth buster', so enamored with the role of debunker, so addicted to chasing the high that comes from being a famous dissenter, that he has blinded himself to scientific reality.

To flatly state that exercise does not lead to weight loss is downright absurd. If Taubes had instead said *"exercise will not lead to weight loss if you fail to establish a calorie deficit"*, then he would have been absolutely correct. The reason studies examining the effect of exercise on weight loss have returned mixed results is because many of these studies made absolutely no attempt to ensure a calorie deficit. If you give someone a routine that causes them to burn an extra 1,000 calories per week, but they are still eating 2,000 calories above their maintenance level, then they are not going to lose weight. This is hardly rocket science.

Studies repeatedly show that when exercise is employed in a manner that creates or exacerbates a calorie deficit, it does indeed cause/accelerate weight loss. Of course, Taubes appears to be stuck in some kind of Atkins/Eadesian Dark Age, where people believe that carbohydrates are the real cause of obesity regardless of calorie intake/expenditure.

When exercise is tested under tightly controlled metabolic ward conditions where a calorie deficit can be verified, the results clearly show it enhances weight loss. Take for example, a study by USDA researchers involving overweight women utilizing diet plus exercise or diet only. At the beginning of the study, the women were subjected to a 2-week weight stabilization period where they were fed just enough calories to maintain their weight. The researchers then divided the women into 2 groups. One group kept eating their 'maintenance' diet for 12 weeks and performed treadmill exercise 6-days a week. The second group performed the same exercise routine, but also had their calorie intake slashed in half for the duration of the 12-week period.

At the conclusion of the study, the group that added exercise to their maintenance-calorie diet lost an average 0.5 kilograms per week. The women who utilized exercise and calorie-restriction lost an average 1.1 kilograms per week[44].

This study and several others discussed in Chapter 13 of *The Fat Loss Bible* highlight the sheer fallacy of Taubes' claims. His assertion that exercise does not cause weight loss is patently *false*.

Working Up An Appetite For Nonsense

On *Larry King Live*, Taubes told America: *"If you asked somebody 50 years ago what the result was of going for a long hike or a run or playing 18 holes of golf or a couple of sets of tennis, they would have said you work up an appetite."*[45]

Instead of appealing to the ghosts of yesteryear for insight into the effect of exercise on appetite, Taubes would have been better served examining a broad review of the evidence by C. Alan Titchenal, from the University of California, Davis. Titchenal found that:

"Energy intake in humans is generally increased or unchanged in response to exercise. When energy intake increases in response to exercise it is usually below energy expenditure, resulting in negative energy balance and loss of bodyweight and fat. Thus, if energy intake is expressed relative to energy expenditure, appetite is usually reduced by exercise."

Highly trained athletes and lean individuals usually increase energy intake in response to increased levels of exercise, whereas untrained or obese individuals often do not change energy intake in response to increased physical activity....

When regular participation in exercise is stopped, energy intake may be reduced in humans. This reduction, however, is not enough to prevent positive energy balance and regain of bodyweight and fat previously lost during exercise training”.[46]

So even if people do increase their caloric intake in response to exercise, it will often be to a level that is below their overall caloric expenditure.

Of course there are exceptions. Many of us can think of at least one person we've met who was physically active, yet still carried excess chub around their waist. The reason for this is no big mystery. Despite their active lifestyle, these people were still taking in more calories than they were burning off.

What this means is that - instead of pronouncing exercise useless for losing weight - you must factor the calorie burn from exercise into your overall daily calorie burn. That is, you need to make sure that your exercise regimen is causing or contributing to a calorie deficit of sufficient magnitude to induce weight loss. Section 2 of *The Fat Loss Bible* explains exactly how to do this. It's an approach that employs *common sense* - a quality that is regrettably rare among high-profile diet 'experts'.

One of the other guests that appeared alongside Taubes on *Larry King Live* was Jillian Michaels, the famous trainer from *The Biggest Loser*. After listening to Taubes' bizarre theories on exercise and appetite, Michaels said “*Gary, if you can show me -- Gary, if you can show me one person you have taken 100 pounds off, then maybe we can apply your theory.*”

Taubes was unable to cite one single such case, which was hardly surprising. Taubes' beliefs can only be held by someone who has absolutely no meaningful hands-on experience in training people. Unlike Michaels - who has demonstrated the effectiveness of diet and

exercise for the world to see - I suspect Taubes has never trained a single person in his life.

And that's one of the major problems with the MAD promoters. They seem to have little-to-no practical experience in physically training people and a sadly deficient knowledge of the relevant science. Instead, they are pre-occupied with novel but scientifically untenable theories about diet, training and weight loss. As a result, we have best-selling authors who, with straight faces, tell the world that carbohydrates and not calories cause weight gain and that exercise is useless for fat loss, who give weight loss advice relevant only to rodents and advise athletes not to take carbs after training, a piece of 'wisdom' almost guaranteed to impair the training progress of any serious exerciser.

What a big FAT load of bollocks.

Conclusion

Currently, the leading promoters of MAD include:

- A research duo (Richard Feinman and Eugene Fine) that largely ignores metabolic ward studies and selectively cites a small portion of studies, most yielding non-significant differences, in support of the metabolic advantage theory. In the process, they ignore the numerous studies returning small but non-significant results in favor of high-carb diets!
- A best-selling diet book author (Michael Eades) who earnestly believes that free-living studies are more reliable than metabolic ward studies, who thinks it's perfectly OK to mix and match results from totally dissimilar studies in order to support his preconceived conclusions, and who gives weight loss advice to humans that is valid only for rodents.
- A journalist-come-diet 'expert' (Gary Taubes) who – contrary to the scientific evidence - claims that carbohydrates, not calories, cause weight gain and that exercise does *not* assist weight loss!

This, ladies and gentleman, is the current abysmally low standard of scientific commentary that characterizes the upper echelons of the metabolic advantage movement. One could almost be forgiven for thinking these 'gurus' were engaged in a frenzied race to the bottom, each competing with the other to see who can invent the most ludicrous justifications for MAD. Alas, these individuals aren't joking; the disturbing reality is that these folks seem to actually believe their own musings.

They Get By With a Little Help From Their Friends

Before closing this discussion, I would be remiss not to give a special mention to the legions of fanatical followers of MAD. These folks play just as important a role as folks like Feinman and Fine, Eades, and Taubes. After all, if they opened their minds a little and demanded a much higher standard of evidence for MAD than they currently do, the

aforementioned ‘experts’ would find themselves with a rapidly shrinking audience. MAD survives because people insist on being gullible enough to believe it.

Even after thoroughly destroying every possible defense of MAD, I still occasionally hear from someone who adamantly insists they can eat more calories on a low-carb diet and lose more weight than when following a lower-calorie high-carbohydrate diet. The scientific literature may not support the existence of a metabolic advantage, but these individuals nevertheless “*know*” that low-carb diets cause greater weight loss at isocaloric and even higher (!) calorie intakes.

When I ask these individuals to send me the data from their local metabolic ward confirming this astounding discovery, they reveal that they never were confined to such a ward. Nope, they themselves worked out their daily caloric intake, usually using the *Fitday* website. It should go without saying, but online nutrient calculators are a great tool for *estimating* your daily calorie intake, but they are in no way to be used as concrete statements of the amount of calories one is eating. The potential for user error is wide. That’s why I stress in *The Fat Loss Bible* that online calorie calculations are *estimates* and may require a little fine-tuning.

There is simply no way I'm going to take the totally unverifiable claims of some (usually anonymous) web devotee of Atkins/Eades/et al and give them credence over tightly controlled metabolic ward data. One of the major reasons we have controlled clinical trials is to verify anecdotal claims. When a bunch of folks adamantly insist they lose more weight on an isocaloric low-carb diet, there is no way for the rest of us to know whether or not they are mistaken, lying, or just plain crazy.

That's why researchers put such claims to the test with tightly controlled clinical studies. By randomizing subjects to different diets, and ensuring as much as physically possible that they eat their assigned isocaloric diets, we can see whether the claim is true. After several decades of such trials, the answer is clear: there is *no* metabolic advantage.

The MAD believers respond to this evidence by simply pushing their

heads deeper into the sand and attempting to fall back on the totally unverifiable claims that controlled research has already destroyed!

As Robert Todd Carroll notes:

"For many people, the will to believe at times overrides the ability to think critically about the evidence for and against a belief.... Since by definition those suffering from true-believer syndrome are irrationally committed to their beliefs, there is no point in arguing with them. Evidence and logical argument mean nothing to them. Such people are incapable of being persuaded by evidence and argument that their notions are in error."[47]

"One possible explanation for true-believer syndrome is that the belief satisfies an emotional need that is stronger than the need for the truth. Why some people have such a strong emotional need to believe in something that rational people recognize as false is perhaps unanswerable, but it is the way some people deal with cognitive dissonance."[48]

This abdication of reason is exactly the kind that allows charismatic 'gurus' to cajole their followers into all manner of bizarre behavior (cyanide-laced Kool Aid anyone?). All around the world, people routinely pee on Ketostix, cut carbs to the point where they feel dizzy and their breath stinks, eat exorbitantly-priced low-carb foods whose labels sport misleading 'net carb' claims, and give themselves 'paralysis analysis' by needlessly fretting over grams of digestible fiber and 'net' carbs (but not calories). Of course, none of this tomfoolery even begins to address the real requirements of safe, successful and lasting weight loss.

Whether hyped by popular diet book authors who make millions convincing people they can evade the laws of nature, 'experienced' researchers who publish extravagant presentations based on selectively-cited research, or ignorant MAD believers who refuse to consider that their cherished dogma may be wrong, the end result is the same: *Calories are king!*

MAD is simply an exercise in wishful thinking. If you want to get lean, you are going to have to move beyond the fantasy-based musings of

ignorant dogmatists and employ the time-proven modalities that science has already demonstrated to cause safe fat loss: namely, *sensible calorie restriction* and *intelligently organized exercise*.

About the Author



Anthony Colpo is an independent researcher, physical conditioning specialist, and author of the groundbreaking books *The Fat Loss Bible* and *The Great Cholesterol Con*. Since 1991, he has been helping people from all walks of life get in the best shape of their lives.

Anthony has earned a reputation as an exacting, no-holds-barred commentator with a talent for explaining research findings in a manner readily understandable to the layperson.

Anthony is also the guy that unscrupulous diet 'gurus' and shoddy scientists love to hate. He has a knack for dissecting untenable diet and health claims and exposing, with unrepentant and unassailable logic, the absurdity of such claims.

For more information on Anthony's acclaimed books, visit the following web sites:

The Fat Loss Bible

<http://www.thefatlossbible.net/>

The Great Cholesterol Con

<http://www.thegreatcholesterolcon.com/>

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Eades and his followers (yawn...), can be found at: Eades M. Is a calorie always a calorie? *ProteinPower.com* blog, Sep 11, 2007. <http://www.proteinpower.com/drmike/2007/09/11/is-a-calorie-always-a-calorie/> (accessed Oct 31, 2007). Take careful note that while there is plenty of speculation about my mental and emotional states (both are perfectly robust, but thanks for asking), no-one even begins to answer the actual questions I have asked of Eades, least of all Eades himself (the one reader who attempts to get Eades to address my criticisms meets with little success).

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reportedly written the article after interviewing scores of researchers and civil servants, poring through piles of government reports and congressional transcripts, and studying the scientific literature. The result was a damning exposé on the behind-the-scenes political maneuvering that was instrumental in winning widespread acceptance for the untenable cholesterol theory of heart disease. I cited *The Soft Science of Dietary Fat* in my book *The Great Cholesterol Con*. I felt comfortable doing so as the claims made in Taubes' article coincided with other authors' accounts of the same events. Furthermore, to the best of my knowledge no-one interviewed in the *Science* article has ever come forward and complained that they had been misquoted. The same cannot be said of Taubes' subsequent "*big FAT lie*" article; several of the interviewees maintained that Taubes placed their comments out of context:

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