Public Comment and Brief on USDA Nutrition Label.

May 28. 2014

Weight Loss Is Physics
Weight Gain Is Biology

The Cal-Index - *A Physical Food Constant That Should Be On All Nutritional Labels.*

The Cal-Index (CI), the caloric density of a food in calories/gram, is a fundamental and simple physical "Food Constant". The CI makes caloric content calculation simple and helps make in-aisle food decisions simpler. We suggest that the CI should be on all nutritional food labels; Serving Size and total Product Calories are "Food Variables" should also be on label, however they can be "market manipulated" and will continue to confuse and complicate any dieters' ability to understand the label, and potentially make any weight loss program far more complex.

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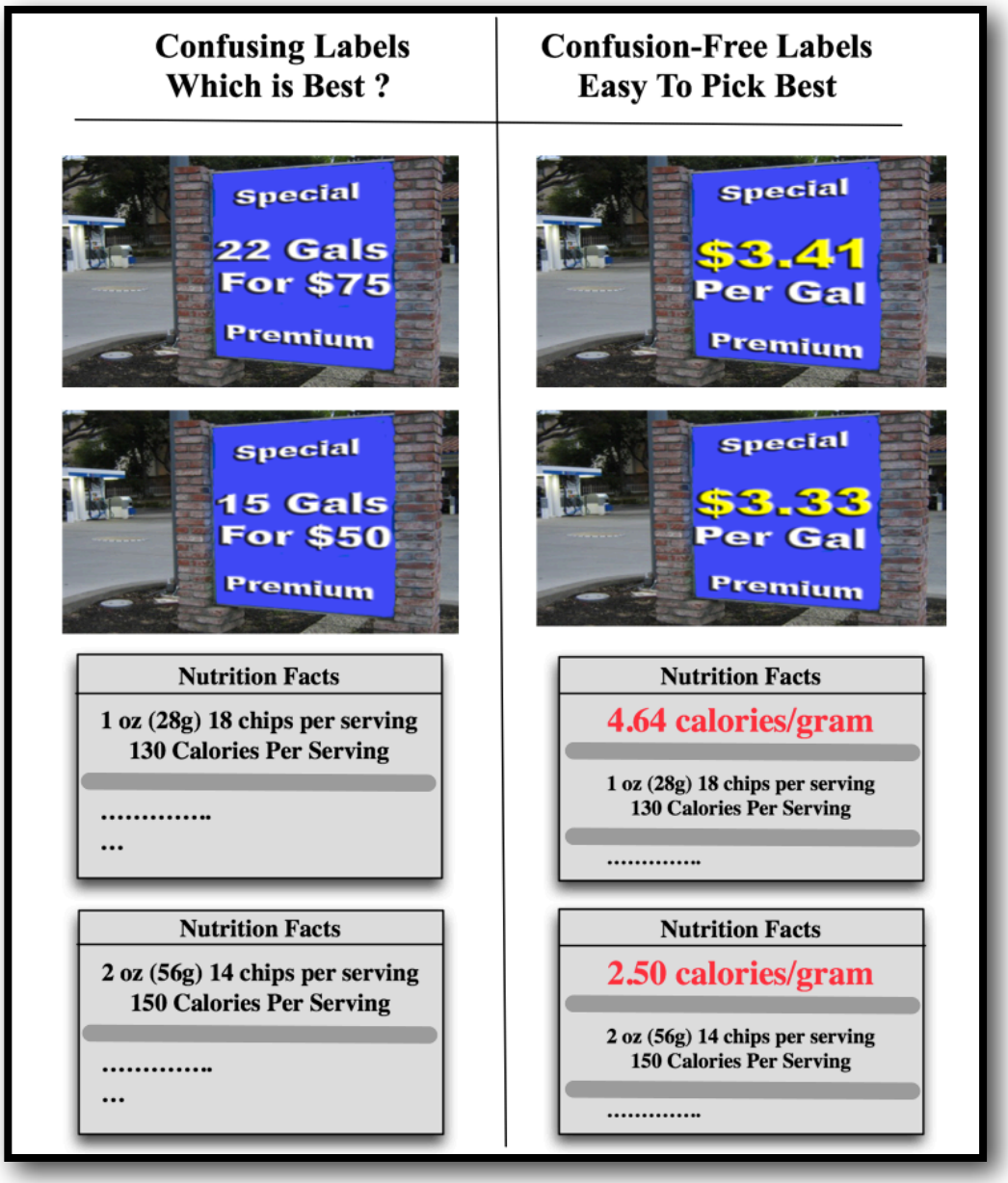
Executive Summary

The Figure below illustrates the confusion that would be created if gasoline were marketed like food. When you buy gas your interested in one thing "price per gallon". If your dieting, and trying to lose weight you should be interested in one thing - eating fewer calories than burned - caloric density of a food is critical physical constant in any food selection decision. Current labels make that caloric density selection task confused and difficult. We propose that caloric density, or energy density in calories per gram, what we call the ***Cal-Index*** (CI) be disclosed on all nutritional fact labels to help make buying and eating decisions simpler, as well as to enable self-administered portion controlled diet plans.



1. Background

I am a retired medical school, full professor (Univ. of Toronto, and Univ. of Pennsylvania, see CV) and a Ph.D in bio-physics. I am now the CEO of a technology company (see Visible Assets, Inc. recent Press Release). This comment is provided to the USDA as a private US citizen.

I lost 80 lb., in 8 months using the "Cal-Index" and Carnot Diet (pronounced “kahr-noh”) - it was not difficult; in fact I was surprised how easy it was to lose weight with this system. I went from 258 lb. in April of 2013, and hit my target weight of 178 lb. and BMI of 24 after 8 months of weight management. I have been quit successful getting others on same weight loss program. The Cal-Index (CI) is simply the caloric density, of an ingredient or food in calories per gram. The Cal-Index makes it easy for dieters, to select ingredients and select the best weight loss foods in the store; it is a physical constant for a food, and makes it easy to portion control, in your head, or accurately portion control at home with digital scales while cooking. The Cal-Index is not a new concept, however it quickly changes your entire perception of food. Others (see B. Rolls, 7, 8, 9) have pioneered similar diet programs as far back as 1998. The Rolls diet known as “Volumetrics” is based on what she calls Energy Density (ED) with reported wide-spread positive results.

When you talk to people who have attempted to lose weight, and gave up or gained it all back (3,6) - it is usually because of they are discouraged by the difficulty estimating caloric content and managing the pain of hunger (4,5,6,7). The literature (ref 1,2,3,4,5,6,7) and certainly my own diet experience makes it clear you only lose weight by reducing caloric intake below caloric output. That requires the ability to accurately estimate caloric intake, and requires accurate Portion Control. Managing hunger pain becomes much easier once you have ability to Portion Control, and see consistent daily weight loss (see below).

I outline below what I think is a simple change to the standard USDA Nutritional Label, that might make weight loss and weight management much easier and perhaps make weight loss a stronger marketing tool for product manufactures. The working assumption seems to be "the American population" needs to be spoon fed the nutritional facts - They just need serving size number, and a per serving calorie number. Assumes no one is capable or will go to trouble or has the ability to weigh or measure food to determine actual serving size to calculate caloric intake. It assumes no one can calculate calories in a self managed portion controlled, meal program. My view: nothing could be further from the truth - technology has made all of us much smarter, and more capable of many things, including self-management of eating and weight.

2. New Technology Has Changed the Weight Loss Equation and Made us Smarter

Of-course realistic serving size and package caloric content on labels represents a step forward. However, that step is not the help the serious dieter needs. The industry will still confuse and futz with these numbers to get magic "100 calories/serving on front". The Cal-Index is a “first-line-of-defense”, much simpler physical constant, metric that makes it easy to compare and select foods based on fundamentals, and to think about foods.

In my personal experience, the "spoon fed" assumptions about Americans' abilities are misguided - I can and have trained many people (even computer phobic older adults) to estimate calories accurately, not just for one or two meals, but for months using modern easy to obtain, low cost technology (high-resolution digital kitchen scales, data logging accurate bathroom scales, Java based on-line programs and spreadsheets; and cloud based activity monitors like FitBit, Fuelband, Pulse, UP, MIO Alpha, Shine). However, it may be all that is required to self-manage weight control, using this available technology, is one simple number - the Cal-Index, or the Energy Density (7,8,9) in calories per gram for a food or ingredient.

My six year old grandson and my 90 year old mother both remember and track foods with the Cal-Index - it has become an entertaining game that entire family enjoys….. The Cal-Index gives an ingredient or dish a new fixed "Identity" - it enables the creation of your personal "Periodic Food Table" based on an unchangeable Physical Constant as a reference, and it makes active weight management fun.

3. The Cal-Index (CI), Physics of Food and the Periodic Food Table.

The Cal-Index (CI) is the number of calories/gram in any food, and has changed the way I and many others think about food - it is how I lost 80 lb - I can assure you it won't be gained back - that is because over time the CI enabled me and others to learn how to estimate worst case caloric content of just about anything by looking at it. After you learn maybe 20-30 CIs for foods you often eat, you start to see consistent rules and trends not obvious with serving size. And when you weigh the same foods 20-30 times you become calorie calibrated - you can guess weights accurately. When you take the time to figure it out for your own foods, and start to look at new foods can start to guess. Most of the "good food" vegetables and fruits in the grocery store perimeter are below 1.0 and the really good stuff is below 0.50. Over time it you develop a personal "Periodic Food Table" what we call your PFT. You can have your PFT on paper and in your head - you quickly become a certified "Food Physicists". The PFT forces you to focus and think about ingredients and synthesize portion controlled meals from those identified ingredients.

The CI is calculated by taking the Atwater Calories/100g number divided by100, to get Cal-Index of the food meal or ingredient. Or it is calculated by dividing the serving size in grams into the calories per serving. It becomes an easy 3 digit food "signature", that is easy to remember and makes it easy to calculate caloric content of anything based on a digital scale set to grams. It makes it easy to guess calories by visually estimating weight. After you weigh 30-50 of anything on kitchen digital scales, that you normally eat and you know the CI, you get really good at visually estimating food weight and total calories. The Mayo Clinic created a portion control program based on visual size of known objects (see Mayo Guide to Portion Control). Carnot has taken that to the next stage based on repeated exposure to actual food weights on scales and exposure to the Cal-Index of the familiar foods the dieter eats. Eventually (weeks) dieter learns to guess near any food weight and the CI - and becomes a "Black Belt Carnot Ninja".

4. Seven Reasons Why The Cal-Index (CI) Should Be on Nutrition Labels ?

As a reference we have converted USDA data base to Cal-Index, you can see how things sort out (see http://www.carnotdiet.com/USDA/index.php). The seven reasons why CI should be on all Nutritional Labels:

1. CI is a universal food "constant" for an ingredient or a food that cannot be easily manipulated easily by manufactures ... It is a single number. easy to remember, easy to cross-check that characterizes a food and the most important it is the food KPI for any weight loss program - it is first-line-of-defense for a dieter and for healthy eating.

2. CI allows direct comparison of caloric content of foods in the store aisle - now you need a calculator, and good memory to calculate to make caloric comparisons in the store. New proposed revised serving size system leads to the same complex in-aisle calculation.

3. CI makes it trivial to estimate caloric content of any food on your own kitchen counter with a digital scale set to grams - anyone can buy a scale for under $20. and most people I know who are losing weight have several kitchen scales. Thats how to manage Portion Control and how to get serving size - It is a custom portion size, not a serving size recommended by USDA or manufacture on label or from a recipe. New technology has made it easy to calculate calories IN and calories OUT see Carnot Model Figure below.

4. CI makes it easier to Portion Control ingredients and meals, and manage hunger..... that is the flaw with "serving size" concept on labels or in recipes - my serving size changes based on many factors, and I have to Portion Control everything if I want to lose weight and now or even maintain my weight .. One serving size does not fit all - better to have a number that characterizes the food can be used to calculate portions and in most cases guess in your head actual calories consumed.

5. CI helps search out new alternative innovative, dieter food solutions for hunger management --

> **Sidebar Pasta Umami Example:** We have several friends losing weight who really missed Pasta. Pasta has a CI of about 3.5, and banned or severely limited by any serious weight loss program. If you are in weight loss mode, the Cal-Index takes priority over everything else. When we realized all Pasta has a CI of 3.5, we discovered Shirataki Noodles with CI of 0.17 (20 times less than real Pasta) once cooked in no stick pan, with bit of garlic tastes like just Pasta.... add tomato sauce (CI 0.51) and have a wonderful meal with total CI of 0.31 -- It is easy to understand the implications of a meal with a CI 3.7 vs a meal with CI of 0.31. That means I can have 300 grams (an entire bag of noodles, plus 100 grams tomato sauce) with only 100 calories, same dish with CI 3.5 Pasta noodles is 750 calories. That means you can be satiated and feel like had a full meal that only takes a few minutes to prepare with a 300g, 100 calorie meal - If you use these same 0.17 CI noodles as an ingredient in Dashi Miso soup with 225g (1/2 pound) of cod, it has a CI of 0.29. An enormous 500g (two cups) bowl for lunch eliminates hunger for part of the day, partially because it is a large portion, because of the low CI, and also has high "Umami"; it has a wonderful rich filling flavor, yet is only 150 calories.

6. CI use, does not mean you ignore other macronutrients or micronutrients, or Na or Fiber - but we always start a "food decision" with Cal-Index - We have spent 100's of hours data mining USDA database and it turns out the Cal-Index is actually good predictor of many things healthy anyway .. see (http://www.carnotdiet.com/page12/index.html).... In addition to our own data, we also have good food science to support this.

7. The Cal-Index is easy to "enforce" and a low cost Nutritional label addition. It costs about $135 and five days for a 200g sample, to have an independent lab do an Atwater Factor calorie only analysis. Before we assign Cal-Indices to any of our own recipes we verify the CI of most of the ingredients from an independent lab. The industry cost to add CI to existing label is small since CI data is already contained on the label. Cost should be same or less than changing portions or adding total calories per product. You can obtain the actual CI for any food or ingredient from Silliker Labs for $135.00 USD.

5. Weight Loss is Physics; Weight Gain is Biology.

Serving sizes and total product calories on the label means nothing when you are in the real world "battlefield of weight loss" - you are a dieter at war with your own hypothalamus and with the food you eat… Serving size and calories/serving have historically been manipulated by marketing departments, and the new proposed label will not change that. We have two problems -

1. **Prevent Weight Gain:** Prevent weight gain with accurate label data and caloric awareness.

2. **Encourage Weight Loss:** Encourage weight loss after we are obese, with label data and portion control.

These are two separate, independent problems. Again the scientific evidence is overwhelming you lose weight only by Physics… by caloric reduction and Portion Control - eat less than you burn (1, 2) you will lose weight. You can sugar coat that fact, but to maintain and manage weight after that loss is only though ability to estimate caloric intake (2,3,4,5,6,7,8,9). Serving size is dramatically different for different size people and different for the same person at different times. Goals for the same person will always be a moving target - Caloric density of a food, the CI is physics and fixed, does not change with different people or with same person; it characterizes a food for all eating modes "1" or "2" - My own serving size was small as I lost 0.4 lbs/day - now since I hit my target weight of 178 lb..… I eat the same foods, and new foods and serving size has increased - I get to eat more. So I want some Ice Cream - go to the freezer section in store and will see serving size is crazy all over the place to help manipulate calories to that magic number of "100 Calories per serving", on front label now add "Low Fat" or "Diet" to front and becomes totally confused.

I may just want lowest caloric Ice Cream for now nothing else - my serving size will be a small scoop weight 50 g - if CI is 1.2 that means 60 calories. I can estimate that in my head in the grocery store freezer section. If I have to calculate CI - I take serving size in ounces convert

to grams, divided that into the serving size calories and now must remember that number of for each item - I need a calculator in the store -

My bet; if the USDA made the CI a requirement on the back nutritional label even in a tiny small font - It would quickly migrate to the front as a large font, product competitive, marketing tool on the shelf. And that CI competition might help address obesity in US. Most obese people I have met desperately do want to lose weight, but do not know how. They end up confused and discouraged when they try. I am convinced that most fail because of the inability to calculate calories and inability to Portion Control. We have accurate low cost scales, iPads and software to do what is required -- we are just missing CI on each food.

6. A CI Ice Cream Example

When dieting, and losing weight only one thing matters the caloric density of the food. The lower that number within a category the more you get to eat and the fewer calories you consume, and your not hungry. You start first few weeks of a diet near desperate to maximize food grams in. You check other things, but that is start of any food decision. Ice Cream is a high risk food, easy to make a mistake and unwind days of hard weight loss work.

The Ice Cream section in the store is by far the most confusing and risky for any dieter, and the most complex place to make in-aisle caloric decisions. It took me 15 minutes to pick the three items you see above. All I wanted was the Ice Cream that would allow me to place maybe

two table spoons (about 30 g) dab on top of poached apples for a nice tasty caloric contained, portion controlled desert. Can see if we had the Cal-Index that choice is easier. And it is easy to check accuracy of the Index. I think the Arctic Zero is higher than 0.51, closer to 1.0, but that is separate topic. However, we will independently test, before we include as a Carnot Checked Food.

Cal-Index	Serving grams	Serving Calories	My Serving	My Serving grams	My Serving Calories
0.51	70 g	36 cals		194 g	100 cals

Cal-Index	Serving grams	Serving Calories	My Serving	My Serving grams	My Serving Calories
2.45	102 g	250 cals		42 g	100 cals

Cal-Index	Serving grams	Serving Calories	My Serving	My Serving grams	My Serving Calories
2.29	96 g	220 cals		44 g	100 cals

We have learned that Portion Control is critical to manage weight down (4,5,7). That means the eater/dieter must control portions based on caloric input, not a prescribed standard serving size from label or recipe. In many cases, this is done by a coach, or pre-packaged meals, or meal replacements (MR's) but our Carnot approach is to teach the dieter how to portion control on own so weight management is a life long and self-sustainable, skill (2,6) . The Apples you see above are Sous Vide poached @185F for one hour, have a PH of 3.3 and a Cal-Index 0.46 and weight of 153 g in a sealed bag; total calories 68. We adjusted the Ice Cream portion size to 100 calories, for each three Ice Creams can see dramatic difference. The entire desert you see is 178 calories, but you only get two spoonfuls of the two Cal-Indices over 2.00. I could not finish the top 195 g Ice Cream with Cal-Index of 0.51and 100 calories.

Poached Apple Cinnamon Ice Cream	0.91	182 cals, 198 grams

	0g	153g	44g	1g
Cal-Index		0.51	2.29	3.80
		78 cals	100 cals	3.8 cals

With a digital scale set to grams and the CI it becomes easy to Portion Control complex meals and be calorically accurate (see Draft Portion Control Video). Now that I am at my target weight I might prefer to use my 178 calorie desert with one of the richer Ice Cream choices, and have a bit more, that is easy to decide if you have Cal-Index. I know the higher Cal-Index foods have both extra Carbs and Fat - do not have to look at label to know that.

So I finally decided since I am in weight maintenance mode, the Julies organic Ice Cream was the best for today, and only wanted small taste. It took less than 30 seconds to portion control a desert with 178 total calories, 198 grams and a total Cal-Index of 0.91, once we had the Cal-Indices of the individual ingredients. We start by tarring the plate, add the poached (Sous Vide) apples, tare the apples, add 44 g Ice Cream, and add some cinnamon. We could have done same with any Ice Cream once we have the Cal-Index.

We have developed many, easy to prepare, calorically contained gourmet recipes that are "portion controllable" as training tools. We also track glucose levels and used that to check new Carnot recipes (see Low Cal, Na and Fat Potato Chip)

7. An Aerosol Oil Spray CI Example

Oil in pressurized spray cans, make use of the fact that the USDA regulations allow anything below 5 calories to be listed as zero calories. The CI of any digestible Oil based product is over 8.00. However the portion listed on the labels in the US is usually 0.25 grams or about 2 calories. In our own tests we have not found any spray that is 0.25 g per spray. The spray weight is typically 0.6 grams on the low end and often 1.4 g or higher. You need 3-5 sprays of oil to sauté 150 g of onions, and that typically is 40-50 calories of oil not zero. I have lost count of the people I have met who are confused by this zero calorie oil label. If the CI were listed would become clear that this is still an ingredient that must be carefully portion controlled to manage any weight loss program.

Nutrition Facts

Serving Size 1/4 sec spray (0.25g)
Servings Per Container About 680

Amount Per Serving	
Calories 0	Calories from Fat 0
	% Daily Value*
Total Fat 0g	**0%**
Sat Fat 0g	**0%**
Trans Fat 0g	
Polyunsat Fat 0g	
Monounsat Fat 0g	
Cholesterol 0mg	**0%**
Sodium 0mg	**0%**
Total Carb. 0g	**0%**
Protein 0g	**0%**

Not a significant source of dietary fiber, sugars, vitamin A, vitamin C, calcium and iron.

*Percent Daily Values are based on a 2,000 calorie diet

INGREDIENTS: VEGETABLE OIL BLEND* (CANOLA, SOY AND OLIVE OILS), SOY LECITHIN, GRAIN ALCOHOL (PERSERVATIVE), DIMETHYLPOLYSILOXANE AND PROPELLANT.
CONTAINS: SOY
*ADDS A TRIVIAL AMOUNT OF FAT
Owned & Distributed by:
GFA BRANDS, INC.
Paramus, NJ 07652-1432
201-421-3970
Visit: www.smartbalance.com

DIRECTIONS:
SHAKE WELL. Point arrow on button towards red mark on can. Hold can upright 6-12 inches away. Spray onto unheated cook/ bakeware or grill.

8. Could The Cal-Index Lead to Micronutrient or Macronutrient Deficiencies ?

The answer is not likely. Any diet based on selecting lower Cal-Index foods, below 1.0, will end up losing weight. We have created a data-mineable version of the USDA data-base (see Nutrients) using a well known data-mining package. We have spent 100‘s of hours looking at CI and nutrient relationships, and have not found anything that suggests this CI average below 1.0, a key Carnot Diet rule, or selection of lowest CI foods might eliminate or compromise the RDI for any micronutrient or macronutrient.

Fats are selectively reduced, during the diet, but that is tied to total caloric reduction. Fats are not eliminate. We do pay attention to Na and Fiber, but do not track in a log. We just watch carefully via natural KPI’s. By monitoring daily weight, and waste levels it is easy to see when Na load is too high from extra water retention. Normal, healthy bowel movements are the best KPI for fiber levels during weight loss and we recommend they be monitored but again no log or tracking is necessary.

Obesity is a Life Threatening Disease

Obesity is just like cancer, and requires emergency, extreme, urgent medical treatment. That emergency treatment may have a few side effects. In the end elimination of the obese state leads to a healthy human, and is worth some risks and bit of pain, associated with any weight loss program. Adding additional rules that require too much more complexity, over just watching the CI puts the diet at risk. In the end the loss of weight outcome provides a justified health benefit over any of these other side effects or risks for a brief period of time.

In my own diet program, at 258 lb. , I had elevated blood pressure, serious auto immune issues, elevated blood glucose levels, and many out of range items on a blood panel tests. Sixty days after I hit my 178 lb. target (loss of 80 lb.) a full blood test panel provided “poster boy” normal for all items (e.g. fasting blood glucose 91, HDL 80, LDL 84, blood pressure 83/133) and my auto immune issues have vanished. Now that I feel healthy and am healthy, with normal BMI and still alive at an average weight of 180 lb. I can and do pay careful attention to all other nutrients.

9. Volume, Taste, and Texture In Calorie Reduced Diets

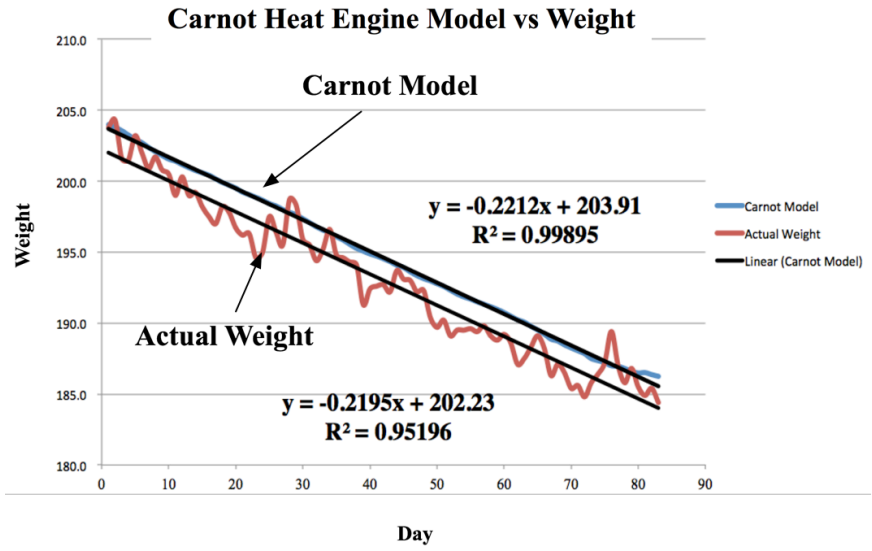
In the 1990‘s Barbara Rolls pioneered the concept of picking low density foods to increase the total daily food volume, but decrease total caloric input (7,8,9). She called it Volumetrics and called caloric density Energy Density (ED). Since that introduction a literature has developed supporting her approach (see CDC publication 10). Some commercial diet programs based on Volumetrics, claim to have helped over 1,000’s dieters manage weight (see 11, and Structure House).

However, many people can not tolerate foods that have a CI or ED below 0.50 - They simply will not eat apples, carrots or celery all day to try to stop hunger. We have learned that food palatability and snacks are as important as meal food volume to temporary satiety during weight loss for many dieters. Snacks to help manage hunger, using carrots, tomatoes, apples,

celery that have been Sous Vide poached at 185F for an hour with rosemary and watercress will be consumed in seconds by a 6 year old, while raw cold vegetables won't be touched. Carnot focuses on enhanced meal palatability, on learning CI's and portion control based on meal weight using digital scales and tracking calories in and out. We teach people how to estimate calories and portions before they eat anything. We do not provide or ask dieters to follow a low cal high volume meal recipe. Carnot teaches dieters how to cook easy fast, gourmet meals, using best ingredients. Carnot teaches how to maximize both palatability and volume, accurately track in/out calories, and most critical, portion control relaying, on up-to date dieting technology (Sous Vide, en Papillote, Vitamix, Joule, FitBit, Up, Digital Scales,). Carnot does not require dieters to cut out alcohol or to exercise or even to increase activity levels. It is up to the dieter to simply accurately manage in/out calorie budget each day as he/she chooses and the dieter will be hungry to lose weight, and will be at war with his/her hypothalamus.

We are neutral on what caloric density of a food is called, but found that ED was confused with Erectile Dysfunction (ED) so we adopted "Cal-Index" expanding upon the already familiar "Glycemic-Index" terminology.

10. How Accurate is Carnot and CI based Portion Control ?



The Figure shown above is a snapshot of Cal-Index Carnot Heat Engine model I used in my weight loss program. I calculated daily calories IN and used a FitBit to estimate activity calories OUT and the Harris-Benedict BMR equation to estimate BMR. The caloric content was tabulated using a Google Spreadsheet program we call Joule that uses Cal-Index. The graph you see represents my ability to predict my own weight loss based only caloric input and estimated daily activity over a 90 day period. The Coefficient of Correlation for the two linear best fit curves is over 0.99. We think the shift is tied to Dietary Induced Thermogenesis (DIT). This N-

of-One graph means that it is possible to be accurate with both Portion Control and total caloric input with these tools - Not everyone can be that accurate, however I am surprised how easy this has become and finding many can be and are highly motivated to be that accurate.

11. Competing Interests

My Carnot Diet effort is based on passion to be healthy, fit, trim and for fun - it is not for profit; it is an academic diversion from my CEO day job... The Carnot Diet is not a business ..... I am working on a book, ***"Weight Loss is Physics; Weight Gain is Biology. The Carnot Diet Plan. How to Cook Fine Gourmet Cuisine and Lose Weight"*** - it explains what I have learned. We (my son and brother) are also are working on web site.

www.carnot-diet.com

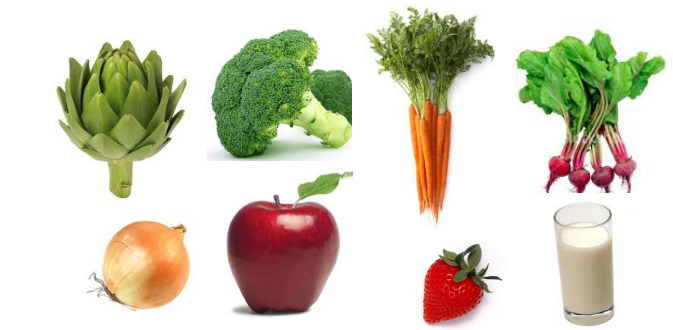
Neither book nor web site are finished, (require another 12 months) but I do not want to miss USDA window for official comments on the label. I want to be sure a voice and suggestions how the label could be enhanced from of a successful "weight loss survivor" back from the battlefield is heard. I track my calories and activity now in steady-state-mode, and takes only a few minutes a day - I also cook for our family and spend under 30 minutes a day cooking. I have maintained my steady-state-weight at an average 181.50 lb for several months effortlessly, and the same Carnot model continues to work at 98% accuracy.

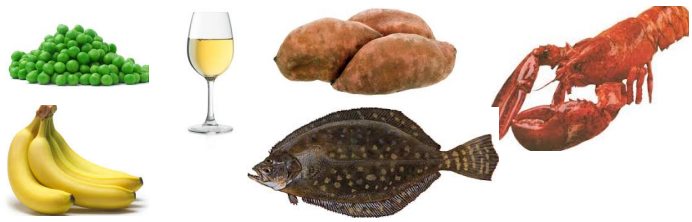
12. Example Personal Periodic Food Table - PFT.

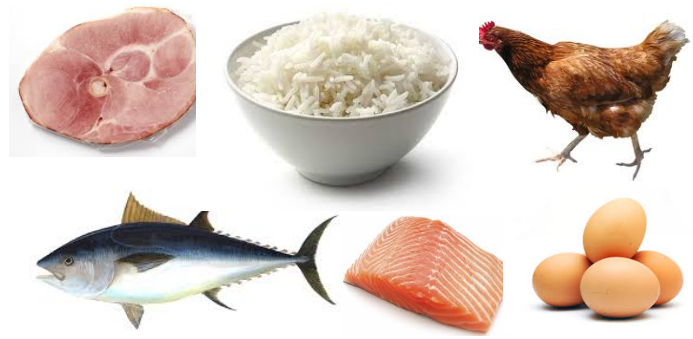
We arrange the Cal-Index into six groups, or ranges. Critical is the ability to look at any ingredient or meal and estimate its worst case caloric content, BEFORE you put it in your mouth. You have to know what your eating. We call this skill Caloric Awareness - eventually you become Calorically Calibrated.

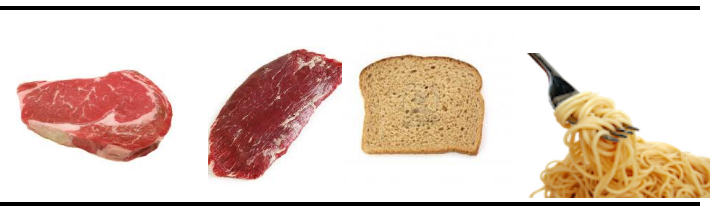
After a brief period of training (3-4 weeks) one can quickly learn the Cal-Index for most things you eat, and when you see something new can often guess it's index, because say a parsnip is similar to a carrot. The categories are A (0-.25), B(.25-.5), C (.5-1), D (1-2), E (2-3) and F (3-9). You can see and load a PDF of these Categories seen below on the Personal Periodic Food Table. This spreadsheet is my daily meal menu and is changed and updated every day, personalized for what you eat and what you want to eat.

		Food	Cal Index
A	1	Fizzy Zero Cal Drink	**0.00**
	2	Coffee Black	0.04
	2	Chicken Stock, Low Cal	0.04
	3	Lettuce	0.11
	3	Zucchini	0.13
	4	Almond Milk	0.14
	4	Celery, Raw (add yorgert spice dressing)	0.15
	5	Cucumber with Skin	0.15
	5	Endive, SV	0.16
	6	Radish, White	0.16
	6	Asparagus, Steamed	0.18
	7	Drink, V8 Vegetable Juice	0.18
	7	Pickle, Dill or half Sour	0.18
	8	Tomato	0.18
	8	Vinegar, White	0.20
	9	Vinegar, Wine	0.20
	9	Mushrooms, Cultivated	0.21
	10	Salad, tossed cucumbers, carrots	0.22
	10	Spinach	0.23
	11	Cauliflower, Cooked	**0.25**
B	11	Tomato, Stewed	**0.26**
	12	Artichoke hearts canned brine	0.27
	12	Turnup, SV	0.27
	13	Red Peppers, Roasted	0.30
	13	Vinegar, Champagne	0.30
	14	Mushrooms, Chanterelle, or Wild	0.31
	14	Onions, Yellow	0.32
	15	Strawberries, fresh raw	0.33
	15	Broccoli, Boiled Steamed	0.35
	16	Chicken Stock,Packaged	0.36
	16	Salad, Diet ham or chicken or tuna	0.36
	17	Tonic Water, Non-Diet	0.37
	17	Onions - Frozen Birds Eye White Pearl	0.38
	18	Buttermilk, or Milk	0.40
	18	Brussel Sprouts, Steamed	0.41
	19	Carrots, Raw or SV	0.41
	19	Celery Root SV , CELERIAC	0.42
	20	Beets, SV	0.43
	20	Butternut Squash	0.45
	21	Artichokes, Steamed, SV	0.46
	21	Apple, Granny Smith, (Pear) SV	0.47
	22	Drink, Vitamix, or Orange Juice	**0.50**
C	22	Rasberries	**0.53**
	23	Yogurt Greek	0.57
	23	Soup, Vitamix Roasted Tomato	0.60
	24	Fish, Flounder PP	0.69
	24	Cheese, Cottage Cheese Low Fat	0.70
	25	Sunchokes, Jerusalem Artichoke	0.72
	25	Parsnips, Raw	0.75
	26	Green Peas, frozen boiled	0.78
	26	Tonic Water	0.80
	27	Wine, white dry	0.80
	27	Fiber 1, GM	0.85
	28	Fish, Scallops	0.86
	28	Potatoes, Sweet Raw	0.86
	29	Vinegar, Balsamic	0.86
	29	Fish Lobster	0.88
	30	Banana	0.90
	30	Passion Fruit, Raw	0.98
	31	Mayonnaise, Hellmann's Low Fat	**1.00**
D	31	Fish, Tuna Steak, Yellow Fin	**1.09**
	32	Rice, white	1.10
	32	Chicken Breast no Skin	1.11
	33	Frittata, Ham Cheese Vitamix	1.12
	33	Fish, Haddock SV	1.12
	34	Fish, Salmon Lean, Organic Farm	1.16
	34	Frittata, Cheese Vitamix (No Ham)	1.17
	35	Ham Steaks	1.25
	35	Potatoes, Baked,	1.30
	36	Fish, Halibut SV	1.40
	36	Ice Cream, Low Fat	1.43
	37	Steak, Grass Fed Organic SV	1.46
	37	Fish, Trout Farm	1.48
	38	Garlic, Raw	1.49
	38	Egg, Boiled	1.55
	39	Fish, Swordfish	1.55
	39	Ice Cream, Yoplat Yogert	1.57
	40	Avocado, Raw	1.60
	40	Chicken Stock,Knoor Cubes. No liquid	1.66
	41	Garlic, Roasted With Olive Oil	1.80
	41	Steak, Tenderloin	1.80
	42	Chicken Breast with Skin	2.00
	42	Fish, Muscles	**2.00**
E	43	Fish, Salmon Fatty Wild	**2.06**
	43	Lamb Chops	2.08
	44	Steak, Flank	2.25
	44	Steak, Ribeye Fat Trimed	2.25
	45	Protein Bar, Quest	2.44
	45	Bread, Wheat	2.50
	46	Quaker Oatmill	2.50
	46	Sauce, Lemon, or Other	2.50
	47	Cheese, Goat	2.67
	47	Cheese, mozzarella	2.78
	48	Steak, Ribeye	2.91
	48	Stuffing, Turkey	**3.00**
F	49	Cream, Heavy	**3.33**
	49	Cheese, Cream Cheese	3.42
	50	Cheese, Swiss	3.78
	50	Cinnamon	3.80
	51	Pasta, Organic	3.96
	51	Cheese, Cheddar	4.03
	52	Pistachios	5.33
	52	Cashews	5.84
	53	Sesame Seeds, Roasted	6.10
	54	Almonds	6.11
	54	Chopped Walnuts	6.25
	55	Butter	7.17
	56	Olive Oil, or other oil	8.84
	55	Bacon, Roasted, (Bacon Fat)	8.90
	56	Butter, GHEE Clairified	**9.00**









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