Year	Author	Title	Journal	Summary	Primary outcomes
2017	McKenzie	A Novel Intervention Including Individualized Nutritional Recommendations Reduces Hemoglobin A1c Level, Medication Use, and Weight in Type 2 Diabetes	JMIR Diabetes	This study demonstrates an individualized program delivered and supported remotely that incorporates nutritional ketosis can be highly effective in improving glycemic control and weight loss in adults with T2D while significantly decreasing medication use.	Type 2 diabetes, obesity, hypoglycemic medications
2017	Saslow	Twelve-month outcomes of a randomized trial of a moderate-carbohydrate versus very low-carbohydrate diet in overweight adults with type 2 diabetes mellitus or prediabetes	Nutrition & Diabetes	The results suggest that adults with prediabetes or noninsulin-dependent type 2 diabetes may be able to improve glycemic control with less medication by following an ad libitum very low-carbohydrate ketogenic diet compared to a moderate-carbohydrate, calorie-restricted low-fat diet. Additional research should examine both clinical outcomes and adherence beyond 12 months.	glycemic control
2017	Taus	A very low calorie ketogenic diet improves weight loss and quality of life in patients with adjustable gastric banding.	Ann Ital Chir.	KD can improve the weight loss and quality of life in patients who underwent LAGB and failed at losing more weight allowing a weight loss comparable to that obtained with a further calibration and it is useful to avoid drastic calibrations and their collateral effects.	post Gastric banding weight loss
2017	Tsaban	Dynamics of intrapericardial and extrapericardial fat tissues during long-term, dietary-induced, moderate weight loss	Am J Clin Nutr	Moderate but persistent dietary-induced weight loss substantially decreased both IPF and EPF volumes. Reduction of pericardial adipose tissues is independently associated with an improved lipid profile. The Mediterranean diet, rich in unsaturated fats and restricted carbohydrates, is superior to an LF diet in terms of the IPF burden reduction.	IPF and EPF changes during weight loss

2016	Mansoor	Effects of low-carbohydrate diets v. low-fat diets on body weight and cardiovascular risk factors: a meta-analysis of randomised controlled trials	British Journal of Nutrition	This meta-analysis demonstrates opposite change in two important cardiovascular risk factors on LC diets – greater weight loss and increased LDL-cholesterol.	Weight loss
2016	Hall	Energy expenditure and body composition changes after an isocaloric ketogenic diet in overweight and obese men	Am J Clin Nutr	A logical consequence of the carbohydrate–insulin model is that decreasing the proportion of dietary carbohydrate to fat without altering protein or calories will reduce insulin secretion, increase fat mobilization from adipose tissue, and elevate the oxidation of circulating free fatty acids (FFAs). For those participants following the Ketogenic Diet, insulin response was superior to comparative diet.	EE, RQ and body composition
2016	Wycherley	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.	Atherosclerosis	In patients with obesity and T2DM, HighCHO diet and LowCHO diet have similar effects on endothelial function.	Bodyweight, HbA1c and FMD were assessed.

2015	Sackner-Bernstein	Dietary Intervention for Overweight and Obese Adults: Comparison of Low-Carbohydrate and Low-Fat Diets. A Meta-Analysis	PlosOne	This trial-level meta-analysis of randomized controlled trials comparing LoCHO diets with LoFAT diets in strictly adherent populations demonstrates that each diet was associated with significant weight loss and reduction in predicted risk of ASCVD events. However, LoCHO diet was associated with modest but significantly greater improvements in weight loss and predicted ASCVD risk in studies from 8 weeks to 24 months in duration. These results suggest that future evaluations of dietary guidelines should consider low carbohydrate diets as effective and safe intervention for weight management in the overweight and obese, although long-term effects require further investigation.	Weight loss
2015	Gardner	Weight Loss on Low-Fat vs. Low-Carbohydrate Diets by Insulin Resistance Status Among Overweight Adultsand Adults With Obesity: A Randomized Pilot Trial	Obesity	Both diets demonstrated significant weight loss, as well as improved biomarkers for many disease risk factors.	Weight loss
2015	Throning	Diets with high-fat cheese, high-fat meat, or carbohydrate on cardiovascular risk markers in overweight postmenopausal women: a randomized crossover trial.	Am J Clin Nutr	Diets with cheese and meat as primary sources of SFAs cause higher HDL cholesterol and apo A-I and, therefore, appear to be less atherogenic than is a low-fat, high-carbohydrate diet. Also, our findings confirm that cheese increases fecal fat excretion.	blood lipids, lipoproteins, and fecal excretion of fat and bile acids

2014	Bazzano	Effects of Low-Carbohydrate and Low-Fat Diets	Annals of Internal Medicine	The low-carbohydrate diet was more effective for weight loss and cardiovascular risk factor reduction than the low-fat diet. Restricting carbohydrate may be an option for ersons seeking to lose weight and reduce cardiovascular risk factors.	weight, CVD risk factors
2014	Jonasson	Advice to follow a low-carbohydrate diet has a favourable impact on low-grade infl ammation in type 2 diabetes compared with advice to follow a low-fat diet	Annals of Medicine	Low Carbohydrate Diet was found significantly to improve the subclinical inflammatory state in type 2 diabetes.	inflammation in T2D
2014	Maekwa	Retrospective Study on the Efficacy of a Low-Carbohydrate Diet for Impaired Glucose Tolerance	Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy	The LCD is effective for normalizing blood glucose and preventing progression to type-2 diabetes in patients with IGT.	normalizing blood glucose in IGT patients and preventing progression from IGT to type 2 diabetes
2014	Moreno	Comparison of a very low-calorie-ketogenic diet with a standard low-calorie diet in the treatment of obesity	Endocrine	In a group of obese patients, the VLCK diet was significantly more effective than a standard LC diet. At one year followup in the group with VLCK diet, most of the patients loss more than 10 % of their initial weight and lean mass was well preserved.	Weight loss
2014	Saslow	A Randomized Pilot Trial of a Moderate Carbohydrate Diet Compared to a Very Low Carbohydrate Diet in Overweight or Obese Individuals with Type 2 Diabetes Mellitus or Prediabetes	PlosOne	Results suggest that a very low carbohydrate diet coupled with skills to promote behavior change may improve glycemic control in type 2 diabetes while allowing decreases in diabetes medications.	glycemic control and CVD risk factors

2014	Tay	A Very Low Carbohydrate, Low Saturated Fat Diet for Type 2 Diabetes Management: A Randomized Trial	Diabetes Care	Both diets achieved substantial improvements for several clinical glycemic control and CVD risk markers. These improvements and reductions in GV and antiglycemic medication requirements were greatest with the LC compared with HC. This suggests an LC diet with low saturated fat may be an effective dietary approach for T2DM management if effects are sustained beyond 24	glycemic control and cardiovascular disease (CVD) risk factors in type 2 diabetes
2014	Yamada	A Non-calorie-restricted Low-carbohydrate Diet is Effective as an Alternative Therapy for Patients with Type 2 Diabetes	Internal Medicine	Findings suggest that a low-carbohydrate diet is effective in lowering the HbA1c and triglyceride levels in patients with type 2 diabetes who are unable to adhere to a calorie-restricted diet.	glycemic control and meatabolic profiles
2013	Ajala	Systematic review and meta-analysis of different dietary approaches to the management of type 2 diabetes	Am J Clin Nutr	Low-carbohydrate are as effective as low-GI, Mediterranean, and highproteindiets in improving various markers of cardiovascular risk in people with diabetes and should be considered in the overall strategy of diabetes management.	Type 2 diabetes
2013	Ballard	Dietary carbohydrate restriction improves insulin sensitivity, blood pressure, microvascular function, and cellular adhesion markers in individuals taking statins	Nutrition Research	The results of this study suggest that a CRD could be a sustainable lifestyle that complements statin treatment to improve overall cardiometabolic risk, particularly for individuals with other risk factors indicative of metabolic syndrome, but future research is needed to determine the effects over a longer period of time.	lipids, inflammation, insulin sensitivity, blood pressure, microvascular function, cellular ahehesion
2013	Bueno	Very-low-carbohydrate ketogenic diet v. low-fat diet for long-term weight loss: a meta-analysis of randomised controlled trials	British Journal of Nutrition	Individuals assigned to a VLCKD achieve a greater weight loss than those assigned to a LFD in the long term; hence, a VLCKD may be an alternative tool against obesity.	Weight loss

2013	Paoli	Long Term Successful Weight Loss with a Combination Biphasic Ketogenic Mediterranean Diet and Mediterranean Diet Maintenance Protocol	Nutrients	The data from this study demonstrate that the majority of subjects showed significant weight loss (10%) as a result of a two-phase VLCKD and were compliant both during the six month weight loss phase and the six month normocaloric maintenance phase, with no weight regain. We can suggest that the proposed protocol was generally successful because of (a) the protein mass protective effects of a VLCKD and (b) the prescription of a traditional Mediterranean diet in the post weight-loss phase was especially important for achieving “weight loss success”, i.e., continued weight loss for at least one year.	Weight and body composition
2013	Ruth	Consuming a hypocaloric high fat low carbohydrate diet for 12 weeks lowers C-reactive protein, and raises serum adiponectin and high density lipoprotein-cholesterol in obese subjects	Metabolism: Clinical and Experimental	Relative to the Low Fat/High Carb group, the High Fat/Low Carb group had greater improvements in blood lipids and systemic inflammation with similar changes in body weight and composition. This small-scale study suggests that HFLC diets may be more beneficial to cardiovascular health and inflammation in free-living obese adults compared to LFHC diets.	weight loss, CVD risk factors, Inflammation
2013	Tirosh	Renal Function Following Three Distinct Weight Loss Dietary Strategies During 2Years of a Randomized Controlled Trial	Diabetes Care	A low-carbohydrate diet is as safe as Mediterranean or low-fat diets in preserving/improving renal function among moderately obese participants with or without type 2 diabetes, with baseline serum creatinine <176 μmol/L. Potential improvement is likely to be mediated by weight loss-induced improvements in insulin sensitivity and blood pressure.	renal function
2013	Walsh	Effects of Diet Composition on Postprandial Energy Availability during Weight Loss Maintenance	PlosOne	These findings suggest that a Low Fat diet may adversely affect postprandial Energy Availability and risk for weight regain during weight loss maintenance.	exergy availability post prandially during weight maintenance

2012	Ebbeling	Effects of Dietary Composition on Energy Expenditure During Weight-Loss Maintenance	JAMA	Individuals on the very low carb diet had the highest resting metabolism.	REE, TEE, hormones, metabolic syndrome criteria
2012	Friedman	Comparative Effects of Low-Carbohydrate High-Protein Versus Low-Fat Diets on the Kidney	Clin J Am Soc Nephrol	In healthy obese individuals, a low-carbohydrate high-protein weight-loss diet over 2 years was not associated with noticeably harmful effects on GFR, albuminuria, or fluid and electrolyte balance compared with a low-fat diet.	GFR) indices (serum creatinine, cystatin C, creatinine clearance); 24-hour urinary volume; albumin; calcium excretion; and serum solutes
2012	Hussain	Effect of low-calorie versus low-carbohydrate ketogenic diet in type 2 diabetes	Nutrition	This study shows the beneficial effects of a ketogenic diet over the conventional LCD in obese diabetic subjects. The ketogenic diet appears to improve glycemic control. Therefore, diabetic patients on a ketogenic diet should be under strict medical supervision because the LCKD can significantly lower blood glucose levels.	glucemic control and diabetes medication
2012	Santos	Systematic review and meta-analysis of clinical trials of the effects of low carbohydrate diets on cardiovascular risk factors	Obesity Reviews	LCD was shown to have favourable effects on body weight and major cardiovascular risk factors.	CVD

2011	Saskabe	Effects of a moderate low-carbohydrate diet on preferential abdominal fat loss and cardiovascular risk factors in patients with type 2 diabetes	Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy	Six months of a moderate LCD resulted in preferential VAT (visceral adipose tissue) loss only in women, with significant correlations between % change SAT (subcutaneous adipose tissue) and both change HDL and change FBG (fasting blood glucose), as well as between % change VAT and change TG. Authors results suggest that an LCD has the potential to reduce abdominal fat in patients with T2DM and deterioration of serum lipid profiles.	Abdominal fat and CVD risk factors
2010	Foster	Weight and Metabolic Outcomes After 2 Years on a Low-Carbohydrate Versus Low-Fat Diet: A Randomized Trial	Annals of Internal Medicine	Successful weight loss can be achieved with either a low-fat or low-carbohydrate diet when coupled with behavioral treatment. A low-carbohydrate diet is associated with favorable changes in cardiovascular disease risk factors at 2 years. Weight loss was approximately 11 kg (11%) at 1 year and 7 kg (7%) at 2 years. During the first 6 months, the low-carbohydrate diet group had greater reductions in diastolic blood pressure, triglyceride levels, and very-low-density lipoprotein cholesterol levels, lesser reductions in low-density lipoprotein cholesterol levels, and more adverse symptoms than did the low-fat diet group. The low-carbohydrate diet group had greater increases in high-density lipoprotein cholesterol levels at all time points, approximating a 23% increase at 2 years.	weight loss
2010	Iqbal	Effects of a Low-intensity Intervention That Prescribed a Low-carbohydrate vs. a Low-fat Diet in Obese, Diabetic Participants	Obesity	At this time, participants in the low-carbohydrate group lost 1.5 kg, compared to 0.2 kg in the low-fat group (P = 0.147). Lipids, glycemic indexes, and dietary intake did not differ between groups at month 24 (or at months 6 or 12).	Weight,, A1c, lipids

2010	Krebs	Efficacy and Safety of a High Protein, Low Carbohydrate Diet for Weight Loss in Severely Obese Adolescents	J Pediatr	Significant reduction in BMI-Z-score was achieved in both groups during intervention, and was significantly greater for the HPLC (high protein low carbohydrate) group. Both groups maintained significant BMI-Z reduction at follow-up; changes were not significantly different between groups. The HPLC diet is a safe and effective option for medically supervised weight loss in severely obese adolescents.	weight loss, metabolic markers, body composition, and cardiac function tests
2010	Thomson	Changes in Body Weight and Metabolic Indexes in Overweight Breast Cancer Survivors Enrolled in a Randomized Trial of Low-Fat vs. Reduced Carbohydrate Diets	Nutrition and Cancer	A group of overweight female breast cancer survivors were assigned either a low-fat diet or Modified Atkins Diet. All subjects demonstrated improvements in total/HDL cholesterol ratio, and significant reductions inHbA1c, insulin, and HOMA. Triglycerides levels were significantly reduced only in the low-carbohydrate diet group. Significant improvements in weight and metabolic indexes can be demonstrated among overweight breast cancer survivors adherent to either the Modified Atkins Diet or fat restricted diet.	weight loss, body composition, and changes in metabolic indexes
2010	Volek	Limited Effect of Dietary Saturated Fat on Plasma Saturated Fat in the Context of a Low Carbohydrate Diet	Lipids	Authors showed that a hypocaloric carbohydrate restricted diet (CRD) had two striking effects: (1) a reduction in plasma saturated fatty acids (SFA) despite higher intake than a low fat diet, and (2) a decrease in inflammation despite a significant increase in arachidonic acid (ARA). These findings are consistent with the concept that dietary saturated fat is efficiently metabolize in the presence of low carbohydrate, and that a CRD results in better preservation of plasma ARA.	Cholesterol
2010	Yancy	A randomized trial of a low-carbohydrate diet vs orlistat plus a low-fat diet for weight loss.	Arch Intern Med	Obese and overweight outpatients were assigned to either a low-carbohydrate ketogenic diet (LCKD) or Orlistat therapy combined with a low fat diet (O + LFD). In a sample of medical outpatients, an LCKD led to similar improvements as O + LFD for weight, serum lipid, and glycemic parameters and was more effective for lowering blood pressure.	body weight, blood pressure, fasting serum lipid, and glycemic parameters

2009	Brinkworth	Long-term effects of a very-low-carbohydrate weight loss diet compared with an isocaloric low-fat diet after 12 mo	Am J Clin Nutr.	Low Carb group (over a isocaloric low fat diet) had greater decreases in triglycerides, increases in HDL cholesterol, and LDL cholesterol, and a greater but nonsignificant increase in apolipoprotein B. Both dietary patterns resulted in similar weight loss and changes in body composition. The LC diet may offer clinical benefits to obese persons with insulin resistance.	Weight, body composition, and cardiometabolic risk markers
2009	Davis	Comparative Study of the Effects of a 1-Year Dietary Intervention of a Low-Carbohydrate Diet Versus a Low-Fat Diet on Weight and Glycemic Control in Type 2 Diabetes	Diabetes Care	Among patients with type 2 diabetes, after 1 year a low-carbohydrate diet had effects on weight and A1C similar to those seen with a low-fat diet. There was no significant effect on blood pressure, but the low-carbohydrate diet produced a greater increase in HDL cholesterol. Weight loss occurred faster in the low-carbohydrate group than in the low-fat group in the first 3 months.	weight and A1C
2009	Siegel	A 6-Month, Office-Based, Low-Carbohydrate Diet Intervention in Obese Teens	Clinical Pediatrics	The LCD appears to an effective and practical office-based intervention in obese teenagers.	weight
2009	Volek	Effects of Dietary Carbohydrate Restriction Versus Low-fat Diet on Flow-mediated Dilation.	Metabolism	These findings show that a 12-week low-carbohydrate diet improves postprandial vascular function more than a LFD in individuals with atherogenic dyslipidemia.	vascular function measured by peak flow mediated dilation
2009	Sacks	Comparison of Weight-Loss Diets with Different Compositions of Fat, Protein, and Carbohydrates	New England J of Medicine	811 overweight adults to one of four diets; the targeted percentages of energy derived from fat, protein, and carbohydrates in the four diets were 20, 15, and 65%; 20, 25, and 55%; 40, 15, and 45%; and 40, 25, and 35%. At end of study, diets higher in protein and fat showed greater weight loss and reduced waist circumference than diet high in carbohdyrates.	Body weight

2008	Morgan	Comparison of the Effects of Four Commercially Available Weight-loss Programmes on Lipid-based Cardiovascular Risk Factors	Public Health Nutrition	The Atkins (low-carbohydrate) diet was followed by marked reductions in plasma TAG (–38.2% 6 months). This diet was associated with an increase in LDL particle size, a change that has been linked to reduced CVD risk.	plasma lipids and lipoproteins
2008	Shai	Weight Loss with a Low-Carbohydrate, Mediterranean, or Low-Fat Diet	The New England Journal of Medicine	Mediterranean and low-carbohydrate diets may be effective alternatives to low-fat diets. The more favorable effects on lipids (with the low-carbohydrate diet) and on glycemic control (with the Mediterranean diet) suggest that personal preferences and metabolic considerations might inform individualized tailoring of dietary interventions.	Weight loss + CVD risk factors
2008	Volek	Carbohydrate Restriction has a More Favorable Impact on the Metabolic Syndrome than a Low Fat Diet	Lipids	Both interventions led to improvements in several metabolic markers, but subjects following the CRD had consistently reduced glucose (-12%) and insulin (-50%) concentrations, insulin sensitivity (-55%), weight loss (-10%), decreased adiposity (-14%), and more favorable triacylglycerol (TAG) (-51%), HDL-C (13%) and total cholesterol/HDL-C ratio (-14%) responses. In addition to these markers for MetS, the CRD subjects showed more favorable responses to alternative indicators of cardiovascular risk: postprandial lipemia (-47%), the Apo B/Apo A-1 ratio (-16%), and LDL particle distribution. The results support the use of dietary carbohydrate restriction as an effective approach to improve features of MetS and cardiovascular risk.	Metabolic Syndrome criteria, lipids, and postprandial lipemia

2008	Westman	The Effect of a Low-carbohydrate, Ketogenic Diet Versus a Low-glycemic Index Diet on Glycemic Control in Type 2 Diabetes Mellitus	Nutrition & Metabolism	Dietary modification led to improvements in glycemic control and medication reduction/elimination in motivated volunteers with type 2 diabetes. The diet lower in carbohydrate led to greater improvements in glycemic control, and more frequent medication reduction/elimination than the low glycemic index diet. Lifestyle modification using low carbohydrate interventions is effective for improving and reversing type 2 diabetes.	Type 2 diabetes - glycemic control
2007	Gardner	Comparison of the Atkins, Zone, Ornish, and LEARN Diets For Change in Weight and Related Risk Factors Among Overweight Premenopausal Women: the A TO Z Weight Loss Study: a Randomized Trial.	JAMA	In this study, premenopausal overweight and obese women assigned to follow the Atkins diet, which had the lowest carbohydrate intake, lost more weight at 12 months than women assigned to follow the Zone diet, and had experienced comparable or more favorable metabolic effects than those assigned to the Zone, Ornish, or LEARN diets.	Weight loss
2006	Daly	Short-Term Effects of Severe Dietary Carbohydrate-Restriction Advice in Type 2 Diabetes--a Randomized Controlled Trial	Diabet Med	Weight loss and high-density lipoprotein (HDL) ratio improved was greater in the low-carbohydrate (LC) group over low fat group. Carbohydrate restriction was an effective method of achieving short-term weight loss compared with standard advice.	Weight, glycaemic control, lipids and blood pressure
2005	Boden	Effect of a Low-Carbohydrate Diet on Appetite, Blood Glucose Levels, and Insulin Resistance in Obese Patients with Type 2 Diabetes	Annals of Internal Medicine	In a small group of obese patients with type 2 diabetes, a low-carbohydrate diet followed for 2 weeks resulted in spontaneous reduction in energy intake to a level appropriate to their height; weight loss that was completely accounted for by reduced caloric intake; much improved 24-hour blood glucose profiles, insulin sensitivity, and hemoglobin A1c; and decreased plasma triglyceride and cholesterol levels.	body weight, body water, energy intake and expenditure, glycemic control, insulin sensitivity, and lipid

2005	Brehm	The Role of Energy Expenditure in the Differential Weight Loss in Obese Women on Low-fat and Low-carbohydrate Diets	J Clin Endocrinol Metab	These results confirm that short-term weight loss is greater in obese women on a low-carbohydrate diet than in those on a low-fat diet even when reported food intake is similar.	Weight loss, REE, TEF
2005	Coleman	Urinary Ketones Reflect Serum Ketone Concentration But Do Not Relate to Weight Loss in Overweight Premenopausal Women Following a Low-carbohydrate/High-protein Diet	J Am Diet Assoc	Thirteen overweight premenopausal women aged 32 to 45 years consumed <20 g carbohydrate/day with liberal intakes of protein and fat for 2 weeks; thereafter, carbohydrate intake increased 5 g/week for 10 weeks. Serum-hydroxybutyrate was correlated with presence of urinary ketones, but no relationship was found between weekly weight change and serum ketone production. Urinary ketones are detected in premenopausal women complying with a low-carbohydrate/high-protein diet and are associated with serum ketone concentration.	Weight loss BHOB levels
2005	Dansinger	Comparison of the Atkins, Ornish, Weight Watchers, and Zone Diets for Weight Loss and Heart Disease Risk Reduction	Journal of the American Medical Association	Each popular diet modestly reduced body weight and several cardiac risk factors at 1 year. Overall dietary adherence rates were low, although increased adherence was associated with greater weight loss and cardiac risk factor reductions for each diet group.	Weight loss + CVD risk factors and self reported diet adherence
2005	Mavropoulos	The Effects of a Low-Carbohydrate, Ketogenic Diet on The Polycystic Ovary Syndrome: a Pilot Study	Nutrition and Metabolism	In this pilot study, a LCKD led to significant improvement in weight, percent free testosterone, LH/FSH ratio, and fasting insulin in women with obesity and PCOS over a 24 week period.	PCOS - weight, percent free testosterone, LH/FSH ratio, and fasting insulin

2005	McAuley	Comparison of High-Fat and High-Protein Diets With a High-Carbohydrate Diet in Insulin-Resistant Obese Women	Diabetologia	In routine practice a reduced-carbohydrate, higher protein diet may be the most appropriate overall approach to reducing the risk of cardiovascular disease and type 2 diabetes. To achieve similar benefits on a HC diet, it may be necessary to increase fibre-rich wholegrains, legumes, vegetables and fruits, and to reduce saturated fatty acids to a greater extent than appears to be achieved by implementing current guidelines.	body comp and CVD risk factors
2005	O'Brien	Diet-Induced Weight Loss Is Associated with Decreases in Plasma Serum Amyloid A and C-Reactive Protein Independent of Dietary Macronutrient Composition in Obese Subjects	The Journal of Clinical Endocrinology & Metabolism	The very low-carbohydrate dieters had a significantly greater decrease in LogSAA, but their weight loss also was significantly greater. In this study, the decreases in inflammatory markers correlated significantly with weight loss. Also, change in LogSAA correlated with change in insulin resistance. Thus, in otherwise healthy, obese women, weight loss was associated with significant decreases in both SAA and CRP. These effects were proportional to the amount of weight lost but independent of dietary macronutrient composition.	Weight loss and inflammatory markers
2005	Yancy	A Low-carbohydrate, Ketogenic Diet to Treat Type 2 Diabetes	Nutrition and Metabolism	In a study of overweight individuals with type 2 diabetes, the LCKD (low carbohydrate ketogenic diet) improved glycemic control in patients with type 2 diabetes such that diabetes medications were discontinued or reduced in most participants. Other results include: mean body weight decreased by 6.6% and fasting serum triglyceride decreased 42%.	Type 2 diabetes

2004	Aude	The National Cholesterol Education Program Diet vs a Diet Lower in Carbohydrates and Higher in Protein and Monounsaturated Fat	Arch Intern Med	Compared with the NCEP diet, the MLC diet, which is lower in total carbohydrates but higher in complex carbohydrates, protein, and monounsaturated fat, caused significantly greater weight loss over 12 weeks. Weight loss was significantly greater in the Modified Low Carbohydrate (13.6 lb) than in the National Cholesterol Education Program group (7.5 lb), a difference of 6.1 lb. There were significantly favorable changes in all lipid levels within the MLC but not within the NCEP group. Waist-to-hip ratio was significantly decreased within the MLC group.	weight loss
2004	Dashti	Long Term Effects of a Ketogenic Diet in Obese Patients	Clinical Cardiology	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.	obesity and obesity-related risk factors
2004	Gann	A Low-carbohydrate Diet in Overweight Patients Undergoing Stable Statin Therapy Raises High-density Lipoprotein and Lowers Triglycerides Substantially	Clin Cardiol	This study was undertaken to evaluate the effect of a low-carbohydrate diet on the lipid levels in obese patients with known arteriosclerotic heart disease on chronic statin therapy. Triglyceride levels were lowered by 29.5%, HDL raised by 17.6%, and cholesterol decreased by 8.4%. The cholesterol/ HDL ratio changed from 5.31 to 3.78 and LDL cholesterol decreased by 5%. The addition of a low-carbohydrate diet for overweight patients with known coronary artery disease undergoing stable statin therapy causes significant weight loss and a favorable change in the lipid panel.	lipids

2004	Gannon	Effect of a High-Protein, Low-Carbohydrate Diet on Blood Glucose Control in People With Type 2 Diabetes	Diabetes	A LoBAG (low-biologically-available-glucose) diet ingested for 5 weeks dramatically reduced the circulating glucose concentration in people with untreated type 2 diabetes. Potentially, this could be a patient-empowering way to ameliorate hyperglycemia without pharmacological intervention.	percentage glycohemoglobin and 24-h glucose, insulin, C-peptide, β-hydroxybutyrate, glucagon, triacylglycerol, and nonesterified fatty acid (NEFA)
2004	Meckling	Comparison of a Low-fat Diet to a Low-carbohydrate Diet on Weight Loss, Body Composition, and Risk Factors for Diabetes and Cardiovascular Disease in Free-living, Overweight Men and Women	J Clin Endocrinol Metab	Both groups of subjects had significant weight loss over the 10 wk of diet intervention and nearly identical improvements in body weight and fat mass. Only the LC group had a significant decrease in circulating insulin concentrations. Group results indicated that the diets were equally effective in reducing systolic blood pressure by about 10 mm Hg and diastolic pressure by 5 mm Hg and decreasing plasminogen activator inhibitor-1 bioactivity. These data suggest that energy restriction achieved by a very LC diet is equally effective as a LF diet strategy for weight loss and decreasing body fat in overweight and obese adults.	Weight, blood pressure, and body composition
2004	Seshadri	A Randomized Study Comparing the Effects of a Low-carbohydrate Diet and a Conventional Diet on Lipoprotein Subfractions and C-reactive Protein Levels in Patients With Severe Obesity	Am J Med	In this 6-month study involving severely obese subjects, we found an overall favorable effect of a low-carbohydrate diet on lipoprotein subfractions, and on inflammation in high-risk subjects. Both diets had similar effects on LDL and HDL subfractions.	lipids and inflammation

2004	Sharman	Very Low-carbohydrate and Low-fat Diets Affect Fasting Lipids and Postprandial Lipemia Differently in Overweight Men	J Nutr	The primary purpose of this study was to compare the effects of a very low-carbohydrate and a low-fat diet on fasting blood lipids and postprandial lipemia in overweight men. In a balanced, randomized, crossover design, overweight men consumed 2 experimental diets for 2 consecutive 6-wk periods. One was a very low-carbohydrate (<10% energy as carbohydrate) diet and the other a low-fat (<30% energy as fat) diet. Both diets had the same effect on serum total cholesterol, serum insulin, and homeostasis model analysis-insulin resistance (HOMA-IR). Neither diet affected serum HDL cholesterol (HDL-C) or oxidized LDL (oxLDL) concentrations. The very low-carbohydrate diet was more effective at improving characteristics of the metabolic syndrome as shown by a decrease in fasting serum TAG, the TAG/HDL-C ratio, postprandial lipemia, serum glucose, an increase in LDL particle size, and also greater weight loss.	lipids and postprandial lipemia
2004	Volek	Comparison of a Very Low-Carbohydrate and Low-Fat Diet on Fasting Lipids, LDL Subclasses, Insulin Resistance, and Postprandial Lipemic Responses in Overweight Women	J Am Coll Nutr	Compared to a low-fat weight loss diet, a short-term very low-carbohydrate diet did not lower LDL-C but did prevent the decline in HDL-C and resulted in improved insulin sensitivity in overweight and obese, but otherwise healthy women. Small decreases in body mass improved postprandial lipemia, and therefore cardiovascular risk, independent of diet composition.	weight, lipids, postprandial lipemia, insulin sensitivity
2004	Volek	Comparison of Energy-restricted Very Low-carbohydrate and Low-fat Diets on Weight Loss and Body Composition in Overweight Men and Women	Nutr Metab (Lond)	This study shows a clear benefit of a VLCK over LF diet for short-term body weight and fat loss, especially in men. A preferential loss of fat in the trunk region with a VLCK diet is novel and potentially clinically significant but requires further validation.	weight loss, body composition, trunk fat mass, and resting energy expenditure

2004	Yancy	A Low-Carbohydrate, Ketogenic Diet versus a Low-Fat Diet To Treat Obesity and Hyperlipidemia: A Randomized, Controlled Trial	Ann Intern Med	Compared with a low-fat diet, a low-carbohydrate diet program had better participant retention and greater weight loss. During active weight loss, serum triglyceride levels decreased more and high-density lipoprotein cholesterol level increased more with the low-carbohydrate diet than with the low-fat diet.	Body weight, body composition, fasting serum lipid levels, and tolerability.
2003	Bailes	Effect of Low-Carbohydrate, Unlimited Calorie Diet on the Treatment of Childhood Obesity: A Prospective Controlled Study	Metabolic Syndrome and Related Disorders	Obese children following a high protein, low CHO diet (<30g/day) lost an average of 5.21 ± 3.44 kg and decreased their BMI by 2.42 ± 1.3 points, compared to the children in the Low Cal Diet (calorie restricted) who gained an average of 2.36 ± 2.54 kg and 1.00 point on the BMI value. A high protein, low carbohydrate, unlimited calorie diet was superior to a restricted calorie protocol for weight loss in obese school age children; moreover, compliance was better.	weight loss and BMI
2003	Brehm	A Randomized Trial Comparing a Very Low Carbohydrate Diet and a Calorie-Restricted Low Fat Diet on Body Weight and Cardiovascular Risk Factors in Healthy Women	J Clin Endocrinol Metab	Based on these data, a very low carbohydrate diet is more effective than a low fat diet for short-term weight loss and, over 6 months, is not associated with deleterious effects on important cardiovascular risk factors in healthy women.	Body comp and CVD risk factors
2003	Foster	A Randomized Trial of a Low-carbohydrate Diet For Obesity	N Engl J Med	The low-carbohydrate diet produced a greater weight loss (4%) than did the conventional diet for the first six months, but the differences were not significant at one year. The low-carbohydrate diet was associated with a greater improvement in some risk factors for coronary heart disease.	Weight loss and CVD risk factors

2003	Hays	Effect of a High Saturated Fat and No-starch Diet on Serum Lipid Subfractions in Patients With Documented Atherosclerotic Cardiovascular Disease	Mayo Clin Proc	To determine whether a diet of high saturated fat and avoidance of starch (HSF-SA) results in weight loss without adverse effects on serum lipids in obese nondiabetic patients. HSF-SA diet results in weight loss after 6 weeks without adverse effects on serum lipid levels verified by nuclear magnetic resonance, and further weight loss with a lipid-neutral effect may persist for up to 52 weeks.	weight loss and lipids
2003	Hickey	Clinical Use of a Carbohydrate-Restricted Diet to Treat the Dyslipidemia of the Metabolic Syndrome	Metabolic Syndrome and Related Disorders	A carbohydrate-restricted diet recommendation led to improvements in lipid profiles and lipoprotein subclass traits of the metabolic syndrome in a clinical outpatient setting, and should be considered as a treatment for the metabolic syndrome.	body weight, fasting serum lipid profiles and serum lipoprotein subclasses
2003	Samaha	A Low-carbohydrate as Compared With a Low-fat Diet in Severe Obesity	N Engl J Med	Severely obese subjects with a high prevalence of diabetes or the metabolic syndrome lost more weight during six months on a carbohydrate-restricted diet than on a calorie- and fat-restricted diet, with a relative improvement in insulin sensitivity and triglyceride levels, even after adjustment for the amount of weight lost.	Weight loss, lipids, medication
2003	Sondike	Effects of a Low-carbohydrate Diet on Weight Loss and Cardiovascular Risk Factor in Overweight Adolescents	J Pediatr	To compare the effects of a low-carbohydrate (LC) diet with those of a low-fat (LF) diet on weight loss and serum lipids in overweight adolescents. The LC group lost more weight (mean, 9.9 +/- 9.3 kg vs 4.1 +/- 4.9 kg) and had improvement in non-HDL cholesterol levels. There were no adverse effects on the lipid profiles of participants in either group. The LC diet appears to be an effective method for short-term weight loss in overweight adolescents and does not harm the lipid profile.	adolescent weight and lipids

2003	Volek	An Isoenergetic Very Low Carbohydrate Diet Improves Serum HDL Cholesterol and Triacylglycerol Concentrations, the Total Cholesterol to HDL Cholesterol Ratio and Postprandial Pipemic Responses Compared With a Low Fat Diet in Normal Weight, Normolipidemic Women	J Nutr	In normal weight, normolipidemic women, a short-term very low carbohydrate diet modestly increased LDL-C, yet there were favorable effects on cardiovascular disease risk status by virtue of a relatively larger increase in HDL-C and a decrease in fasting and postprandial triaclyglycerols.	fasting lipids, postprandial lipemia and markers of inflammation
2002	Hays	Results of Use of Metformin and Replacement of Starch With Saturated Fat in Diets of Patients With Type 2 Diabetes	Endocr Pract	Addition of saturated fat and removal of starch from a high-monounsaturated fat and starch-restricted diet improved glycemic control and were associated with weight loss without detectable adverse effects on serum lipids.	weight, glycemic control, lipids
2002	Volek	Body Composition and Hormonal Responses to a Carbohydrate-restricted Diet	Metabolism	Authors conclude that a carbohydrate-restricted diet resulted in a significant reduction in fat mass and a concomitant increase in lean body mass in normal-weight men, which may be partially mediated by the reduction in circulating insulin concentrations.	Weight loss, hormones

2002	Westman	Effect of 6-month Adherence to a Very Low Carbohydrate Diet Program	Am J Med	In these subjects, the mean body weight decreased 10.3% +/- 5.9% from baseline to 6 months. The mean percentage of body weight that was fat decreased 2.9% +/- 3.2% from baseline to 6 months. Serum total cholesterol level decreased 11 +/- 26 mg/dL, low-density lipoprotein cholesterol level decreased 10 +/- 25 mg/dL, triglyceride level decreased 56 +/- 45 mg/dL, high-density lipoprotein (HDL) cholesterol level increased 10 +/- 8 mg/dL, and the cholesterol/HDL cholesterol ratio decreased 0.9 +/- 0.6 units. A very low carbohydrate diet program led to sustained weight loss during a 6-month period.	body weight, body mass index, percentage of body fat (estimated by skinfold thickness), serum chemistry and lipid values, 24-hour urine measurements, and subjective adverse effects.
2000	Volek	Fasting Lipoprotein and Postprandial Triacylglycerol Responses to a Low-carbohydrate Diet Supplemented With n-3 Fatty Acids	J Am Coll Nutr	A hypocaloric low-carbohydrate diet rich in MUFA and supplemented with n-3 fatty acids significantly reduced postabsorptive and postprandial TG in men that were not hypertriglyceridemic as a group before the diet. This may be viewed as a clinically significant positive adaptation in terms of cardiovascular risk status.	fasting serum lipoproteins and postprandial triacylglycerol
					Total Number of Participants

participant#	Type	Duration	>= 6 months	>= 2 years
262	non-randomized parallel arm prospective	70 days		
34	RCT	1 year	1	
20	non-randomized 2 arm prospective	8 weeks		
80	RCT	18 months	1	

	Meta-analysis	n/a		
17	metabolic ward crossover	8 weeks		
115	RCT	1 year	1	

	Meta-analysis	n/a		
61	RCT	6 months	1	
14	randomized crossover	12 weeks		

148	RCT	1 year	1	
61	RCT	6 months	1	
72	2 arm Retrospective	12 months	1	
53	RCT	12 months	1	
34	RCT	3 months		

93	RCT	6 months	1	
24	RCT	6 months	1	
	Meta-analysis	n/a		
21	single arm prospective	6 weeks		
	Meta-analysis	n/a		

89	single arm prospective	12 months	1	
55	RCT	12 weeks		
318	RCT - 3 arm	2 years		1
8	Randomized crossover	12 weeks		

21	3 way randomized crossover	12 weeks		
307	RCT	2 years		1
363	non-randomized 2 arm prospective	6 months	1	
	Meta-analysis	n/a		

52	single arm prospective	6 months	1	
307	RCT	2 years		1
104	RCT	2 years		1

46	RCT	13 weeks		
40	RCT	6 months	1	
8	randomized cross-over	12 weeks		
146	RCT	48 weeks	1	

69	RCT	12 months	1	
105	RCT	1 year	1	
	single arm prospective	6 months	1	
40	RCT	12 weeks		
811	randomized, three arms	2 years		1

300	RCT - 4 arm	6 months	1	
322	RCT - 3 arm	2 years		1
40	RCT	12 weeks		

84	RCT	6 months	1	
311	RCT	1 year	1	
102	RCT	3 months		
10	single arm metabolic ward	3 weeks		

50	RCT	4 months		
13	single arm	12 weeks		
160	RCT	1 year	1	
11	single arm	24 weeks	1	

96	RCT	16 weeks		
41	RCT	3 months		
28	single arm	16 weeks		

60	RCT	12 weeks		
83	single arm prospective	6 months	1	
38	single arm prospective	11.8 months, on average	1	

8	randomized cross over	5 weeks		
31	RCT	10 weeks		
78	RCT	6 months	1	

15	randomized crossover	12 weeks		
13	randomized crossover	8 weeks		
28	RCT	21 days		

120	RCT	24 weeks	1	
37	non-randomized Prospective Controlled Study	2 months		
53	RCT	6 months	1	
63	RCT	1 year	1	

	prospective single arm	6 weeks		
65	retrospective cohort	n/a		
132	RCT	6 months	1	
30	RCT	12 weeks		

10	randomized crossover	4 weeks		
283	retrospective chart review	1 year	1	
12	single arm prospective	6 weeks		

51	single arm prospective	6 months	1	
10	single arm prospective	8 weeks		
6,786			**32**	**6**