

IECPS
2020

1st International Electronic
Conference on Plant Science

01-15 DECEMBER 2020 | ONLINE



plants



Diet rich in plant protein may prevent type 2 diabetes



Università San Raffaele
Roma

Mauro Lombardo, MD

Department of Human Sciences and Promotion of the Quality of Life
San Raffaele Roma Open University

Conflict of interest disclosure

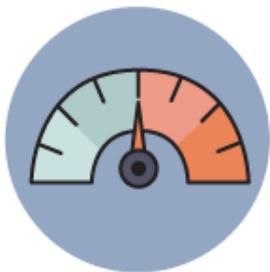
I declare that I have no conflict of interest

I didn't receive any financial support for the research, authorship, and/or publication of this data.

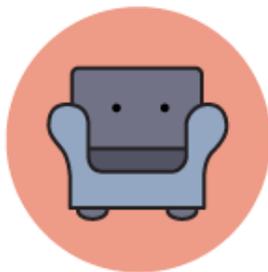
RISK FACTORS FOR TYPE 2 DIABETES



Have a family history
of diabetes



Have a BMI
 $\geq 23.0 \text{ kg/m}^2$



Lead an inactive
lifestyle



Have high blood
pressure



Have abnormal blood
cholesterol/lipid
levels



Have a history of
gestational
diabetes



Are ≥ 40 years
old



Have impaired glucose
tolerance or impaired
fasting glucose

7 Key Steps to Diabetes Prevention



Be more active.



Eat fiber-rich foods.



Eat whole grains.



Lose weight.



Make healthier choices.

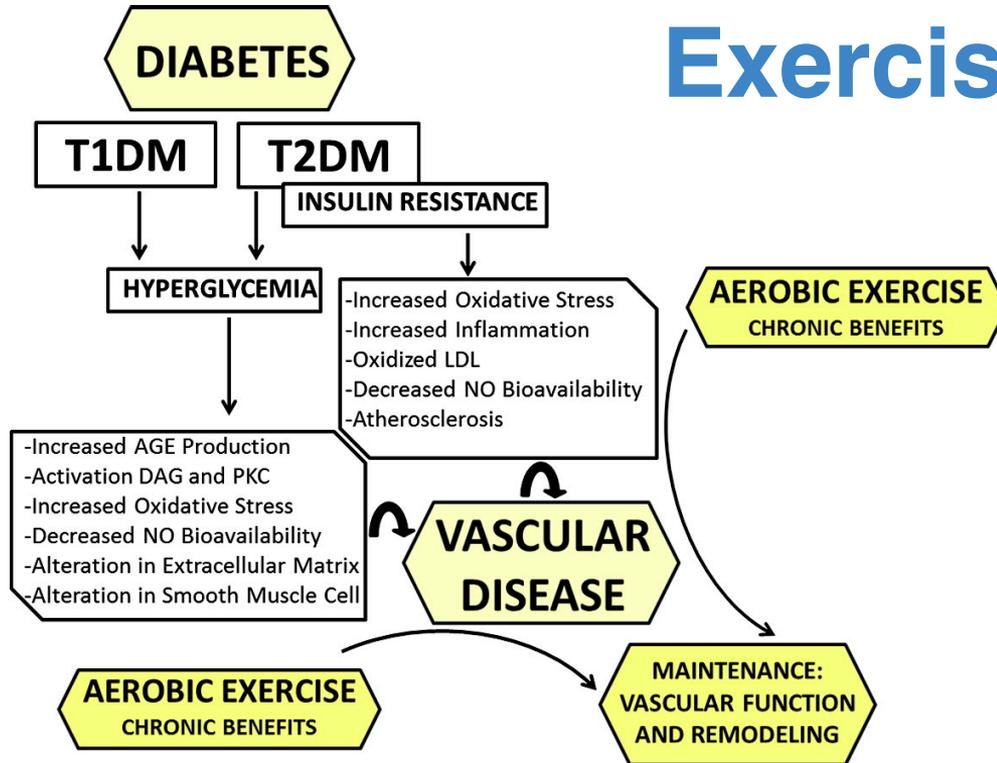


Don't Smoke.



Drink in Moderation.

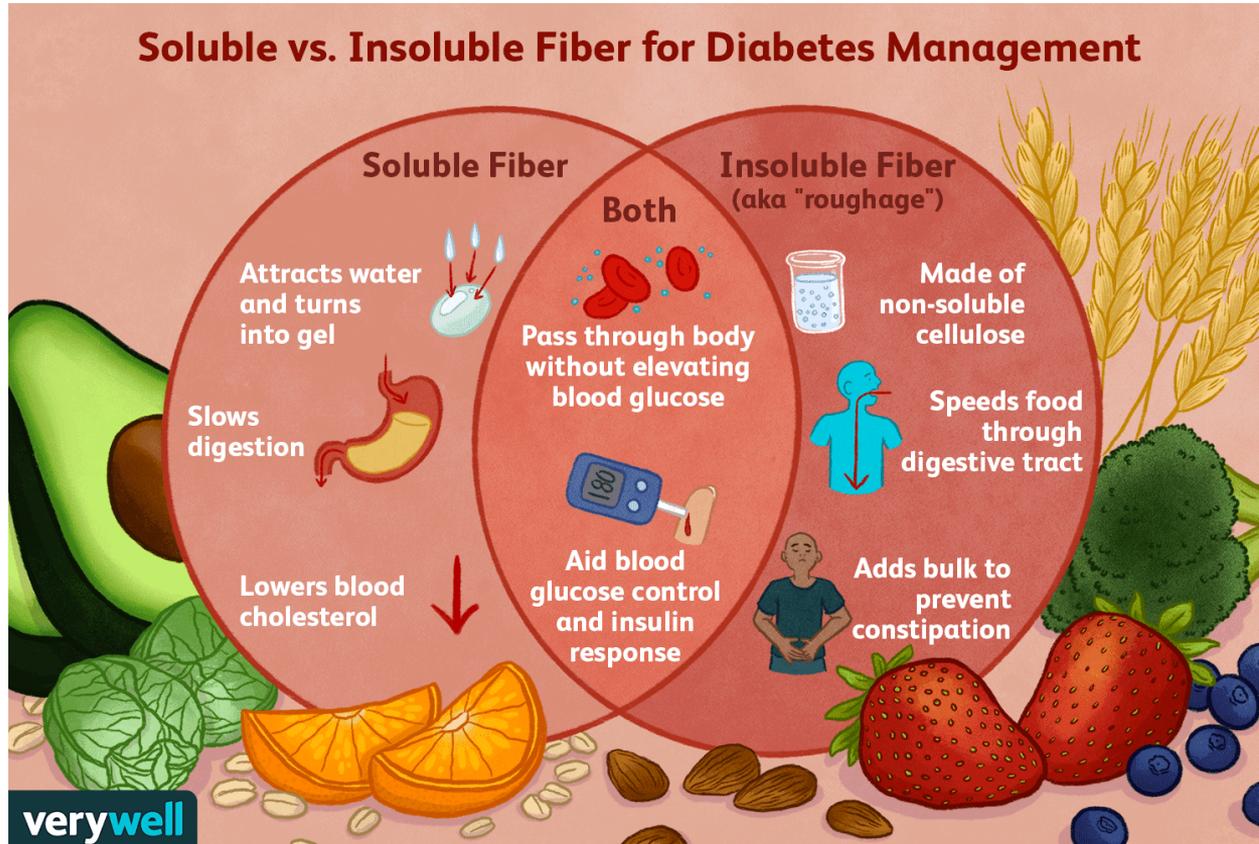
Exercise



A healthy lifestyle is essential in the management of DM, especially the inclusion of aerobic exercise, which has been shown effective in reducing the deleterious effects in vasculature.

Fibre

Soluble vs. Insoluble Fiber for Diabetes Management



MACRONUTRIENTS

CARBS



FATS

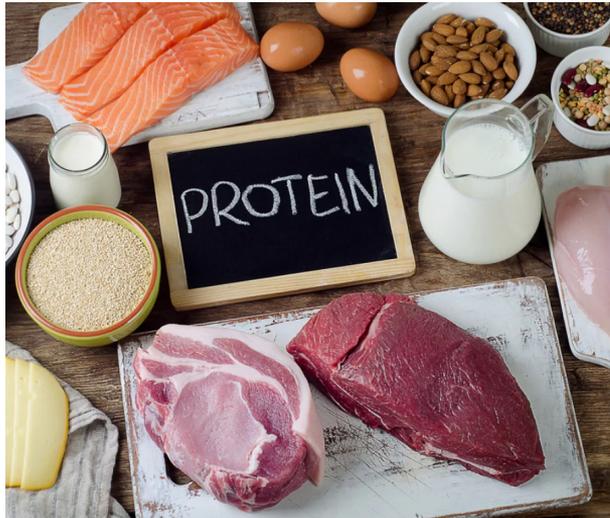


PROTEINS



de Munter JS, Hu FB, Spiegelman D, Franz M, van Dam RM. Whole grain, bran, and germ intake and risk of type 2 diabetes: a prospective cohort study and systematic review. *PLoS Med.* 2007;4(8):e261. doi:10.1371/journal.pmed.0040261

Which is the ideal protein quality and quantity and the dietary composition for the prevention and metabolic control of type 2 diabetes mellitus (T2DM)?



Methods

KEYWORDS: “insulin resistance” OR “insulin sensitivity” OR “type 2 diabetes” OR “diabetes” OR “T2DM”) AND (“protein” OR “protein diet” OR high protein” OR “protein intake” OR “Protein OR “dietary protein“ OR ““population” or “human”).



Over 2831 articles were screened, and 24 from the last 5 years were analysed

Table 1 Diet intervention studies on treatment or prevention of T2DM

Study	Year	Population	Type (n)	Effects on IS*
Ajala O. et al	2013	Obese, T2DM	RCT (20)	±
Rietman A. et al.	2014	All	Different	-
Liebman M	2014	All	Different	++
Hernández Alcantara G. et al.	2015	T2DM	RCT (4)	±
Liu AY et al.	2015	T2DM	RCT	++
Mignone LE et al.	2015	T2DM	Different	++
Campbell AP et al.	2015	T2DM	RCT (7)	++
Pasin G et al.	2015	T2DM	RCT (28)	++
Van Wyk HJ et al.	2016	T2DM	RCT (12)	±
Gow ML	2016	T2DM	Different	++
Steckhan N. et al.	2016	Obese	RCT (13)	++
Comerford KB et al.	2016	All	Different	++
Malik VS et al.	2016	All	Cohort (3)	--
Parackal S.	2016	All	Descriptive	--
Jung CH et al.	2017	T2DM	Different	±
Yamada S	2017	T2DM	Different	++
Tian S et al.	2017	T2DM	Cohort (11)	--
Gershuni VM et al.	2018	Obese, T2DM	Different	++
Mohan V et al.	2018	T2DM	Cross-Long studies	±
Guess ND	2018	Obese, T2DM	Different	±
Zhao WT et al.	2018	T2DM	RCT (18)	++
Drummen M et al.	2018	All	Different	±
Geiker NRW et al.	2018	T2DM	Osbsr. / interv. (3)	±
Zhao LG et al.	2019	All	Cohort (8)	--

Results

Protein quantity in the diet

*Insulin sensitivity differences based on study conclusions:

(++) positive, better parameters than standard diets with high carbohydrates, proteins help insulin sensitivity

(±) none, there are no differences between HP and HC diets, proteins do not affect insulin sensitivity

(- -) negative, standard high-carbohydrate diet has better outcomes on insulin sensitivity, proteins lower insulin sensitivity

RESULTS

Protein quality in the diet

ARTICLE	MEAT	FISH	EGGS	CHEESE	PLANT
Liu AY et al. (2015)				▲	
Pasin G et al (2015)				▲	
Vasanti S. et al.(2016)	▼	?	?	?	▲
Parackal S. (2016)	▼			▼	
Jung CH et al. (2017)	▼	◆	◆	▲	▲
Geiker NRW et al. (2018)			◆		
Zhao LG et al. (2019)	▼	?	?	?	▲



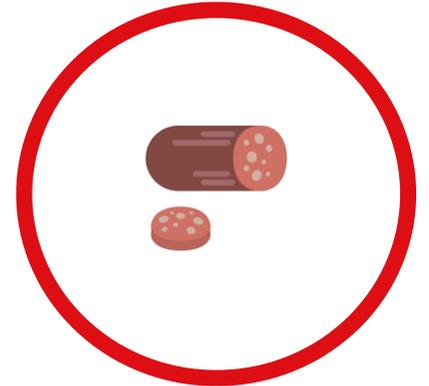
Red and processed meat



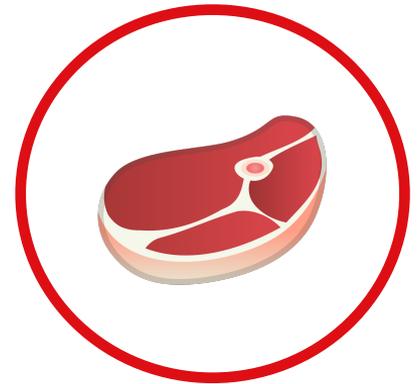
Plant protein source

Cheese (fermented)

Conclusions - Prevention and management of T2DM



+



IECPS
2020

1st International Electronic
Conference on Plant Science

01-15 DECEMBER 2020 | ONLINE



plants



Diet rich in plant protein may prevent type 2 diabetes

if you have any questions please do not hesitate to contact me at
mauro.lombardo@uniroma5.it

paper reference:

Lombardo M, Bellia C, Moletto C, Aulisa G, Padua E, Della-Morte D, Caprio M, Bellia A. Effects of Quality and Quantity of Protein Intake for Type 2 Diabetes Mellitus Prevention and Metabolic Control. *Curr Nutr Rep.* 2020 Jun 23. doi: 10.1007/s13668-020-00324-2. PMID: 32572702.