SUPPLEMENTARY MATERIAL.

TITLE: Personalized versus non-personalized nutritional recommendations/interventions for Type 2 Diabetes Mellitus remission: A narrative review

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Author, country, year	Sample:	Design of study:	Duration of T2D:	Intervention:	Adherence:	% Remission of T2DM:	Personalized method:	Limitations:
Personalized nutrition interventions:								
De Hoogh LM; et al. 2022. The Netherlands.	N=66 **Intervention group:** 25. **Age**: 63.4± 7.9 **Usual care:** 41 **Age:** 65.2 ± 9.7	Randomized crossover trial.	Newly diagnosed T2D	**Intervention:** Personalized lifestyle (diet and physical activity) treatment according with diabetes subtype.	Not reported.	**Intervention group:** 75% **Usual care group:** 22%	Personalized based on diabetes subtype.	The main limitation of the study is the subdivision of diabetes into 7 groups based on β-cell function and the presence of hepatic and/or muscular insulin resistance, which complicates comparability with other studies.
Rein M; et al. 2022. Israel.	N= 23 **Age:** 53.5 ± 8.9 years.	Randomized crossover trial.	Newly diagnosed T2D.	**PPT:** Personalized postprandial-targeting diet on glycemic control. **MED:** Commonly recommended Mediterranean style diet.	Not reported.	61% of the participants.	Based on predictions of the glycemic responses after completing the profiling stage, participants were randomized to PPT-MED or MED-PPT".	
Ried-Larsen M; et al. 2019. Denmark.	N=98 **Age:** 54.6 ± 8.9 years. **Intervention group:** 64. **Standard care:** 34.	Randomized crossover trial.	T2D diagnosis <10 years.	**Intensive exercise-lifestyle intervention:** Supervised resistance and aerobic exercise for 30-60 min, 5-6 d/w, and individually dietary plans with an energy intake restriction during the initial 4 months. **Standard care:** drug therapy and lifestyle advice every three months.	Not reported.	**Intervention group:** 23% **Control group:** 7%	Personalized dietary and exercise prescriptions	A primary limitation of this study is that the intervention involves not only achieving diabetes remission but also attaining a BMI ≤25 kg/m2.
Dave R; et al. India.	N= 45 **Age:** 45.1 ± 10.2	Randomized crossover trial.	T2D diagnosis from < 1 year to > 10 years.	**Intervention:** Personalized and individualized meal plans, and personalized exercise program (45 min 6 d/w), education and monitoring.	-49% attended ≤ 1 visit. -18% attended 2 visits. -2% attended 3 visits. -27% attended complete program (4 visits).	-53.3% reached partial remission at the first year. -19.5% achieve complete remission. -11.1% sustained remission for 1-3 years. -42.2% sustained remission for 3-5 years.	Personalized dietary and exercise prescriptions.	The main limitation is the lack of information on the duration of personalized nutrition. Furthermore, the exclusive inclusion of obese and overweight patients affects comparability, as weight loss has a more significant impact on glycemic control in this cohort compared to studies with diverse inclusion criteria.
Non-personalized nutritional interventions or dietary recommendations and lifestyle changes: Carbohydrate restriction diet and Mediterranean diet.								
Gardner C; et al. 2022. USA.	N= 40 **Age:** >18 years.	Randomized, crossover trial.	Prediabetes or T2DM independent of diagnostic time.	**WFKD:** Well-formulated ketogenic diet. **Med-Plus:** Mediterranean-plus diet. Participants were randomly assigned to 1 of 2 sequences: WFKD (phase 1, 12 weeks), MedPlus (phase 2, 12 weeks).	Dietary adherence: diet adherence scores (range 1-10, where 10 is the highest level of adherence).	Not observed.	Not personalized.	Small sample size and the lack of a washout period between diets.
Durrer C; et al. 2021. Canada.	**Intervention group:** 98 **Age:** 58 ± 11. **Control group:** 90 **Age:** 59 ± 8	Randomized, crossover, interventional trial.	**Intervention group:** 11.8 ± 8. **Control group:** 59 ± 8.	**Pharm-TCR group:** low carbohydrate (<50 g), energy-restricted diet (~850 a 1100 kcal/day) and weekly meeting during the 12-week period.	Not reported.	**Intervention group:** 17.3% (HbA1c <6.5%, and no use of any glucose-lowering medication). **Control group:** 0%	Not personalized. Participants in the Pharm-TCR group were asked to follow a commercial weight loss diet plan (Ideal Protein) supplemented with whole foods.	The study lacks specific information on intervention duration and provides no details regarding participants' physical activity and dietary habits. Furthermore, there is no

				TAU group: standard medication advice, and information pamphlets on diet and lifestyle of the Clinical Practice Guidelines from the Canadian Diabetes Association (2013).				specification on the extent of participants' adherence to the prescribed diet and physical activity.
Unwin D; et al. 2020. UK.	**T2D: 128** **Age:** 63 (54-73). **Prediabetes: 71** **Age:** 65 (59-73).	Prospective cohort.	**T2DM group:** 45 patients with 72 months of diagnosis with diabetes.	**Intervention:** Advice on a lower carbohydrate diet was offered routinely to patients with newly diagnosed and pre- existing T2DM or prediabetes. **Nutritional advice:** cut sugar, reduce starchy carbs, eat healthy proteins.	Individual sessions and group sessions. The adherence was assessed by session attendance.	**T2DM:** HbA1c dropped from 65.5 (55, 82) mmol/mol to 48 (43, 55) mmol/mol. 59 of 128 patients receiving lower carbohydrate dietary advice achieved drug-free T2D remission. **Prediabetes:** the median HbA1c dropped from 44 (43, 45) mmol/mol to 39 (38, 41) mmol/ mol. **Remission:** 46%	Not personalized.	The primary limitation of the study is the potential confounding effect of individualized sessions on adherence assessment, which may contribute to the high remission rate observed. Additionally, the absence of a control group prevents direct comparison of the dietary intervention with routine care.
Esposito K; et al. 2014. Italy.	**Low-carbohydrate Med diet:** 108. **Age:** 52.4 (11.2) **Low-fat diet group:** 107 **Age:** 51.9 (10.7)	Randomized controlled trial.	Newly diagnosed T2D.	**LCMD group:** Low-carbohydrate Mediterranean diet, and 175 min of moderate-intensity physical activity per week. **Low-fat diet group:** Low fat diet, and 175 min of moderate-intensity physical activity per week.	The adherence to the diets was assessed by session attendance and diet diaries.	**Intervention group:** 5.0% (4.4–5.6%). **Control group:** 0% at year 6 in the low-fat diet group.	Not personalized.	The unblinded nature of the study, and the comparison points between low fat and low carb with the expectation to achieve glycemic control with the carbohydrate restriction compared to fat restriction.
Non-personalized nutritional interventions or dietary recommendations and lifestyle changes: Low- and Very-Low Calorie diet and Meal replacement diet.								
Steven S; et al. 2016. UK.	**N= 30** **Age: 25-80 years.**	Prospective cohort.	**Short duration:** <4 years. **Long duration:** >8 years.	**VLCD:** a liquid diet formula (43% carbohydrates, 34% proteins, and 19.5% fats. It was taken as three shakes per day. Additionally, 240 g of non-starchy vegetables. Total energy: 624–700 kcal/day.	Weekly phone call during the intervention.	**After intervention:** 40% **After 6 months:** 43%	Not personalized.	The study is limited by a small sample size and focuses on diabetes remission defined by plasma glucose rather than A1c. It confirms type 2 diabetes reversal for at least 6 months, emphasizing the importance of assessing the potential for long-term remission, particularly in primary care.
Lean ME; et al. 2018. UK.	**N=**306 **Intervention group:** 149 **Age:** 20-65 years.	Randomized controlled trial.	**T2D diagnoses:** < 6 years.	**Total diet replacement:** replacement phase (825–853 kcal/day) formula diet, and then stepped food reintroduction of 2-8 weeks. **Replacement phase:** Low energy formula diet (59% carbohydrate, 13% fat, 26% protein, 2% fiber) for 3 months. Total energy: 825–853 kcal/day.	Not reported.	**Intervention group:** 46%	Not personalized.	The study's main limitations involve potential confounding due to racial and ethnic factors, concerns about patient adherence to a restrictive diet, and a limited observation timeframe at baseline and 12 months.
Byone K; et al. 2019. Barbados.	**N= 24.** **Age: 20-69 years.**	Prospective trial.	**T2D diagnosis:** < 6 years.	**Intervention:** 8 weeks of VLCD, following 4 weeks of solid food reintroduction.	Assessment every week for 8 weeks and then monthly.	**8 weeks:** 60% **8 months:** 38%	Not personalized.	The study is limited by a small sample size and lacks evidence of long-term sustainability.

				VLCD: Liquid diet (760 calories).				
Taheri S; et al. 2020. Qatar.	**N=** 158 **Intervention group:** 70 **Age:** 18-50 years.	Randomized controlled clinical trial.	**T2D diagnosis:** < 3 years.	**Intervention:** Total dietary replacement phase using meal replacement formula followed by gradual food reintroduction and physical activity support. **Meal replacement formula:** 800-820 kcal.	The adherence to the diets was assessed by session attendance and physician visits.	**Intervention group:** 61% **Control group:** 12%	Not personalized.	Limitations include a short follow-up period, a confined geographic area, and challenges in reproducibility.
Wei J; et al. 2022. China.	**N=**61 **Age:** 18-65 years	Prospective interventional trial.	**T2D diagnosis:** 0.5-36 months.	**9-day Intervention:** VLCR (300-600 kcal/day), 2-3L water/day, 2 g levocarnitine twice a day.	Urinary ketone was assessed during VLCR to reflect dietary adherence of the participants.	-HbA1c < 6.5% over 3 months after cessation of glucose-lowering pharmacotherapy. -38.6% over a median of 7.8 years.	Not personalized.	The study's limitations include a small sample size, a dominant Chinese population with a relatively short disease duration, and the exclusive use of levocarnitine, a factor not extensively explored.