Nutrition Think Tank—Summer 2004 page 1

led by Ron Rosedale, MD 303-790-8766 at the Family Learning Center in Boulder (303-442-8979 x 3003 for Pilar Aguilar), facilitated by Shelley Schlender 303-494-2545, lab tests donated by Esoterix Labs

What follows is a summary of pre- and post-outcome measures collected during the summer 2004 session of the Boulder Nutrition Think Tank, a community based, all-volunteer effort conducted through the generous assistance of the Family Learning Center in Boulder (www.flcboulder.org), following a nutritional program developed by Ron Rosedale, MD (www.therosedalediet.com). As Think Tank Members, participants met weekly for pot lucks of healthy food that followed this low-carb, adequate protein, high fat (good quality fat) diet, talked with each other and Dr. Rosedale's staff for education and support, used supplements that were paid for through the much-appreciated, \$2,000 donation of a private individual, and experienced many dramatic improvements in health. Extensive labwork was possible for this first study group, thanks to the donation of labs from Esoterix National Lab (www.esoterix.com). For the Nutrition Think Tanks, we recorded audio of both the health lectures and group interactions from this Summer 2004 session, as well as from later sessions, which included on from Spring 2005, in which Roche Labs donated lancets and glucometers. Duke University has assisted us in transcribing some of the audio lectures into written form. Sound Partners in Community Health (a program of the Benton Foundation, funded by the Robert Wood Johnson Foundation) provided funds for developing a website which allows people to listen to the sound from these lectures. We are hopeful that the lessons gained and documented will help other groups in the future.

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Look Great! Gain Energy!

Reduce Your Risk for Diabetes, Cancer and Heart Disease!

... Help your Family and Community as you help yourself ...

Healthy Living

Think Tank & Practice Group

Weekly Evening Meetings 6-8 PM Starting _____!

Family Learning Center Meeting Room

3164 34th Street, Boulder

Join us for a 12-week study session on healthy lifestyles, including healthy eating, using a lowcarbohydrate, adequate protein, high fat (high-quality fat) developed Dr Ron Rosedale that in many people, has been a turning point toward reversing conditions such as diabetes, obesity, heart disease and chronic pain. Through this program, you'll learn the science behind how lifestyle choices affect your body. In addition to helping yourself, being part of this healthy practice Think Tank will mean you're on a team of health professionals, social justice experts, journalists, public service professionals and community members, working together to help the Family Learning Center and the larger community create a healthy lifestyle program for families of limited income and for people with chronic health problems.

Qualifications: We'd like you to be willing to practice the recommended healthy lifestyle choices for 12 weeks, so you can help evaluate their effectiveness, and what makes them easy or hard to follow. Additionally, we'd like you to attend a majority of the weekly study sessions (or let us know ahead of time, so we can provide you with study materials to use remotely). We'd like you to have a health problem that you want improved or health goals you want to move toward. We need you to be a problem-solver willing to help evaluate and create a worthwhile health program for members of the Family Learning Center, and we'd like you to be willing to share what you learn . . . and your expertise, with the think tank group, for the good of other families and the larger community.

For more information, contact Maria del Pilar at the Family Learning Center (303)442-8979x3003 (paguilar@flcboulder.org), or Shelley Schlender 303-494-2545 (shelleyschlender@yahoo.com)

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Proinsulin is the precursor to the hormone insulin. High blood levels indicate an inefficient conversion to insulin, and a stressed pancreas. Many diabetes experts consider high proinsulin to warn that a person is likely to have diabetes in 5 to 10 years. Over half the Think Tank participants started out with high proinsulin levels. (Normal reference range is 1.7 to 12). All experienced a reduction, shown by the difference between their "Before" and "After" levels, roughly 8 weeks later. The two individuals who decided to take supplements but NOT follow the diet (labeled "Supps Only 1 & 2) also experienced a drop in proinsulin, indicating benefits achieved either from the group participation, minor dietary changes, or the supplements.





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Insulin is a hormone that allocates energy to each of the body's ten trillion cells. While insulin is essential, too much ups the risk of many diseases, including cancer and heart attack. The combination of normal blood sugars and low insulin is a sign of metabolic health. As cells become insulin resistant, it takes more insulin to "deliver the message" about allocating energy to cells, such as sugar. Someone whose cells are insulin resistant can have "normal" blood sugars and high insulin, so having a way to measure insulin's a better warning of diabetes risk than blood sugar levels alone. Diabetes is only diagnosed when stress on the pancreas, for instance, due to high insulin production, damages its ability to produce insulin, and sugar levels rise above levels defined as safe by the American Diabetes Assocation.

Most summer Think Tank members started out with somewhat high insulin levels, but not superhigh. However, the lab indicated that a processing error means these readings, perhaps, should be doubled. What's more, insulin levels can quickly drop with diet change, and many participants were so eager to get healthier, they reported changing their diet BEFORE they got their first blood test. All of this means that some of the Think Tank members probably started out with higher insulin levels than those listed here. (As a reference point, an official, "high" for this lab test is over 17, though many experts say below 10 is healthier.) Even so, by the end of the 8-week time period, most insulin levels dropped dramatically, indicating a great improvement in their cellular sensitivity to insulin. However, the two members taking supplements but not following the diet had HIGHER insulin levels over time. While their cell's insulin sensitivity did not improve, perhaps their use of supplements and other health changes improved the health of their pancreas, so it could convert more proinsulin into insulin.





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Proinsulin to Insulin Ratio indicates the pancreas's ability to convert proinsulin into insulin, before releasing it into the bloodstream. A healthy, unstressed pancreas can make this conversion more efficiently than a stressed pancreas. Therefore, a high proinsulin to insulin ratio is considered another warning sign of diabetes risk. Officially, a healthy ratio is 3.4% to 21%. Most Think Tank members started out with fairly high ratios. There is some chance that the lab readings on insulin, which can be tricky to measure, should be doubled, according to the lab, and this would bring down the ratios considerably, though many would still be high. The key thing to consider here is that from pre- to post-test, the ratios went down for most participants. Among those where the ratio went up slightly, it may indicate a metabolic stress that needs further investigation.





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BMI (Body Mass Index) is used by health experts nationwide to determine healthy weight, overweight, or obesity. The calculation takes into account both height and weight. We don't have BMI data for all participants, since we are using a special bioimpedence Tanita scale that had to be brought from Denver. Among Think Tank participants who we measured, half started with BMIs over 30, generally classed as obese. Over time, those with BMIs over 30, who "did the diet" have seen reductions of over 10%. Think Tank members who began with relatively normal BMIs saw little change in their BMI.

Nationwide, the "Gold Standards" for BMI normalization are programs that limit calories and fat, while promoting 30 to 90 minutes of daily exercise, such as the Diabetes Prevention Project, a nationally funded program where participants received a year of intensive instruction and guidance (www.niddk.nih.gov/welcome/releases/8_8_01). In the Diabetes Prevention Project, obese participants lost 5-7 percent of their body weight (weight generally tracks closely with BMI). So far, obese participants in the all-volunteer Think Tank have met or exceeded this "Gold Standard," for BMI reduction, through a dietary approach that does not push calorie counting or more exercise, but instead, limits starchy carbs, promotes adequate protein, plus lots of non-starchy vegetables and high-quality fat (NO hydrogenated oils and limited saturated fats). Note that participants starting out with a normal BMI remained at a normal weight on this diet.





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Percent Body Fat is possible to measure thanks to the Tanita bioelectric impedance scale we have borrowed, occasionally, for this effort. It's not a totally precise measure, since the shedding of excess water weight can register as reduction in lean body mass. But since water weight tends to be lost most quickly at the beginning of a dietary program, when edema (water retention) tends to be reduced the most quickly, over time, a Tanita style of measurement becomes increasingly accurate.

Among Think Tank participants we have been able to measure over time, overall, there has been more loss of fat body mass than of lean body mass.





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Lean Body Mass is another measure possible through the Tanita bioelectric impedance scale. Initially, some loss of lean body mass indicates loss of excess water weight, such as edema (water retention) in the body. While some participants have lost a slight amount of lean body mass, most have remained relatively stable. Interestingly, without increasing exercise, some participants have actually seen an INCREASE in lean body mass as they've been losing fat mass. There are some studies that show that when cells become more sensitive to leptin signaling, then it's possible for bones, which are calcium formed over a protein matrix, to strengthen (especially with the protein matrix, which is crucial for preventing "brittle bones") as well as for muscles to build greater strength. This seems to be occurring for some participants.

The Think Tank includes some weight lifters, who have reported that while they've been losing weight, they've been able to increase their weight lifting stamina and ability, and then, as their body weight went down over time, to maintain their weight-lifting strength. This indicates that pound for pound, they were getting stronger.





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Pounds Fat Lost can also be measured with the Tanita bioelectric impedance machine. Here are the results, and they indicate that overall, the weight being lost in the Think Tank is fat weight, rather than lean body weight.



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Triglycerides started out relatively low in the summer Think Tank group, which might be the luck of the draw, and might be because many participants were so intrigued by this potential dietary change, they started eating a lower carb diet BEFORE they got their first bloodwork done. Still, generally, triglyceride levels went down on this dietary program—generally more for the people doing the dietary program than for the two Think Tankers doing supplements, but not the diet.





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Cholesterol. There's a big debate about cholesterol's relevance to health. Some consider cholesterol a key health indicator, but a growing camp contends that high cholesterol levels simply reflect overall inflammation in the body, and that when inflammation goes down, cholesterol in the blood will automatically normalize to healthy levels.

Overall cholesterol levels in this Think Tank were fairly good, which might be because many were doing this dietary approach, at least a little, BEFORE the first blood test. Still, over time, they generally went down even further. This is even though many participants were eating MORE cholesterol, since eggs are a relatively cheap source of protein and were often preferred for breakfast. One Think Tank member quipped that his friends avoid eggs on their low-fat diets, and worry about their high cholesterol levels. In contrast, he increased his whole egg consumption to 10/week, and his cholesterol levels went down.





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HDL Cholesterol levels (the so-called "good" cholesterol) in this Think Tank were fairly good, which might be because many were doing this dietary approach, at least a little, BEFORE the first blood test, or might be because in this small sample, most people happened to have high HDLs. While some HDLs went up, some went down, with HDLs going up more often among people with lower HDLs to begin with.





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Glucose Levels, in our study group, were generally normal, either through control of diabetic medications or naturally. (Person "Yes-010" provided a fasting glucose value that was obtained BEFORE getting treated for diabetes) Among think Tankers before and after, there were some changes in sugar levels, though not a lot.

What's most interesting is the big differences between PRE proinsulin and insulin levels and POST proinsulin and insulin levels went down over time, compared to these relatively stable sugar levels. This indicates Think Tank members' cells have become more sensitive to insulin, which is a good indicator of improved health. Note—The High Glucose reading was from someone who, prior to starting this program, suffered from uncontrolled diabetes.





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Leptin Levels and Appetite. Leptin is a hormone secreted by fat cells. Leptin levels are useful to measure, since they indicate, among other things, the body's "appetite signaling." "Healthy" leptin levels in this test are generally under 18 for women and under 5 for men. Generally, it's assumed that leptin tracks closely with a person's BMI, meaning someone who's obese will have higher leptin levels than a person with normal BMI. Generally, it's also assumed that losing fat weight CAUSES leptin to fall, in proportion to how quickly a person is losing body fat. Last, it's assumed that as leptin levels fall, people's appetites rise. This is one reason why many conventional experts believe a person must exercise to maintain weight loss.

Our Think Tank challenges many of these assumptions. In general, people with high BMIs started out with higher leptin levels, though they might have been a bit lower than usual, since some people started "following the diet" BEFORE their first blood test. Over time, most people have lowered leptin levels more quickly than their fat mass has dropped, indicating that improved leptin "sensitivity" is, if you will, guiding the weight loss. Also, most are reporting calmer appetites as their leptin levels drop, which contradicts the reports of people who lose weight on a calorie-counting, low-fat diet (and generally report they get hungrier as leptin levels drop, unless they exercise.) Note—the leptin levels that went up on post-test occurred in the two individuals who used supplements only, but did not follow the dietary approach.





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Thyroid Levels, in our study group, were generally normal. There were some changes in Thyroid hormone levels, though not a lot. Many clinicians consider thyroid levels useful to measure, especially for comparison with someone's reported energy levels and other symptoms. The implications of changes in thyroid function are subtle. Let us know if you're curious about them and want further detail.





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Thyroid Stimulating Hormone was similar for this summer study group. Note— Person "Yes—009" has no thyroid and is on Synthroid. Her Synthroid dose had been adjusted somewhat just before the "After" TSH measurement had been obtained, which may account for the sudden change in TSH.



