

Low Carbohydrate High Fat Diet for Weight Loss: A Case Report

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Abstract:

Subject gained significant weight after being rendered sedentary following restrictions and traumas suffered in light of the COVID-19 pandemic. Reducing the consumption of carbohydrates and increasing the consumption of fat and protein led to the loss of 8kg over 6 months, being approximately 10% of bodyweight. Bloodwork was conducted revealing relatively few changes. No other significant positive or negative changes noted were noted.

Keywords: case report; low carbohydrate high fat dieting; LCHF; keto diet; carnivore diet; Atkins Diet

Introduction

Subject gained significant weight after being rendered sedentary following restrictions and traumas suffered in light of the COVID-19 pandemic. Reducing the consumption of carbohydrates and increasing the consumption of fat and protein led to the loss of 8kg over 6 months, being approximately 10% of bodyweight. Bloodwork was conducted revealing relatively few changes. No other significant positive or negative changes noted were noted.

Background

Low carbohydrate high fat (LCHF) diets have been around for at least 100 years. Mainstream medical organisations state that they are "unsafe and should be avoided", and that they lack long-term safety data, yet such diets have "been widely and successfully used to treat children with drug-resistant epilepsy since the 1920s", and they are "showing efficacy for other psychiatric disorders".¹ There is also evidence that low carbohydrate diets can lead to "remission of diabetes without adverse consequences".¹ Most people considering LCHF diets, however, appear to be interested in diabetes remission and/or for weight loss benefits, as is the case with our subject.

The patient is an early middle-aged male, rendered sedentary during and since the COVID-19 pandemic. He was an avid rock climber, even winning several local-level team-based rock climbing competitions, but gave up on this pastime due to travel restrictions concurrent with the first major Sydney lockdown. Subject switched to martial arts training, which could be done more locally, but subsequently ceased this, and most physical activity thereafter, following the second major Sydney lockdown. Subject was then fired from his role at a major children's hospital in Sydney due to non-compliance with COVID-19 vaccination orders. Despite effectively winning several legal actions against his former employer, and being hopeful of winning more since his employer's insurer has accepted liability, subject has been left grappling with mental health issues as a result of his former employer's actions, and gained significant weight.¹ Medical records indicate that subject was in good health before the pandemic. Recalling extremely rapid success with LCHF dieting as a teenager, subject decided to experiment with LCHF dieting once more, to lose weight, and to hopefully improve his mental health.

Method

The patient simply reduced intake of carbohydrate-heavy foods, such as bread, pasta, and rice, replacing them with increased protein and fat. Of note, the consumption of white meat, red meat, and animal fats was increased. No attempt was made to alter eating windows, the amount of food consumed (as ever, subject ate until full), or physical activity. After the first week where the diet was more accurately described as carnivore, subject continued to eat non-starchy vegetables, was initially very strict, and became more relaxed over time, consuming small but increasing amounts of sugar. Subject took numerous weight measurements, typically in 1-2 weeks intervals, with the exception of the Christmas and New Year's period, in near identical conditions (after waking and voiding, before eating and drinking). Several weeks before beginning LCHF dieting, and around the 6-month mark, bloodwork was conducted with subject's treating physician to try and ascertain some of the consequences besides potential changes in weight.

Clinical Findings

Reported weight before the pandemic, in 2019, ranged from 69-72kg. on 01/10/2024 subjected weighed 82.7kg. LCHF dieting began on 02/10/2024. Significant weight loss was observed (Table 1).

Date	Weight (kg)	Date	Weight (kg)
05/10/2024	82.1	07/12/2024	77.2
09/10/2024	81.3	14/12/2024	76.6
15/10/2024	80.7	21/12/2024	75.8
19/10/2024	80.3	18/01/2025	76.2
26/10/2024	80.7	25/01/2025	76.1
29/10/2024	80.1	04/02/2025	75.6
05/11/2024	79.5	11/02/2025	75.4
09/11/2024	78.5	18/02/2025	74.8
16/11/2024	78.2	25/02/2025	74.8
22/11/2024	77.9	11/03/2025	74.7
30/11/2024	77.5		

Table 1: Weight changes over time

The patient was initially disappointed with the relatively slow progress, compared with the drastic success experienced with LCHF dieting as a teenager (reportedly 10kg in the first week, whilst reducing exercise to nil), but was pleased with results over time. In around 6 months, he lost most of the additional weight gained since the pandemic, 8kg, approximately 10% of total bodyweight. Bloodwork indicated no great changes (Table 2). Subjected reported no substantial changes to mental health or energy levels, however, but is encouraged by these results and intends to continue, finally maintaining his weight around the low 70s, by increasing carbohydrate intake if necessary.

	22/08/24	21/02/2025	Normal range
B12 pmol/L	224	240	300-740
Protein	72	67	60-82
Albumin	46	45	38-50
HbA1c-NGSP %	4.8	4.8	4.0-6.0
HbA1c-IFCC mmol/mo	29	29	20-42
Iron umol/L	19	18	10-30
Ferritin ug/L	324	272	30-300
TSH mIU/L	3.3	2.3	0.5-4.0
Cholesterol mmol/L	6.1	6.1	3.9-5.2
Triglycerides mmol/L	1.4	0.4	0.5-1.7
HDL mmol/L	1.1	1.1	1.0-2.0
LDL mmol/L	4.4	4.8	1.5-3.4
Serum glucose mmol/L	4.7	4.5	3.4-5.4

Table 2: Select bloodwork (full report found in the Supplementary Appendix).

Discussion

The patient in this report lost a substantial amount of weight, though bloodwork was largely unchanged, other than a 10% increase in LDL cholesterol. Of note, high sensitivity C-reactive protein was not measured. As an increased LDL has been associated with a commensurate increase in cardiac events, LDL will be closely monitored going forward. This was countered by an impressive and counterintuitive reduction in triglycerides, given the increased (especially animal) fat consumption, and an overall unchanged cholesterol level. A particularly positive counterintuitive result was the reduction in ferritin from a slightly high level to more of an ideal level, after

increasing red meat intake. Treating physician speculated whether this was due to averting metabolic syndrome with these dietary changes.

There are multiple possible explanations for this weight loss. Perhaps it is due to a stabilisation of insulin levels, or alterations to the microbiome, or an improvement in metabolic health, or a reduction in processed foods, or reduced consumption of sugar. Or perhaps an increase in protein and fat consumption leads to greater satiety, resulting in an overall reduction in kilojoules/calories consumed. Or perhaps the bulk of the success is illusory, being mainly ‘water weight’, as critics of LCHF dieting are wont to speculate. In any case, subject is grateful that, whatever the mechanism/s at play, his LCHF dieting led to a very positive result, namely significant weight loss, accompanied by minimal to no significant drawbacks, and he intends to continue. It will be important to note whether or not these results are maintained.

It is noted that there is some evidence indicating duration-dependent harm involving LCHF diets, particularly when focused on “animal-derived protein and fat sources” rather than “plant-derived protein and fat”, as was found in Seidemann et al. A response by Feinman et al. however, noted that “Seidemann and colleagues did not investigate a low-carbohydrate diet as a specific intervention”, and that they “relied on semi-quantitative food frequency questionnaires that have been criticised for high error rates”, whilst also noting the many studies indicate that “low-carbohydrate diets in various forms have provided overwhelming benefit in treating obesity, diabetes, and metabolic syndrome, which predicts a reduction in all-cause mortality, whereas the Article suggested an increase”.

There are several limitations with this case study. For one, micronutrients apart from B12 and iron/ferritin were not monitored. Apolipoprotein B and Lipoprotein(a) were also not monitored, despite being markers for cardiovascular risk. The nature of fats consumed was also not tracked, though that was intentional, as was the lack of calorie counting.

Such diets remain controversial. If more subjects experience weight loss – and possibly other benefits – from LCHF dieting, with little to no drawbacks, it may be worth conducting a long-term trial, and to further identify differences in outcomes between animal-based and plant-based LCHF diets.

Conclusion

LCHF dieting, primarily animal-based, led to a subject experiencing significant weight loss in 6 months, approximately 10% of total bodyweight, albeit with a commensurate 10% rise in LDL cholesterol.

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