

Kill or cure? Atkins diet debated in diabetes

OCTOBER 18, 2010 | [Lisa Nainngolan](#)



Stockholm, Sweden – The fact that lifestyle interventions can often do better than drugs at controlling type 2 diabetes is recognized by many in the field, but implementation of this approach is hampered by the fact that it is difficult to get busy general physicians to actively encourage lifestyle change or to get affected individuals to alter lifelong habits.

But one nutrition expert believes he has the answer: the Atkins diet. **Dr Eric C Westman** (Duke University, Durham, NC) admittedly has vested interests in promoting this approach—he is the coauthor of the latest Atkins book and receives honoraria from Atkins Nutritionals—but argues that he values his reputation above all else and that his aim is to convince people that the science exists to back his claims.

At last month's [European Association for the Study of Diabetes](#) (EASD) conference, Westman gave a lecture on the subject of low-carb diets. In contrast to most of the research that is presented at diabetes meetings—"98% of which

relates to pharmaceuticals," he says—he set out to show how low-carb diets can be "more powerful" than drugs to treat type 2 diabetes.

"I was trying to demystify what the diet meant and also show data on how you get control of the diabetes and weight loss in one fell swoop," he explained to [heartwire](#) in an interview.

Westman acknowledges that the prime factor in the success of this approach is that people lose weight; the Atkins diet, he says, makes this easy because people find it simple to follow and feel satiated. But he also believes the low-carb approach has a benefit in addition to weight loss when it comes to diabetes, explaining that "it's the excessive carbohydrate that causes the pressure toward diabetes." Indeed, years before medications were available to treat diabetes, a low-carbohydrate diet was used as the primary treatment of diabetes mellitus, he told meeting attendees.

But although other nutrition experts whom [heartwire](#) spoke to agree that lifestyle interventions have a key role to play in diabetes, they say that Atkins is unsuitable for diabetics: too restrictive for people to stay on long term and potentially unsafe.

Science exists to take Atkins seriously

Westman says the mainstream belief "is that high-fat diets are harmful, so physicians are not going to recommend them." The new Atkins book, he says, was specifically designed "to allay the fears of doctors, to have a book with all the science in the back."

At the EASD meeting, Westman presented data from a number of trials and meta-analyses illustrating the effectiveness of low-carb diets on obesity and metabolic-syndrome parameters, including the [DIRECT](#) trial, and a recent meta-analysis [\[1\]](#) showing that low-carb/high-protein diets are as effective, if not more so, as low-fat diets in reducing weight and cardiovascular disease risk up to one year.

The more limited research on low-carbohydrate diets in type 2 diabetes include a pilot study [\[2\]](#) and a randomized controlled UK trial in just over 100 subjects [\[3\]](#), showing a trend to a lower HbA_{1c} in those on the low-carb diet. In his own "pilot randomized" study [\[4\]](#), Westman found that a low-carb diet (20 g per day) significantly reduced HbA_{1c} by threefold compared with the low-glycemic-index diet (100g carbohydrate per day; p<0.05).

And Westman pointed out that even the **American Diabetes Association** (ADA) supports the use of low-carb diets. In a position statement published this year [\[5\]](#), it states that modest weight loss has been shown to improve insulin resistance and that "either low-carb or low-fat calorie restricted diets may be effective in the short term (up to one year)."



Eric C Westman [Source: Duke University]

Others dispute benefits

But others are not convinced. This summer saw the latest scare story on low-carb diets, with a study in *Annals of Internal Medicine* [\[6\]](#) finding that an animal-based low-carb dietary pattern increased the risk of all-cause and cardiovascular death, whereas a plant-based low-carb diet was associated with lower mortality.

This provoked headlines along the lines of "Atkins kills," and Westman said a number of attendees at the EASD meeting asked him about this. He points out that this study was observational in nature and "not the same level of evidence, by any means [as some of the other studies supporting the diet]."

I would never prescribe an Atkins diet to a person with type 1 or type 2 diabetes.

An editorial accompanying this study [\[7\]](#) drew similar conclusions to Westman, saying the paper "cannot satisfy us with a definitive answer." This editorial was coauthored by **Dr William C Yancy** (Veterans Affairs Medical Center, Durham, NC), who has also received research grants from the **Robert C Atkins Foundation**.

The problem with Westman's claims, says **Dr Robert Eckel** (University of Colorado School of Medicine, Denver)—who is also a spokesperson on nutritional issues for the **American Heart Association** (AHA)—is that "he is a tremendously biased investigator who is very much in favor of his own work. The way he postures his studies and makes conclusions makes you a little bit concerned," says Eckel.

Eckel believes one of the main drawbacks of Atkins is its restrictive nature, which makes it difficult to maintain, and he is also worried about safety. "It's a terrible diet to be on; 24% of the calories are from saturated fats. I would never prescribe an Atkins diet to a person with type 1 or type 2 diabetes."

South Beach a better option for short-term weight loss but has few data



Dr Robert Eckel

Eckel believes a much better option for short-term weight loss is the South Beach diet. "If someone wants to get into a bathing suit for a reunion or something and needs to lose weight quickly, sure go low-carb, and you'll probably lose weight more quickly, but I would be more comfortable with South Beach, which has fats that you and I would consider 'better,' such as more plant-based lipids. Plus the saturated-fat content is only around 10% of total calories."

This advice, says Eckel, applies equally to nondiabetics as well as to diabetics who want to lose weight and improve glycemia over a short interval of time.

However, one of the problem with recommending the South Beach diet is that "there are no data on it," Eckel acknowledges.

And he is keen to stress that neither he nor the AHA would recommend South Beach long term as a diet for patients with diabetes. "If [sustained] weight loss is needed, it needs to be a carefully constructed, evidence-based program of tough love and frequent monitoring."

“ There are no long-term data comparing the different diets in diabetes management.

Dietician **Stephanie A Dunbar**, director of nutrition and medical affairs for the ADA, says the major problem with making dietary recommendations for people with diabetes "is that there are no long-term data comparing the different diets in diabetes management."

The ADA does not recommend an Atkins-type diet in diabetics, she adds, noting that Westman has taken the ADA position statement on low-carb diets "out of context," because it is meant to refer to weight loss in people without diabetes, "where it is simply saying that there is some evidence that low-carb and low-fat diets both work."

Diets for diabetics should reduce carbs, but not excessively

Dunbar does point, however, to some very recently published research on the effects of different diets in diabetes and on incidence of diabetes.

The [Look AHEAD data](#) in patients with type 2 diabetes show that those who followed an intensive lifestyle-intervention program lost weight, improved fitness, and maintained these goals, with significant improvements in blood pressure, glycemic control, and some lipid measures (although not LDL) over four years, compared with a usual-care control group. In this study, the intensive-lifestyle-intervention group had a calorie goal (1200-1800 kcal/d based on initial weight), with less than 30% of total calories from fat (<10% from saturated fat) and a minimum of 15% of total calories from protein.



Stephanie A Dunbar

And in a new substudy of the [PREDIMED](#) trial, use of the Mediterranean diet among nondiabetics at high cardiovascular risk halved the incidence of new-onset diabetes over four years compared with a low-fat diet. Importantly, there were no restrictions on calorie intake in any of the groups in this study, and the reduction in diabetes was seen independent of weight loss.

Dr Arne Astrup (University of Copenhagen, Denmark) says that there is "increasing evidence to support the fact that the optimal diet in overweight, insulin-resistant individuals—including overweight type 2 diabetics—should reduce carbs somewhat, although Westman goes too far.

"I use a diet with 30% of calories from fat, 25% to 35% from protein, and 35% to 45% from low-glycemic-index/whole-grain

Low-carb is not defined



carbohydrates," Astrup says. This diet is "very effective at weight control and reducing insulin resistance and inflammation. This composition makes the diet much easier to fit into an acceptable food culture and gastronomy," he notes.

consistently across all the research studies, it's very confusing.



Dunbar says another problem when trying to compare and discuss these different diets is that "low-carb is not defined consistently across all the research studies, it's very confusing." In some studies, 150 g a day is considered low-carb, whereas Westman considers 20 g per day to be low-carb, "so what you find is that a lot of the 'low-carb' research is more 'moderate carbohydrate,'" she says.

Is it the method of weight loss or the weight loss per se that matters?

At the EASD meeting, Westman outlined three case reports in which people he has treated dropped weight and dramatically reduced their HbA_{1c}, allowing them to come off medications. "If you want your patients to love you, improve their glucose; get them off insulin and injections. I'm afraid I'm competing with endocrinologists in my area who are pushing those drugs."

“ If you want your patients to love you, improve their glucose; get them off insulin and injections.

However, whether people can ultimately come off medications as opposed to just reducing the doses "depends on the underlying ability of the pancreas to secrete insulin," he says. "If the pancreas works fine, we can get people off meds, but if they've burned out their pancreas, they are going to need some sort of supplement regardless of the weight loss."

But the fact that Westman is able to take patients off their diabetes medications is not rocket science, Eckel says. He points out that anyone who can maintain a higher-carbohydrate-content diet, restricted in fat and total calories, and can lose weight will also experience a reduction in the need for diabetes medications. "This has been shown by many people over the years."

Westman admits that—other than his own small trial [4]—he can't say definitively that it's the method of weight loss that is more important than the actual weight loss.

At the EASD meeting, he tried to explain why he believes low-carb diets are good for diabetics. Starches such as bread and pasta raise serum glucose, but low-carb diets reduce the dietary contribution to serum glucose, which then lowers insulin levels, he said. Although diabetics have fat stores, they can't access them due to high insulin levels. Lowering insulin levels allows an individual to use their stored body fat, prompting weight loss.

"It's my hunch that it's both—it's the weight loss, but how you do it gives you a little extra power," he says. But he concedes "some of the vegan studies, which were higher in carbs, also have good effects."

The newly published substudy of the PREDIMED trial adds weight to the theory that what people eat might be as important as the amount they eat: in this study, the researchers showed that by changing the foods people ate, they could reduce the risk of diabetes onset by half, without weight loss.

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Dunbar says these new results with the Mediterranean diet "are very exciting. Since weight loss is so difficult for people, I think this deserves some attention and hopefully further research."

She adds: "I don't think there is one particular diet that is going to work for every person. Our real recommendation for people with diabetes is that they need to have an individualized approach to meal planning, whether they need to go to 35%, 40%, or 45% of calories from carbohydrates, that needs to be individualized." To illustrate this, she points to the vegan diets that even Westman concedes have

good results, noting that these are often 75% carbohydrate: "Clearly, there is not one answer."

Can weight loss and diabetes control with Atkins be maintained?

Asked whether weight loss and diabetes control can be maintained long term with the Atkins diet, Westman says the data from DIRECT show that the effects are sustained at least out to two years. "In my clinical experience, the control will remain as long as people remain on the low-carb-lifestyle approach," he said. "What we do teach people is to add back a small amount of carbohydrates for variety's sake, but the improvement in diabetes remains as long as they stay away from high-carbohydrate diets."

“ With these diets there is no suffering, no hunger and there is a feeling of satiety.

He says the key to the success of Atkins is the appetite suppression that is induced. "There's a myth that you have to be deprived when losing weight. But with these diets there is no suffering, no hunger, and there is a feeling of satiety." He says one of his biggest problems is persuading people who are afraid

of fat in their diet to give the low-carb approach a go, "because they gravitate toward a low-fat diet, and it doesn't work as well [for controlling diabetes]."

Eckel begs to differ, however, although he does concede that a low-carbohydrate diet is an effective appetite suppressant. "Whether it is Atkins or South Beach, it tends to be an anorectic-type of program; the ketone bodies that are generated by eating low carbs tend to have an appetite-suppressant effect; he's correct there."

But Eckel argues that the very restrictive nature of Atkins with respect to carbohydrates makes it nigh on impossible to maintain compliance in the long term. Astrup agrees: "Nobody wants to skip all carbs for the rest of their lives."

Claims to improve HDL, but biology of HDL still poorly understood

And Eckel reiterated his concerns about long-term safety with Atkins. "Of course, the studies of weight loss with Atkins short term are convincing, but we published a study recently [8] that showed that, after six weeks on the Atkins diet, the fatty-acid burden is substantial, [as is] the rise in LDL cholesterol. Atkins is atherogenic. I'm concerned about the overall content of saturated fat and its impact on LDL cholesterol."

Dunbar says the ADA has concerns similar to Eckel's, although it acknowledges a lack of evidence on the effects of specific fatty acids on people with diabetes; hence, its recommendations are for the time being "consistent with those for individuals with cardiovascular disease."

Atkins is atherogenic. I'm concerned about . . . its impact on LDL cholesterol.

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But she notes that in its 2010 position statement, the ADA states that "saturated fat should be <7% of total calories" and that "the primary goal with respect to dietary fat in individuals with diabetes is to limit saturated fatty acids, trans-fatty acids, and cholesterol intake so as to reduce risk for CVD."

“ The ADA does not recommend an Atkins type low-carb diet because of the concerns about the impact of that fat load on heart health.

Although rises in LDL have been observed with low-carb diets, proponents have always claimed that this is balanced out by a rise in HDL. For example, [a randomized trial](#) in the *Annals of Internal Medicine* in August found similar weight loss with low-carbohydrate and low-fat diets, but HDL levels were higher with the low-carb approach.

But again, Eckel contests the importance of this. "This claim that Atkins preserves the HDL level" is irrelevant, he says, since "the science is not advanced enough yet to say whether a rise in HDL is a good thing. To make any conclusions on this is really premature."

Dunbar stresses: "We do not recommend an Atkins type low-carb diet because of the concerns about the impact of that fat load on heart health."

Large outcomes trials needed with low-carb diets?








Westman says a long-term outcomes study comparing low-carb and low-fat diets is sorely needed; such data do exist for the Mediterranean diet, he notes.

"Everyone talks about the Mediterranean diet, but the low-carb one looked just as good in the DIRECT study. I'm an advocate for studying this kind of approach within mainstream medical research; it's been avoided, and that's too bad. It needs to be given the same attention as other approaches," he concludes.

But Eckel is vehemently opposed to any such outcomes study with Atkins, telling **heartwire**: "I feel that would be an irresponsible trial."

*Westman reports receiving honoraria from Atkins Nutritionals, being a coauthor of The New Atkins for a New You, and a co-owner of Innovative Metabolic Solutions. Eckel reports no conflicts of interest. Astrup is a salaried author for Ude & Hjemme and a salaried editor-in-chief of Obesity Reviews. He is also an advisor or member of an advisory board for a number of food and pharmaceutical producers: Arla, **European Almond Advisory Board**, communications and scientific advisory board of the Global Dairy Platform, 7TM Pharma, Novo, NeuroSearch, Basic Research, Merck, Johnson & Johnson Pharmaceutical Research & Development, Reuters Insight, and Jennie Craig and recipient of honoraria as speaker for a wide range of Danish and international concerns. He also has ownership, in accordance with the Danish University regulations, of inventions and patents where he is coinventor. Astrup has bought shares in Mobile Fitness and is an executive board member of Obesity International Trading (London), Beer Knowledge Institute (Amsterdam), Global Dairy Platform (Chicago), and Nordic Food Lab (Copenhagen).*

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