Therapeutic Carbohydrate Reduction
Information for Prospective Practitioners

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:

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

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 glycaemia 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 glycaemia 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.