



What is Therapeutic Carbohydrate Reduction (TCR)?

TCR is a dietary pattern that aims to improve metabolic health through the reduction of carbohydrates (CHO). There are different levels of carbohydrate reduction:

Very Low Carb Ketogenic- 30g or less of CHO/ day. Deliberate restriction of calories is typically not recommended

Low-carbohydrate ketogenic- 30g-50g of CHO/ day. Deliberate restriction of calories is typically not recommended

Reduced carbohydrate- 50-130g of CHO/ day. May recommend caloric restriction.

What are the potential benefits?

Three studies (Virta Health, Dr. Unwin Pilot Program, Dr. Tro Pilot Program) have investigated the use of TCR in T2DM. They demonstrated a marked improvement in A1c, weight, and BP *while stopping medication*:

Study	A1c	Weight	BP (mmHg)	Deprescribing
Virta Health	↓ 7.7% to 6.7% (-1.0%)	↓ 114kg to 102 kg (-12kg)	↓ 131/81 to 126/78 (-6/3)	↓ Insulin dose 81% ↓ 30% DM meds
Dr. Unwin Pilot Program	↓ 6.9% to 6.0% (-0.9%)	↓ 98kg to 89kg (-8.8kg)	↓ 144/85 to 135/79 (-9/6)	13% stopped at least 1 medication
Dr. Tro Pilot Program	↓ 7.1% to 6.0% (-1.1%)	↓ 131kg to 114kg (-17.4kg)	↓ 141/83 to 124/78 (-17/6)	Saved \$4,500 per patient per year

What are some of the possible downsides of TCR?

There were no serious adverse events reported from TCR in these studies. Medications such as antihypertensives, sulfonylureas, and insulin must be closely titrated as rapid improvements in blood pressure and glycemia are seen within the first week of TCR. The Society of Metabolic Health Practitioners (SMHP) has guidelines for safe and efficacious deprescribing while on TCR.

What about the LDL and risk of cardiovascular disease?

While LDL increased 11 mg/dL and 6 mg/dl in the Virta Health study and Dr. Tro pilot program respectively, the overall total improvement in blood pressure, triglycerides, HDL cholesterol, inflammatory markers, and glycemia provided an absolute improvement of the 10-year ASCVD risk score by **1.3%** and **4.0%**.

Where can I get more information?

Visit [The SMHP™](#) for [evidence-based clinical guidelines](#) regarding TCR. SMHP also offers a certification program providing education on this and other therapeutic applications of TCR.