

Casual Friday Series

Anti-inflammatory Diets: How do You Pick? Part 3.

A Biogenetix Clinical Presentation

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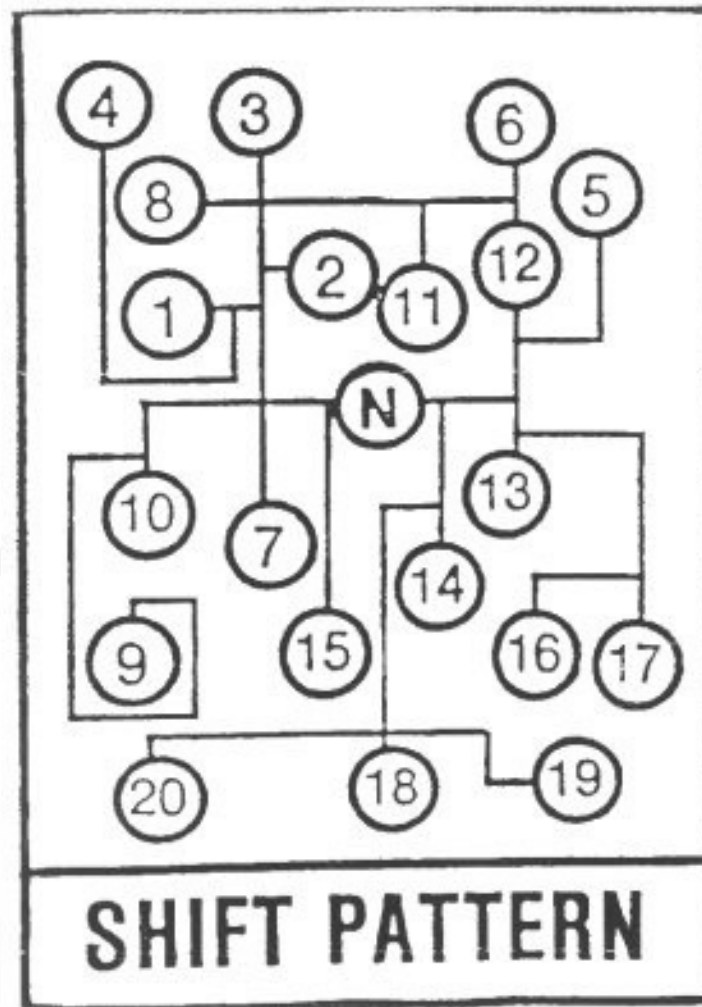


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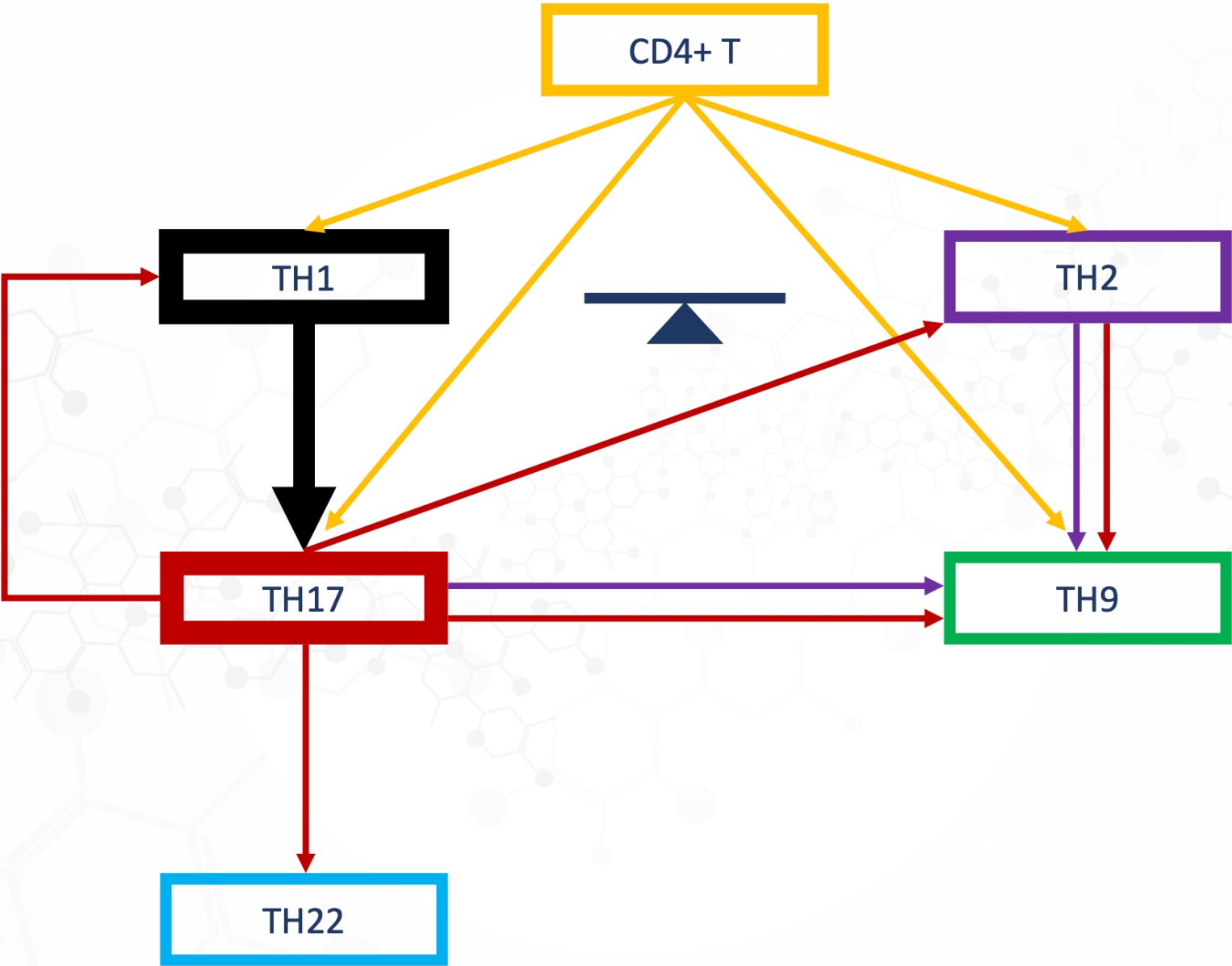
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Patient: “What should I eat?!!”



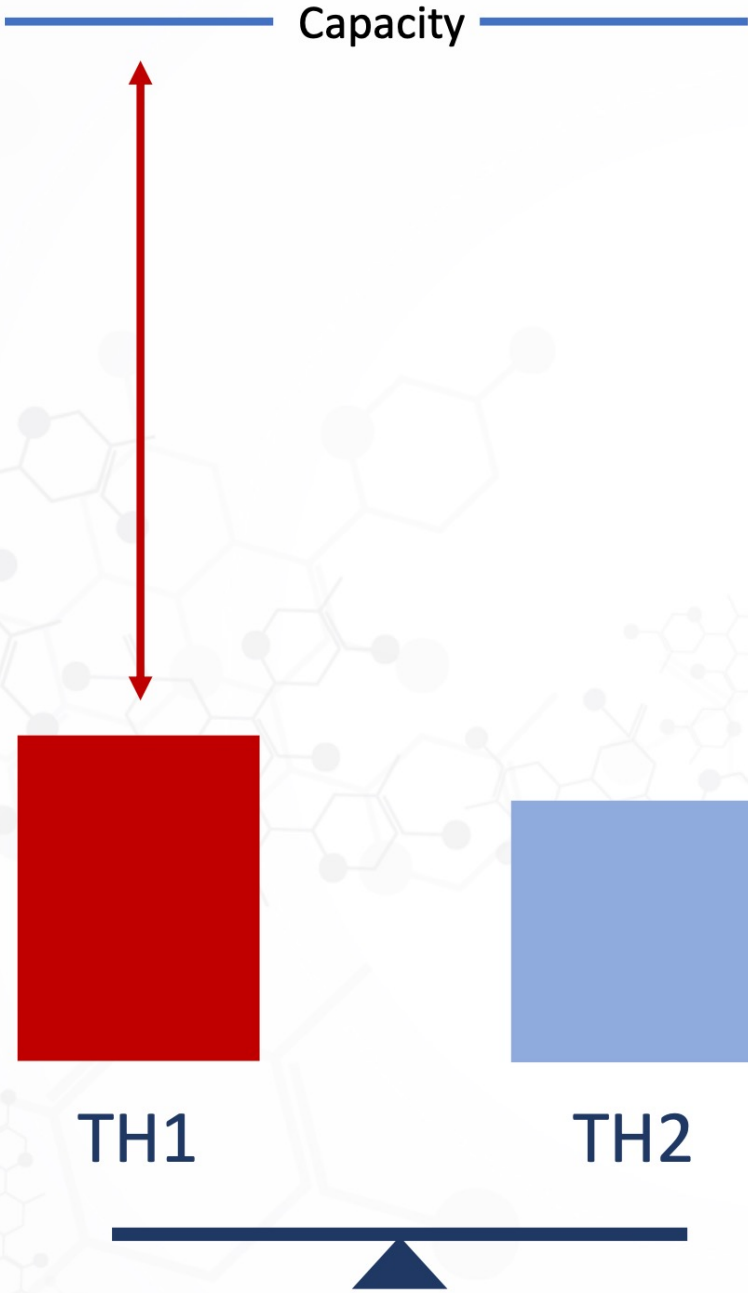
An up-to-date understanding...



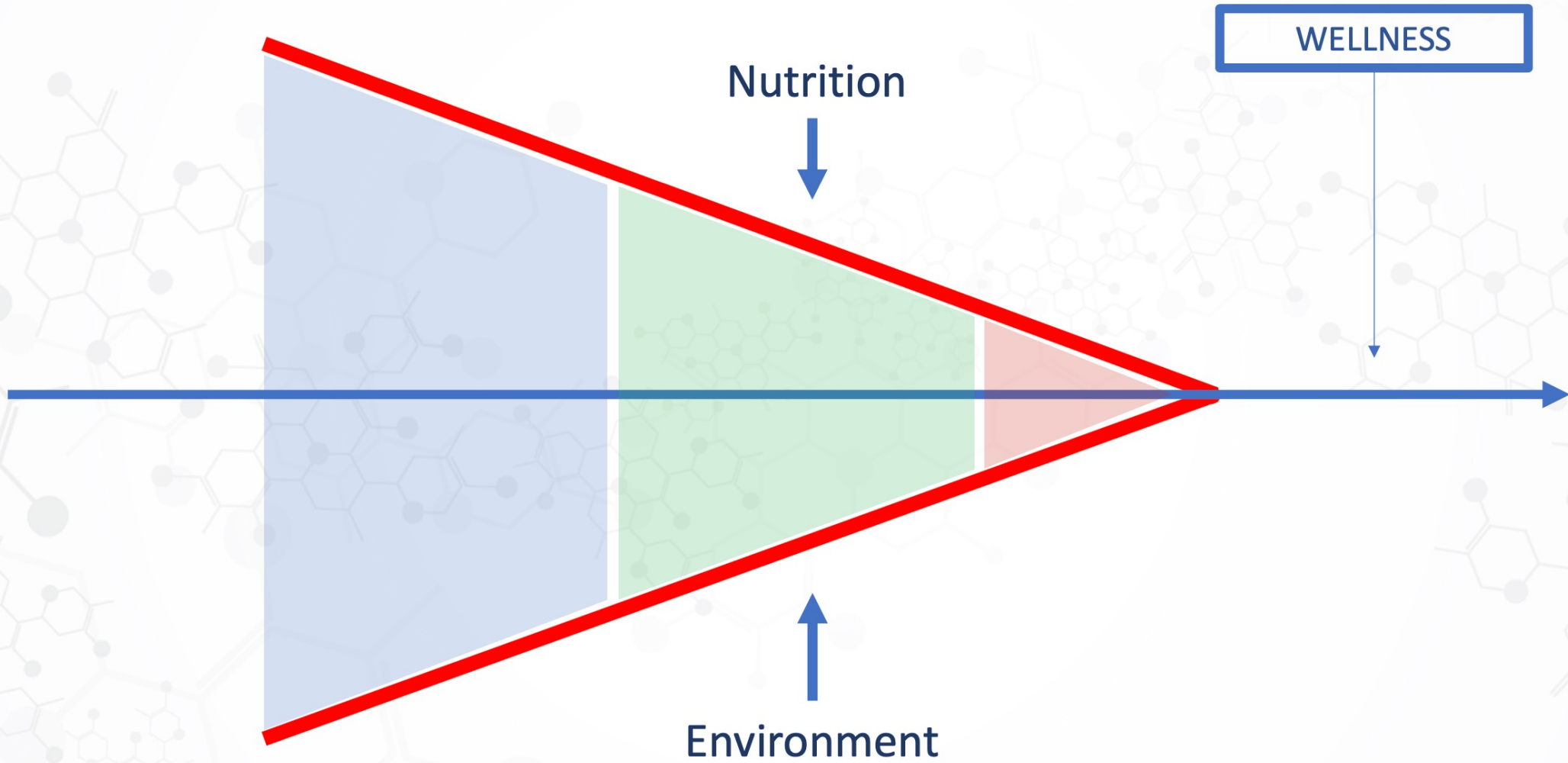
Progress for chronic disease patients comes down to this one question: What are we asking the “Diet” to do?



Concept of Elasticity...



Protocols



The truth behind the most popular diet trends of the moment

Thinking
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By Mayo

Ketogenic diet

How it works: Bring on the bacon. This high-fat, very low carbohydrate diet typically means eating fewer than 50 grams of carbs a day — less than four slices of bread's worth.

What it promises: Getting most of your calories from fat forces your body to use different energy pathways. Instead of carbs for energy, the body burns fat, entering a state called ketosis.

The upsides: While the precise mechanisms are unclear, ketosis is thought to have brain-protecting benefits: As many as half of young people with epilepsy had fewer seizures after following the diet. And some early research suggests it may have benefits for blood sugar control among people with diabetes. An upcoming study will look at the ketogenic diet as a weight maintenance strategy.

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Read



The truth behind the most popular diet trends of the moment

Thinking about jumping on the Whole30, ketogenic diet, anti-inflammatory or intermittent fasting bandwagon? Read this first.

By Mayo Clinic

The downsides: While the research is exciting, there's very little evidence to show that this type of eating is effective — or safe — over the long term for anything other than epilepsy. Plus, very low carbohydrate diets tend to have higher rates of side effects, including constipation, headaches, bad breath and more. Also, meeting the diet's requirements means cutting out many healthy foods, making it difficult to meet your micronutrient needs.

Mayo's verdict: While the ketogenic diet may be recommended for some people with uncontrolled epilepsy, the high fat content — and especially the high level of unhealthy saturated fat — combined with limits on nutrient-rich fruits, veggies and grains is a concern for long-term heart health.



Effects of Low-Carbohydrate Diets Versus Low-Fat Diets on Metabolic Risk Factors: A Meta-Analysis of Randomized Controlled Clinical Trials

[Tian Hu](#), [Katherine T. Mills](#), [Lu Yao](#), [Kathryn Demanelis](#), [Mohamed Eloustaz](#), [William S. Yancy, Jr](#), [Tanika N. Kelly](#), [Jiang He](#), and [Ludie A. Bazzano](#)*

Dietary intake may affect multiple body systems. Although to our knowledge, there have been no clinical trials examining the association between low-carbohydrate diets and clinical outcomes such as depression, some studies have suggested that low-carbohydrate diets may result in mood changes. However, weight loss has also been associated with improved mood, whereas obesity has often been associated with depression ([36](#), [37](#)). Similarly, low-carbohydrate diets, which are high in protein, may increase calcium excretion in urine; however, this increase has not been associated with low bone density in prospective cohort studies ([38–41](#)) and may be offset by increased calcium absorption in the intestines ([42](#)). Low-carbohydrate diets are often high in fat, and high-fat diets have been associated with increased risks of certain types of cancer in some observational studies ([43](#), [44](#)). Thus, moderating the amount and types of fat substituted for carbohydrates is prudent not only to improve cardiovascular and metabolic risk factors but also to avoid increasing risk for other chronic diseases. Given the difficulty in disentangling dietary components, weight status, and other confounding factors that can vary over time in observational studies, these remaining questions may require large clinical trials of many years' duration.

Effects of Low-Carbohydrate Diets Versus Low-Fat Diets on Metabolic Risk Factors: A Meta-Analysis of Randomized Controlled Clinical Trials

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H The effects of low-carbohydrate diets ($\leq 45\%$ of energy from carbohydrates) versus low-fat diets ($\leq 30\%$ of energy from fat) on metabolic risk factors were compared in a meta-analysis of randomized controlled trials. Twenty-three trials from multiple countries with a total of 2,788 participants met the predetermined eligibility criteria (from January 1, 1966 to June 20, 2011) and were included in the analyses. Data abstraction was conducted in duplicate by independent investigators. Both low-carbohydrate and low-fat diets lowered weight and improved metabolic risk factors. Compared with participants on low-fat diets, persons on low-carbohydrate diets experienced a slightly but statistically significantly lower reduction in total cholesterol (2.7 mg/dL; 95% confidence interval: 0.8, 4.6), and low density lipoprotein cholesterol (3.7 mg/dL; 95% confidence interval: 1.0, 6.4), but a greater increase in high density lipoprotein cholesterol (3.3 mg/dL; 95% confidence interval: 1.9, 4.7) and a greater decrease in triglycerides (-14.0 mg/dL; 95% confidence interval: -19.4 , -8.7). Reductions in body weight, waist circumference and other metabolic risk factors were not significantly different between the 2 diets. These findings suggest that low-carbohydrate diets are at least as effective as low-fat diets at reducing weight and improving metabolic risk factors. Low-carbohydrate diets could be recommended to obese persons with abnormal metabolic risk factors for the purpose of weight loss. Studies demonstrating long-term effects of low-carbohydrate diets on cardiovascular events were warranted.



Effects of low-carbohydrate diets v. low-fat diets on body weight and cardiovascular risk factors: a meta-analysis of randomised controlled trials

Nadia Mansoor¹, Kathrine J Vinknes¹, Marit B Veierød¹, Kjetil Retterstøl¹

months or longer. Results from individual studies were pooled as weighted mean difference (WMD) using a random effect model. In all, eleven RCT with 1369 participants met all the set eligibility criteria. Compared with participants on LF diets, participants on LC diets experienced a greater reduction in body weight (WMD -2.17 kg; 95% CI -3.36, -0.99) and TAG (WMD -0.26 mmol/l; 95% CI -0.37, -0.15), but a greater increase in HDL-cholesterol (WMD 0.14 mmol/l; 95% CI 0.09, 0.19) and LDL-cholesterol (WMD 0.16 mmol/l; 95% CI 0.003, 0.33). This meta-analysis demonstrates opposite change in two important cardiovascular risk factors on LC diets--greater weight loss and increased LDL-cholesterol. Our findings suggest that the beneficial changes of LC diets must be weighed against the possible detrimental effects of increased LDL-cholesterol.



“But the Cholesterol Model of Heart Disease says...”

Clinical Cardiology

Long-term effects of a ketogenic diet in obese patients

[Hussein M Dashti](#), MD PhD FICS FACS,¹ [Thazhumpal C Mathew](#), MSc PhD FRCPATH,⁴ [Talib Hussein](#), MB ChB,⁵ [Sami K Asfar](#), MB ChB MD FRCSEd FACS,¹ [Abdulla Behbahani](#), MB ChB FRCS FACS PhD FICS FACS,¹ [Mousa A Khoursheed](#), MB ChB FRCS FICS,¹ [Hilal M Al-Sayer](#), MD PhD FICS FACS,¹ [Yousef Y Bo-Abbas](#), MD FRCPC,² and [Naji S Al-Zaid](#), BSc PhD³

In the present study, 83 obese patients (39 men and 44 women) with a body mass index greater than 35 kg/m², and high glucose and cholesterol levels were selected. The body weight, body mass index, total cholesterol, low density lipoprotein (LDL) cholesterol, high density lipoprotein (HDL) cholesterol, triglycerides, fasting blood sugar, urea and creatinine levels were determined before and after the administration of the ketogenic diet. Changes in these parameters were monitored after eight, 16 and 24 weeks of treatment.

The present study shows the beneficial effects of a long-term ketogenic diet. It significantly reduced the body weight and body mass index of the patients. Furthermore, it decreased the level of triglycerides, LDL cholesterol and blood glucose, and increased the level of HDL cholesterol. Administering a ketogenic diet for a relatively longer period of time did not produce any significant side effects in the patients. Therefore, the present study confirms that it is safe to use a ketogenic diet for a longer period of time than previously demonstrated.



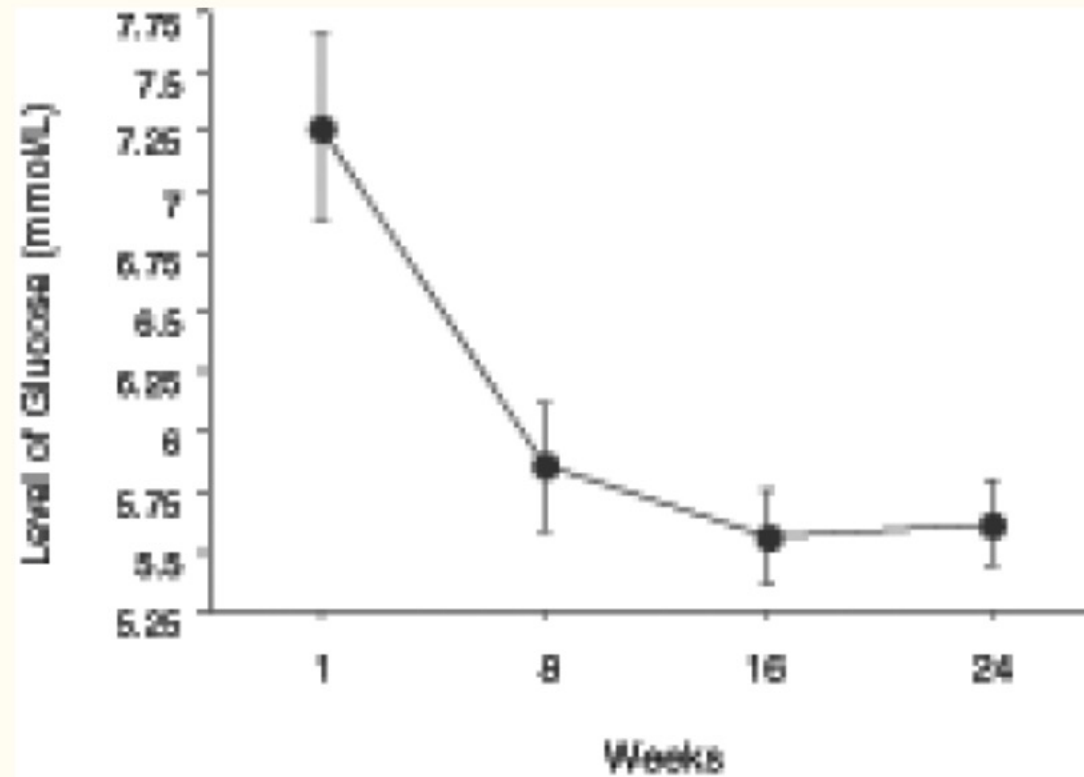


Figure 7).

Decreased levels of blood glucose (expressed as mean \pm SEM) in obese patients at eight, 16 and 24 weeks during the administration of a ketogenic diet



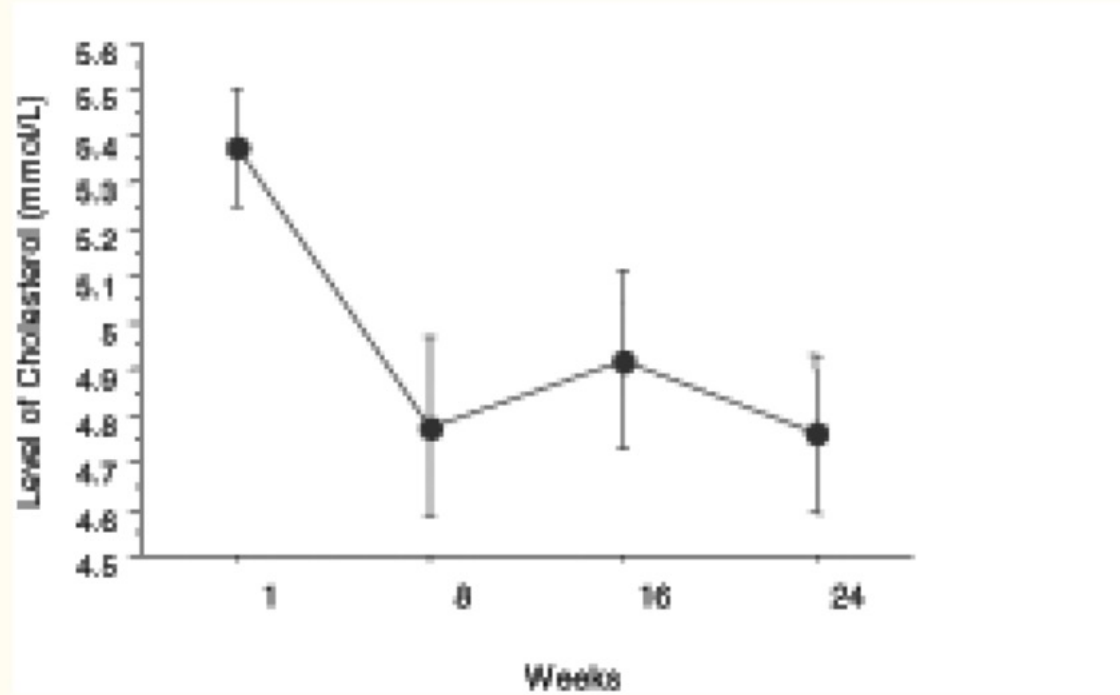


Figure 3)

Decreased levels of total cholesterol (expressed as mean \pm SEM) in obese patients at eight, 16 and 24 weeks during the administration of a ketogenic diet



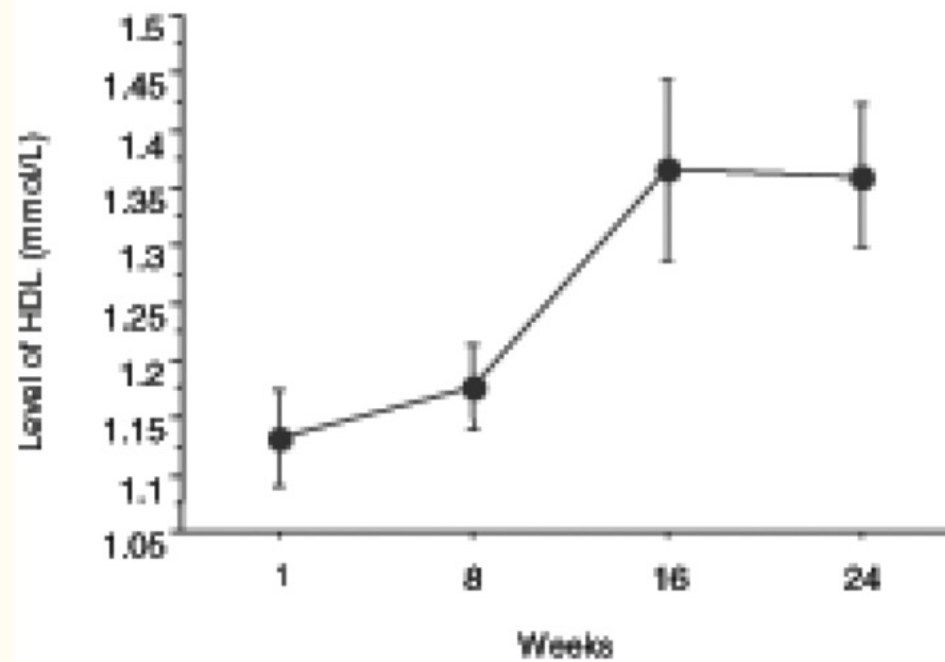


Figure 4)

Changes in the level of high density lipoprotein (HDL) cholesterol in obese patients during treatment with a ketogenic diet for a period of 24 weeks. Data are expressed as mean \pm SEM

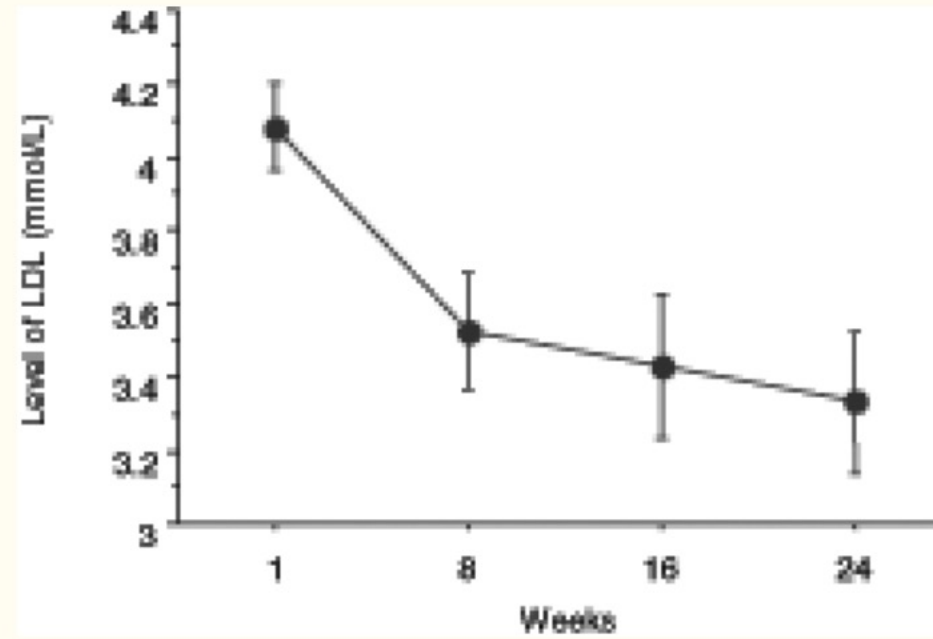
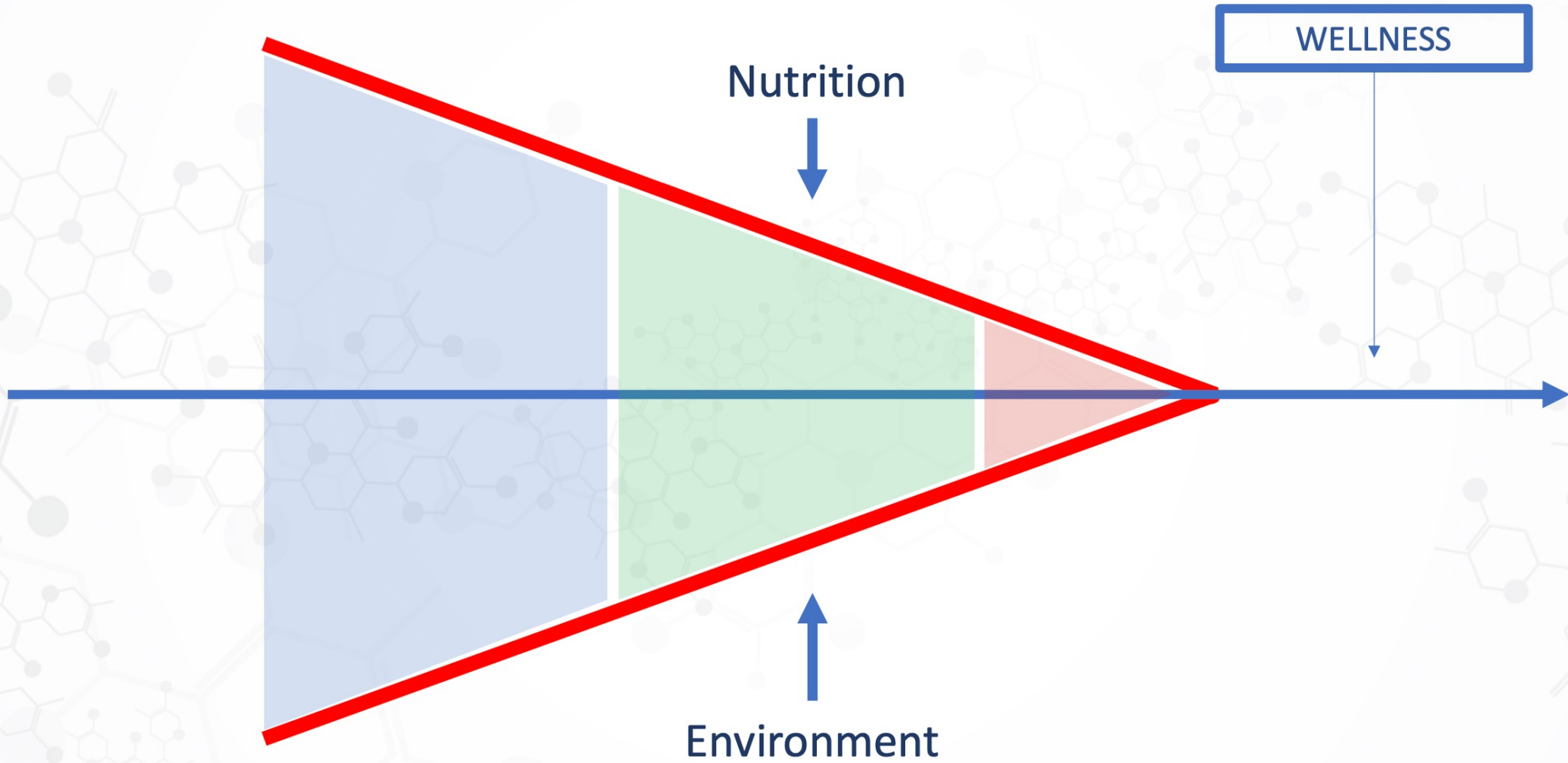


Figure 5).

Changes in the level of low density lipoprotein (LDL) cholesterol during treatment with a ketogenic diet in obese patients at eight, 16 and 24 weeks. The values are expressed as mean \pm SEM

Protocols



Biogenetix: 833-525-0001



bruno@biogenetix.com



kim@biogenetix.com

