SAMPLE ABSTRACTS

1. Low-Carbohydrate Diet Versus Caloric Restriction: Effects on Weight Loss, Hormones, and Colon Tumor Growth in Obese Mice.

Wheatley K, Williams E, Lane M, et al. Low-Carbohydrate Diet Versus Caloric Restriction: Effects on Weight Loss, Hormones, and Colon Tumor Growth in Obese Mice. Nutrition & Cancer [serial online]. January 2008:60(1):61-68. Available from: Academic Search Complete, MA. Accessed October 29, 2017.

Abstract:

Our objective was to compare the effects of a low-carbohydrate diet to a high-carbohydrate/calorie-restricted diet on weight loss, hormones, and transplanted colon tumor growth. Eighty male C57BL/6 mice consumed a diet-induced obesity regimen (DIO) ad libitum for 7 weeks. From Weeks 8 to 14, the mice consumed a 1) DIO diet ad libitum (HF); 2) low-carbohydrate diet ad libitum (LC); 3) high-carbohydrate diet ad libitum (HC); or 4) HC calorie restricted diet (HC-CR). MC38 cells were injected at Week 15. At the time of injection, the HC-CR group displayed the lowest body weight (25.5 \pm 0.57 g), serum insulin-like growth factor I (IGF-I; 135 \pm 56.0 ng/ ml), and leptin $(1.0 \pm 0.3 \text{ ng/ml})$ levels. This group also exhibited the longest time to palpable tumor (20.1 ± 0.9) days). Compared to the HF group, the HC group exhibited lower body weight (39.4 ± 1.4 vs. 32.9 ± 0.7 g, respectively), IGF-I (604 \pm 44.2 vs. 243.4 \pm 88.9 ng/ml, respectively), and leptin (15.6 \pm 2.2 vs. 7.0 \pm 0.7 ng/ml, respectively) levels but similar tumor growth. IGF-I levels were lower in the LC group (320.0 ± 39.9 ng/ml) than the HF group, but tumor growth did not differ. These data suggest LC diets do not slow colon tumor growth in obese mice. [ABSTRACT FROM AUTHOR]

2. Low-fat, high-carbohydrate (low-glycaemic index) diet induces weight loss and preserves lean body mass in obese healthy subjects: results of a 24-week study.

Bahadori, B., Yazdani-Biuki, B., Krippl, P., Brath, H., Uitz, E., & Wascher, T. C. (2005). Low-fat, highcarbohydrate (low-glycaemic index) diet induces weight loss and preserves lean body mass in obese healthy subjects: results of a 24-week study. Diabetes, Obesity & Metabolism, 7(3), 290-293. doi: 10.1111/j.1463-1326.2004.00445.x

Abstract:

Background: The traditional treatment for obesity which is based on a reduced caloric diet has only been partially successful. Contributing factors are not only a poor long-term dietary adherence but also a significant loss of lean body mass and subsequent reduction in energy expenditure. Both low-fat, high-carbohydrate diets and diets using low-glycaemic index (GI) foods are capable of inducing modest weight loss without specific caloric restriction. The purpose of this study was to investigate the feasibility and medium-term effect of a low-fat diet with high (low GI) carbohydrates on weight loss, body composition changes and dietary compliance.

Methods: Obese patients were recruited from two obesity outpatient clinics. Subjects were given advise by a dietician, then they attended biweekly for 1-hour group meetings. Bodyweight and body composition were measured at baseline and after 24 weeks.

Results: One hundred and nine (91%) patients completed the study; after 24 weeks the average weight loss was 8.9 kg (98.6 vs. 89.7 kg; $p \le 0.0001$). There was a significant 15% decrease in fat mass (42.5 vs. 36.4 kg; $p \le 0.0001$) and a decrease in lean body mass of 5% (56.1 vs. 53.3 kg; $p \le 0.0001$).

Discussion: In this 6-month study, a low-fat, low-GI diet led to a significant reduction of fat mass; adherence to the diet was very good. Our results suggest that such a diet is feasible and should be evaluated in randomized controlled trials.

3. Weight-reducing diets: Are there any differences?

Foreyt J, Salas-Salvado J, Serra-Majem L, et al. Weight-reducing diets: Are there any differences?. Nutrition Reviews [serial online]. May 2, 2009;67:S99-S101. Available from: Academic Search Complete, Ipswich, MA. Accessed October 29, 2017.

Abstract:

This paper compares the efficacy of two widely used weight-loss diets differing in macronutrient composition - a low-carbohydrate diet versus a low-fat diet. Although "a calorie is a calorie" under the controlled conditions of a metabolic unit (i.e., only the level of calorie intake matters and not the source of calories), we conclude that these interrelationships are far more complex in the free-living situation. The different dietrelated factors that condition energy balance, including total energy intake, satiety and hunger sensory triggers, and palatability, must be considered when assessing the efficacy of weight-reducing diets of different macronutrient composition.

4. The Effects of Low-Carbohydrate versus Conventional Weight Loss Diets in Severely Obese Adults: One-Year Follow-up of a Randomized Trial

Stern, L., Iqbal, N., Seshadri, P., Chicano, K. L., Daily, D. A., McGrory, J., & ... Samaha, F. F. (2004). The Effects of Low-Carbohydrate versus Conventional Weight Loss Diets in Severely Obese Adults: One-Year Follow-up of a Randomized Trial. *Annals Of Internal Medicine*, 140(10), 778-E-786.

Background: A previous paper reported the 6-month comparison of weight loss and metabolic changes in obese adults randomly assigned to either a low-carbohydrate diet or a conventional weight loss diet. **Objective**: To review the 1-year outcomes between these diets.

Design: Randomized trial.

Setting: Philadelphia Veterans Affairs Medical Center.

Participants: 132 obese adults with a body mass index of 35 kg/m2 or greater; 83% had diabetes or the metabolic syndrome.

Intervention: Participants received counseling to either restrict carbohydrate intake to <30 g per day (low-carbohydrate diet) or to restrict caloric intake by 500 calories per day with <30% of calories from fat (conventional diet).

Measurements: Changes in weight, lipid levels, glycemic con- trol, and insulin sensitivity.

Results: By 1 year, mean (\pm SD) weight change for persons on the low-carbohydrate diet was 5.1 \pm 8.7 kg compared with 3.1 \pm 8.4 kg for persons on the conventional diet. Differences between groups were not significant (1.9 kg [95% CI, 4.9 to

1.0 kg]; P 0.20). For persons on the low-carbohydrate diet, triglyceride levels decreased more (P 0.044) and high-density lipoprotein cholesterol levels decreased less (P 0.025). As seen in the small group of persons with diabetes (n 54) and after adjustment for covariates, hemoglobin A1c levels improved more for persons on the low-carbohydrate diet. These more favorable metabolic responses to a low-carbohydrate diet remained significant after adjustment for weight loss differences. Changes in other lipids or insulin sensitivity did not differ between groups.

Limitations: These findings are limited by a high dropout rate (34%) and by suboptimal dietary adherence of the enrolled per- sons.

Conclusion: Participants on a low-carbohydrate diet had more favorable overall outcomes at 1 year than did those on a conventional diet. Weight loss was similar between groups, but effects on atherogenic dyslipidemia and glycemic control were still more favorable with a low-carbohydrate diet after adjustment for differences in weight loss.

5. The impact of low-protein high-carbohydrate diets on aging and lifespan

Couteur, D., Solon-Biet, S., Cogger, V., Mitchell, S., Senior, A., Cabo, R., & ... Simpson, S. (2016). The impact of low-protein high-carbohydrate diets on aging and lifespan. *Cellular & Molecular Life Sciences*, 73(6), 1237-1252. doi:10.1007/s00018-015-2120-y

Abstract:

Most research on nutritional effects on aging has focussed on the impact of manipulating single dietary factors such as total calorie intake or each of the macronutrients individually. More recent studies using a nutritional geometric approach called the Geometric Framework have facilitated an understanding of how aging is influenced across a landscape of diets that vary orthogonally in macronutrient and total energy content. Such studies have been performed using ad libitum feeding regimes, thus taking into account compensatory feeding responses that are inevitable in a non-constrained environment. Geometric Framework studies on insects and mice have revealed that diets low in protein and high in carbohydrates generate longest lifespans in ad libitum-fed animals while low total energy intake (caloric restriction by dietary dilution) has minimal effect. These conclusions are supported indirectly by observational studies in humans and a heterogeneous group of other types of interventional studies in insects and rodents. Due to compensatory feed- ing for protein dilution, low-protein, high-carbohydrate diets are often associated with increased food intake and body fat, a phenomenon called protein leverage. This could potentially be mitigated by supplementing these diets with interventions that influence body weight through physical activity and ambient temperature.

6. Low-fat, high-carbohydrate (low-glycaemic index) diet induces weight loss and preserves lean body mass in obese healthy subjects: results of a 24-week study.

Bahadori, B., Yazdani-Biuki, B., Krippl, P., Brath, H., Uitz, E., & Wascher, T. C. (2005). Low-fat, highcarbohydrate (low-glycaemic index) diet induces weight loss and preserves lean body mass in obese healthy subjects: results of a 24-week study. *Diabetes, Obesity & Metabolism*, 7(3), 290-293. doi:10.1111/j.1463-1326.2004.00445.x

Abstract:

The traditional treatment for obesity which is based on a reduced **caloric diet** has only been partially successful. Contributing factors are not only a poor long-term dietary adherence but also a significant **loss** of lean body mass and subsequent reduction in energy expenditure. Both **low**-fat, high-**carbohydrate** diets and diets using **low**-glycaemic index (GI) foods are capable of inducing modest **weight loss** without specific **caloric** restriction. The purpose of this study was to investigate the feasibility and medium-term effect of a **low**-fat **diet** with high (**low** GI) carbohydrates on **weight loss**, body composition changes and dietary compliance.Obese patients were recruited from two obesity outpatient clinics. Subjects were given advise by a dietician, then they attended biweekly for 1-hour group meetings. Bodyweight and body composition were measured at baseline and after 24 weeks.One hundred and nine (91%) patients completed the study; after 24 weeks the average **weight loss** was 8.9 kg (98.6 vs. 89.7 kg; p ≤ 0.0001). There was a significant 15% decrease in fat mass (42.5 vs. 36.4 kg; p ≤ 0.0001) and a decrease in lean body mass of 5% (56.1 vs. 53.3 kg; p ≤ 0.0001). In this 6-month study, a **low**-fat, **low**-GI **diet** led to a significant reduction of fat mass; adherence to the **diet** was very good. Our results suggest that such a **diet** is feasible and should be evaluated in randomized controlled trials. [ABSTRACT FROM AUTHOR]

7. Long-term effects of weight loss with a very-low carbohydrate, low saturated fat diet on flow mediated dilatation in patients with type 2 diabetes: A randomised controlled trial

Thomas P.WycherleyabCampbell H.ThompsoncJonathan D.BuckleybNatalie D.Luscombe-

MarshdMannyNoakesdGary A.WittertcGrant D.Brinkworthd

Abstract

Background and aims

Very-low carbohydrate diets can improve glycaemic control in patients with type 2 diabetes (T2DM). However, compared to traditional higher carbohydrate, low fat (HighCHO) diets, they have been associated with impaired endothelial function (measured by flow mediated dilatation [FMD]) that is possibly related to saturated fat. This study aimed to examine the effects of a 12-month hypocaloric very-low carbohydrate, low saturated fat (LowCHO) diet compared to an isocaloric HighCHO diet.

Methods

One hundred and fifteen obese patients with T2DM (age:58.4 \pm 0.7 [SEM] yr, BMI:34.6 \pm 0.4 kg/m /react-text 2 react-text: 179, HbA1c:7.33 [56.3 mmol/mol] \pm 0.10%) were randomised to consume an energy restricted LowCHO diet (Carb:Pro:Fat:Sat-Fat 14:28:58: < 10% energy; n = 58) or isocaloric HighCHO diet (53:17:30: < 10%; n = 57) whilst undertaking exercise (60 min, 3/wk). Bodyweight, HbA1c and FMD were assessed. /react-text

Results

Seventy eight participants completed the intervention (LowCHO = 41, HighCHO = 37). Both groups experienced similar reductions in weight and HbA1c (-10.6 ± 0.7 kg, $-1.05 \pm 0.10\%$; /react-text *p* react-text: 185 < 0.001 time, /react-text *p* react-text: 187 ≥ 0.48 time × diet). FMD did not change (/react-text *p* react-text: 189 = 0.11 time, /react-text *p* react-text: 191 = 0.20 time × diet). /react-text

Conclusions

In patients with obesity and T2DM, HighCHO diet and LowCHO diet have similar effects on endothelial function. **Keywords**

Weight lossEndothelial functionDiet compositionCardiovascular disease risk