



# Pam Brown

GP with an interest in diabetes, obesity and lifestyle medicine SA1 Medical Practice, Beacon Centre for Health, Swansea Editor-in-Chief *Diabetes Distilled*pam.brown4@btinternet.com

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Abbott, Boehringer Ingelheim, Astra Zeneca, Eli Lilly, Janssen, MSD, Napp and Novo Nordisk OmniaMed, RCGP and Sherborne Gibbs



Staying up to date



Diabetes-busting 'soup-and-shake' diet works, claim experts... but just one in ten are able to stick to brutal 800 calorie a day plan

The Telegraph

# **HEALTH**

Doctors told me I was heading for diabetes – here's what I did Making six simple lifestyle tweaks can cut your dementia risk, say experts - as diagnoses hit record high of almost 500,000

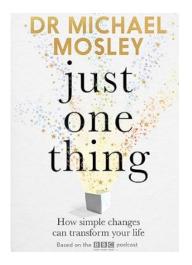
Kidney disease: How to protect yourself and the symptoms the NHS may not spot

I wore a glucose tracker for two weeks – it's bad news for my favourite breakfast

Move over, Ozempic! New 'anti-diet' crafted by top expert Professor Tim Spector helps slimmers lose more than two inches off their waist

· Participants who stuck to the strategy saw their weight fall by 4.7 per cent

Pay tribute to Michael Mosley by looking after ourselves better and sharing his evidence-based advice



Scientists discover new 'supercharged' probiotic said to burn fat faster than Ozempic... and it's half the price

**EXPRESS** 

Doctor says start taking 2p pill from today to stop getting dementia in the future

Excessive light pollution may increase risk of Alzheimer's, one study warns

# Useful reading and updates



### PRACTICAL PRESCRIBING

# Insulin for people with type 2 diabetes mellitus

Natalie Vanderpant, <sup>1</sup> Emily Ward, <sup>2</sup> Edward Farrell, <sup>3</sup> Aikaterini Theodoraki<sup>4</sup>

Cite this as: BW/2024;386:e078015

http://dxdoi.org/10.1136/bmj-2023-078015

Published: 17 July 2024

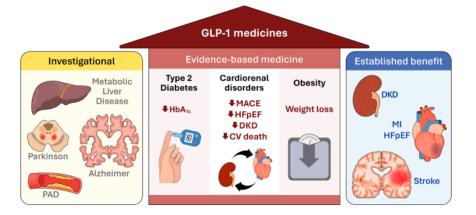
Efficacy and Safety of GLP-1
Medicines for Type 2 Diabetes
and Obesity

Diabetes care 20

https://doi.org/10.2337/dci24-0003

Diabetes care 2024 open access

Daniel J. Drucker



# New advances in type 1 diabetes

Savitha Subramanian, Farah Khan, Irl B Hirsch

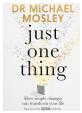
Citethis as: BM/2024;384:e075681 http://xx.doi.org/10.1136/ bm/2023-075681

### STATE OF THE ART REVIEW

- ✓ Diagnosis
- ✓ CGM interpretation
- ✓ Closed loop systems

Table 4   Pharmacokinetics of commonly used insulin preparations					
	Half life*	Effective peak	Duration of action <sup>2</sup>	Notes	
Basal insulin type					
NPH	4.4 h	2-8 h	14-24 h		
Insulin glargine U-100	1x h	No pronounced peak	20->24 h		
Insulin glargine U-300	19 h	No pronounced peak	30-34 h	Higher doses by 10-20% compared with U-100 glargine will be needed	
Detemir	5-7 h	3 9 h	8-24 h		
Degludec	25 h	No pronounced peak	42 h		
Prandial insulin type					
Human regular	30 min	Mah	5-8 h	Times vary depending on site of injection	
Insulin lispro and aspart	15-30 min	1-3 h	4-7 h		
Fast acting aspart	16-20 min	1-1.5 h	4-5 h		
Lispro-aabc	15-17 min	1-1.5 h	4-5 h	More infusion site skin reactions than lispro	
Inhaled insulin	12 min	0.5-0.9 h	1.5-3 h	Often requires postprandial dosing	
NPH=neutral protamine Hagedorn. *In general, four half lives are needed to reach steady state. †In general, the larger the dose, the longer the duration of action.					





Hyperglycemic Crises in Adults

With Diabetes: A Consensus

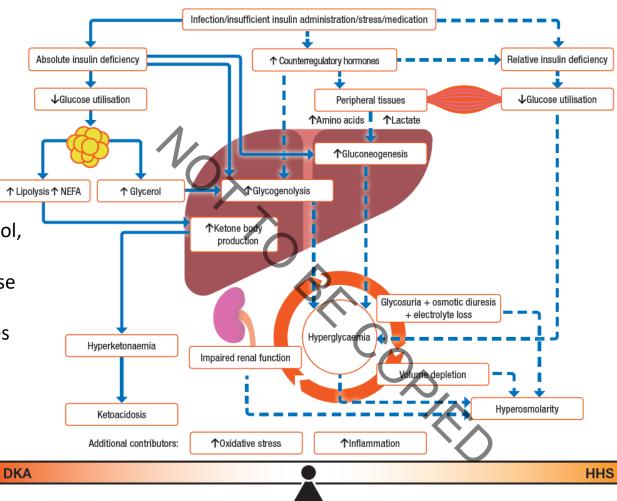
Report

Diabetes Care 2024;47:1257-1275 | https://doi.org/10.2337/dci24-0032

## DKA

- ✓ Severe insulin deficiency
- ↑ counterregulatory
   hormones (glucagon, cortisol, epinephrine)
- ✓ Free fatty acids from adipose tissue, liver fatty acid oxidation and ketone bodies formed
- ✓ Ketoacidosis develops

# Pathogenesis of DKA and HHS



# **HHS**

- ✓ Enough insulin to prevent ketonaemia but not hyperglycaemia
- ✓ Hyperglycaemia causes osmotic diuresis, volume depletion
- ✓ If inadequate fluid intake, hyperosmolar state, renal impairment and decline cognitive function

Early diagnosis and urgent admission for management - insulin and hydration

Umpierrez et al (2024) Diabetologia DOI 10.1007/s00125-024-06183-8

© American Diabetes Association and European Association for the Study of Diabetes 2024. Distributed under the terms of the CC BY 4.0 Attribution License (<a href="http://creativecommons.org/licenses/by/4.0/">http://creativecommons.org/licenses/by/4.0/</a>)

Drink water – weight loss, cognitive function



# Hyperglycaemic crises in adults with diabetes: A consensus report

DKA	HHS		
Develops over hours to days	Develops over days to a week		
Usually alert	Change in cognitive state common		
Polyuria, polydipsia, weight loss and dehydration			
Nausea, vomiting and abdominal pain	Often co-presenting with other acute illness		
Kussmaul respiration			
1/3 of hyperglycaemic emergencies have a hybrid DKA/HHS presentation			

# Triggers – DKA

✓ New T1DM; infections, insufficient insulin, psychological stress, SGLT2is, checkpoint inhibitors nivolumab (Opdivo) pembrolizumab (Keytruda), ipilimumab (Yervoy)

# Triggers – HHS

✓ Volume depletion, dehydration, infections, CVD events, surgery, pancreatitis

# **Both**

- ✓ Steroid, antipsychotics
- ✓ Educate team members about the small DKA risk with SGLT2 inhibitors (0.6-4.9/1000 pt-yrs); test blood ketones
- Share sick day rules at every consultation
- ✓ Ask about ketogenic diet
- ✓ Pause SGLT2is prior to elective surgery guided by local policy



# What's new in remission?

# Early findings from the NHS Type 2 Diabetes Path to Remission Programme: a prospective evaluation of real-world implementation

Valabhji et al

Lancet Diabetes Endocrinol 2024; 12: 653-63

Early data from September 2020-December 2022 12-20 weeks total diet replacement; 20 support sessions over 12 months

- ✓ 7540 referred
  - √ 68% attended initial assessment.
  - ✓ 58% started the total diet replacement (TDR)
- √ 1710 able to complete 12 months' programme by December
  2022
  - ✓ Completers 55%; mean weight loss 10.3kg
- ✓ 2 HbA1c measurements and remission
  - ✓ 190/710 (27%) including non-completers mean wt loss 14.8kg
  - ✓ 145/450 (32%) completers achieved remission; mean wt loss 15.9kg
  - √ 60 had 2 readings <48mmol/mol but were on metformin
    </p>

Type 2 diabetes remission trajectories and variation in risk of diabetes complications: A population-based cohort study

Hajira Dambha-Miller<sup>1</sup>, Hilda O. Hounkpatin<sub>0</sub><sup>1</sup>\*, Beth Stuart<sup>1</sup>\*, Andrew Farmer<sup>2</sup>, Simon Griffin<sup>3,4</sup>

PLOS ONE https://doi.org/10.1371/journal.pone.0290791

Cite this as: BMJ 2024;384:q516

**NIHR ALERTS** 

http://dx.doi.org/10.1136/bmj.q516

Even short periods of diabetes remission are linked to lower risk of heart attack and stroke

Helen Saul, <sup>1</sup> Brendan Deeney, <sup>1</sup> Laura Swaithes, <sup>1</sup> Hilda Hounkpatin, <sup>2</sup> Hajira Dambha-Miller<sup>2</sup>

Remission by lifestyle changes, over 7 years: Those who achieved remission v high glucose:

- ✓ ↓ CVD
- - complications
- ✓ Any remission ↓ mortality



Remission is achievable at scale Remission also available with low carb diet, bariatric surgery

# Pre-diabetes remission – a new goal

HbA1c < 42mmol/mol (US <39mmol/mol) FBG <5.5mmol/L Previous goal T2DM prevention Guideline goal ≥7% weight loss

Role of weight loss-induced prediabetes remission in the prevention of type 2 diabetes: time to improve diabetes prevention

- ✓ Pre-diabetes/intermediate hyperglycaemia associated with microvascular complications and CVD
- ✓ Secondary analysis Diabetes Prevention Programme data, 480 achieved ≥7% weight loss by 1 year; 114 of them achieved normoglycaemia at 12 months (US criteria) – 'responders'
- ✓ At 4 years, 42/366 (11.5%) who did not achieve normoglycaemia developed T2DM v 1/114 (0.9%) 'responders'; RR T2DM ↓ 72% within 6 years

Jumpertz von Schwartzenberg et al Diabetologia 2024 67: 1714-1718

Bergman Lancet Diab Endocr 2024 12: 603-605

Efficacy and safety of once-weekly semaglutide 2.4 mg versus placebo in people with obesity and prediabetes (STEP 10): a randomised, double-blind, placebo-controlled, multicentre phase 3 trial

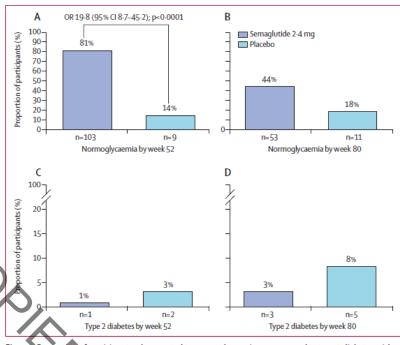


Figure 3: Proportion of participants who reverted to normoglycaemia or progressed to type 2 diabetes with semaglutide 4.4 mg yersus placebo in the full analysis set during the in-trial observation period

Weight loss 13.9% v 2.7% week 52 Weight loss 7.9% v 1.3% week 80 Remission 81% week 52, 44% week 80 Treatment discontinuation 6% v 1% McGowan et al Lancet Diabetes Endocrinol 2024 12: 631-42

just

one thing

# What's new in drugs?

# Glycaemic control still an important goal

Khunti et al Diabetologia 2024

- ✓ 2 pronged approach to optimise T2DM outcomes:
  - ✓ Intensive, early control of blood glucose, ideally before complications
  - ✓ Optimal management of cardiorenal complications
- ✓ Depending on criteria, around 50% of people with T2DM don't meet criteria for SGLT2i or GLP-1RA
  - ✓ People at lower risk of complications lower absolute risk reduction/benefit
  - ✓ Some of benefits newer drugs due to glucose lowering
- ✓ UKPDS 44 years early 8.7mmol/mol ↓ glucose compared to controls translated to:
  - ✓ 10% ↓ diabetes-related endpoints
  - ✓ 17% ↓ MI
  - ✓ 26% ↓ microvascular complications
  - $\checkmark$  10% ↓ mortality

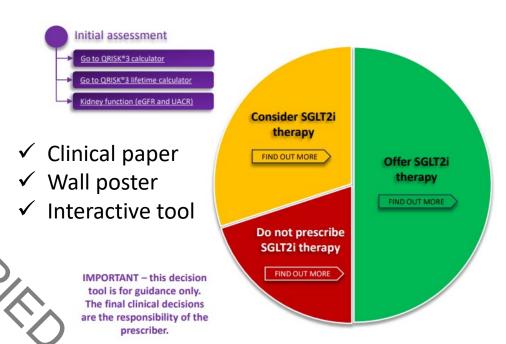
UKPDS 91 Adler et al Lancet 2024; 404:145-155

Diabetes Ther (2024) 15:1099-1124 https://doi.org/10.1007/s13300-024-01550-5

Seidu et al

REVIEW

SGLT2 Inhibitors – The New Standard of Care for Cardiovascular, Renal and Metabolic Protection in Type 2 Diabetes: A Narrative Review



https://resources.gpnotebook.com/bridging -the-gap-between-type-2-diabetesguidelines-and-prescribing-practices/

Multifactorial risk factor management, informed self care and avoidance of clinical inertia all important

# Comparative effectiveness of GLP-1 receptor agonists on glycaemic control, body weight, and lipid profile for type 2 diabetes: systematic review and network meta-analysis

Haiqiang Yao, <sup>1,2</sup> Anqi Zhang, <sup>2</sup> Delong Li, <sup>1,2</sup> Yuqi Wu, <sup>1,2</sup> Chong-Zhi Wang, <sup>3,4</sup> Jin-Yi Wan, <sup>1,2</sup> Chun-Su Yuan <sup>3,4</sup>

76 RCTs, n=39,246

Cite this as: BM/ 2024; 384:e076410 http://dx.doi.org/10.1136/ bmi-2023-076410

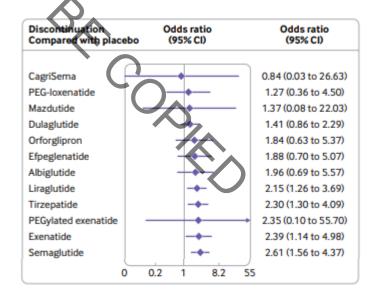
# HbA1c reduction in %

Compared with placebo	Mean difference (95% CI) (%)	Mean difference (95% CI) (%)	τ²	
Tirzepatide -	•	-2.10 (-2.47 to -1.74)	0.08	
Mazdutide	•	-2.09 (-3.10 to -1.09)		
CagriSema	<del></del>	-1.80 (-2.87 to -0.73)	0.0	
Orforglipron		-1.49 (-2.12 to -0.85)	0.0	
Semaglutide	<b>—</b>	-1.40 (-1.67 to -1.12)	0.0	
Retatrutide	<del></del>	-1.32 (-1.97 to -0.68)	0.0	
Dulaglutide	<b>→</b>	-1.09 (-1.34 to -0.84)	0.0	
Liraglutide	<del></del>	-1.04 (-1.30 to -0.79)	0.0	

# Weight reduction in kg

Compared with placebo	Mean difference (95% CI) (kg)	Mean difference (95% CI) (kg)	τ²
CagriSema	_	-14.03 (-17.05 to -11.00)	0.11
Tirzepatide	<b></b>	-8.47 (-9.68 to -7.26)	0.12
Retatrutide		-7.87 (-9.95 to -5.79)	0.12
Orforglipron	<del></del>	-4.88 (-6.93 to -2.83)	0.1
Semaglutide		-3.13 (-3.95 to -2.31)	0.22
Confidence of evidence  High — Moderate	Low	'	

G adverse events – dose dependent increases



Enjoy oily fish
Eat beetroot
Eat an apple a day



Cochrane risk of bias for RCTs; Confidence in Network Meta-Analysis

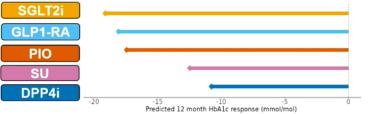
# Will seeing T2DM in HD improve treatment choice?

New 5-drug predictive model will help drug decision-making for optimal outcomes – MASTERMIND consortium - John Dennis

- ✓ Routine clinical features age, sex, diabetes duration, HbA1c, BMI, eGFR, ALT, TC, HDL, Ethnicity, deprivation quintile, number previous and current therapies, smoking
- ✓ Differences reflect the underlying drug mechanisms of action
- ✓ Expected HbA1c reduction over 12 months
- ✓ Best treatment reduced and delayed intensification by 40% and delayed this by 2.7 years
- ✓ Could reduce MACE, renal progression; reduction retinopathy
- √ Take home message this may encourage personalised treatment and discourage inertia

A validated & practical approach to selecting the best T2D treatment

Routine clinical feature based 5-drug treatment selection for glycaemia







Stand up more

# What's new in CKD?

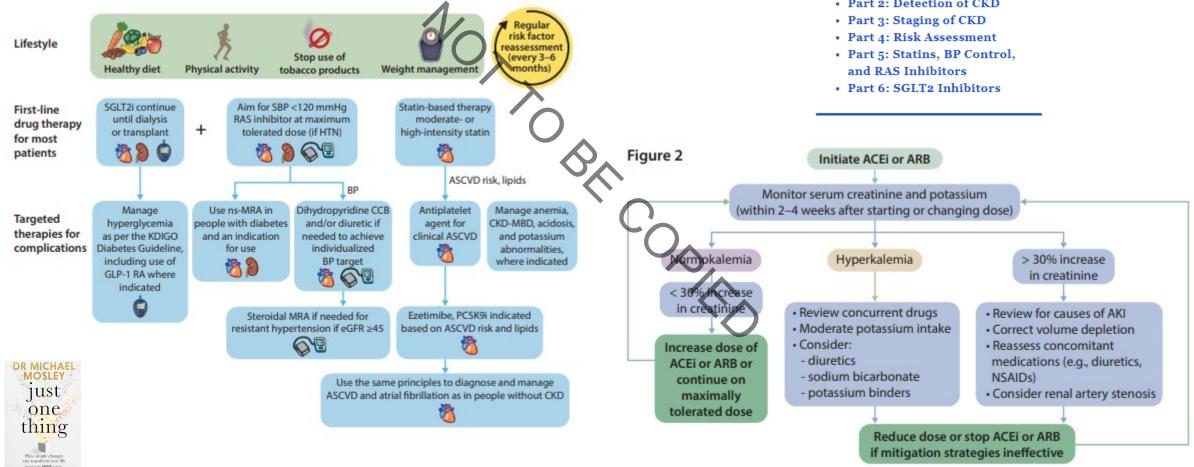
# **Top 10 Takeaways on Management for Primary Care** Physicians from the KDIGO 2024 Clinical Practice **Guideline for the Evaluation and Management of Chronic Kidney Disease**



Primary Care in CKD Video Series: Insights from the KDIGO 2024 CKD Guideline

In this six-part video series, KDIGO CKD Guideline Work Group Member, Michael Shlipak, MD (United States) shares key insights for primary care physicians from the guideline. The series includes:

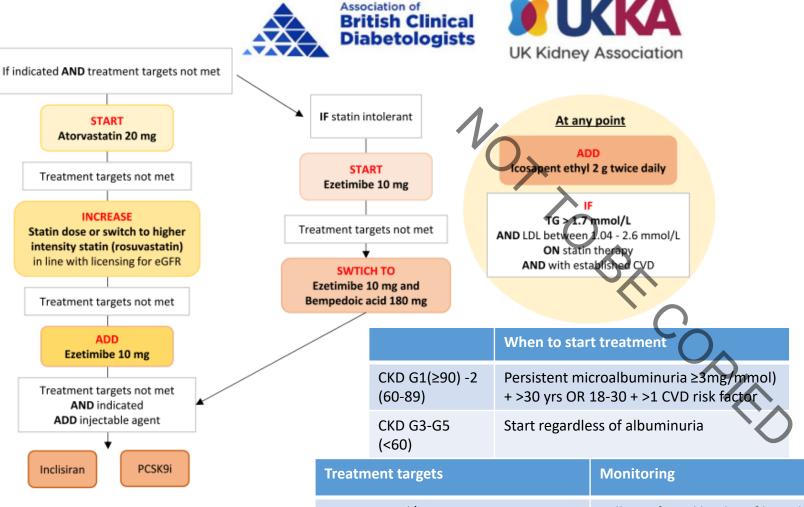
- Part 1: The Burden of CKD
- Part 2: Detection of CKD



Soak in a hot bath. Read

Clinical practice guideline for the management of lipids in adults with diabetic

kidney disease: 2024



Inclisiran indications	LDL cholesterol	AND co-existing	
NHS England	≥ 2.6 mmol/L	established CVD	
NHS Wales	≥ 4.0 mmol/L	established CVD	
	≥ 3.5 mmol/L	Recurrent/ polyvascular disease	
	≥ 5.0 mmol/L	heterozygous familial hypercholesterolaemia for primary prevention	

	PCSK9i indications	Without CVD	With CVD	
			High risk <sup>1</sup>	Very high risk <sup>2</sup>
	Primary non-familial hypercholesterolaemia or mixed dyslipidaemia		LDL ≥ 4.0 mmol/L	LDL ≥ 3.5 mmol/L
	Primary heterozygous- familial hypercholesterolaemia	LDL ≥ 5.0 mmol/L	LDL ≥ 3.5 mmol/L	LDL ≥ 3.5 mmol/L

<sup>&</sup>lt;sup>1</sup>ACS, CHD, PVD, ischaemic stroke, revascularisation

Caution with all lipid-lowering treatments in women of child-bearing age, pregnant or lactating

Zac-Varghese et al. BMC Nephrology (2024) 25:216 https://doi.org/10.1186/s12882-024-03664-1

Treatment targets

Monitoring

TC ≤4.0mmol/L

Full non-fasted lipid profile and LFTs:

LDL cholesterol ≤ 1.8mmol/L

Baseline, 3 months after initiation/change,
Annually

Non-HDL cholesterol ≤ 2.5mmol/L

Measure CK if myalgia

<sup>&</sup>lt;sup>2</sup>Recurrent events in more than 1 vascular bed

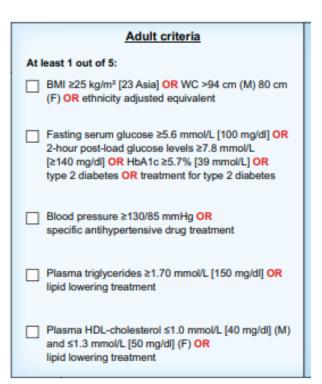
# What's new in NAFLD/MASLD?



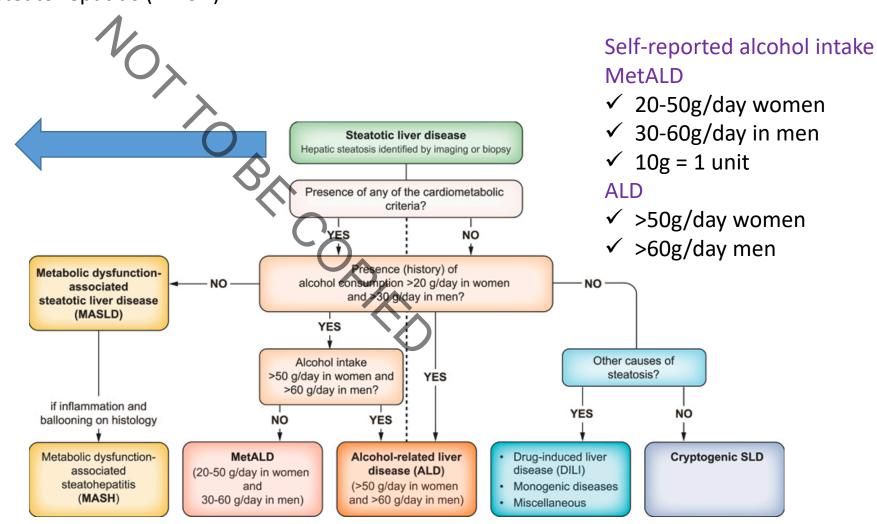
# From: EASL-EASD-EASO Clinical Practice Guidelines on the Management of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)

Obes Facts. 2024;17(4):374-444. doi:10.1159/000539371

Metabolic dysfunction-associated steatotic liver disease (MASLD) and metabolic dysfunction-associated steatohepatitis (MASH)



√ 99% concordance between NAFLD and MASLD



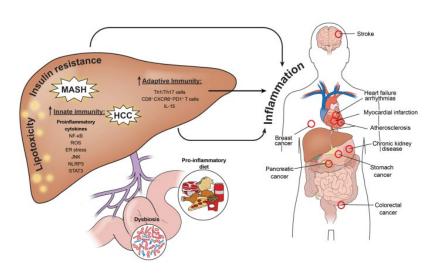
# From NAFLD to MASLD – 2024 update

- ✓ Fib-4 is non-invasive test to identify who needs further investigations
  - ✓ Use age, ALT, AST, platelets to calculate
  - ✓ <1.3 OK; 1.3-2.67 refer fibrosis possible; >2.67 fibrosis likely
- ✓ Multisystem disease due to insulin resistance/metabolic dysfunction
  - ✓ Liver fibrosis, cirrhosis, liver failure, hepatocellular carcinoma
  - ✓ CVD including ASCVD, AF and heart failure, T2DM, CKD.
  - ✓ Cancers oesophagus, stomach, pancreas, colorectal, thyroid, lung, breast, prostate, haematological

# MASLD: a systemic metabolic disorder with cardiovascular and malignant complications

Giovanni Targher o, 1 Christopher D Byrne o, 2 Herbert Tilg

Gut 2024; 74:691-702



# Management:

- ✓ Weight loss 5-7% steatosis; 10% if fibrosis; 3-5% if lean
- ✓ Mediterranean diet or similar; ↓ UPF/sugar/fizzy drinks
- ✓ Aerobic and resistance physical activity
- ✓ Drug not yet licensed TZDs, GLP-1RAs

GLP-1RA associated with reduced cirrhosis (1.12 events/1000 pt years) and reduced mortality (2.66 events/1000 pt years)

Kanwal et al JAMA Int Med 16.9.24

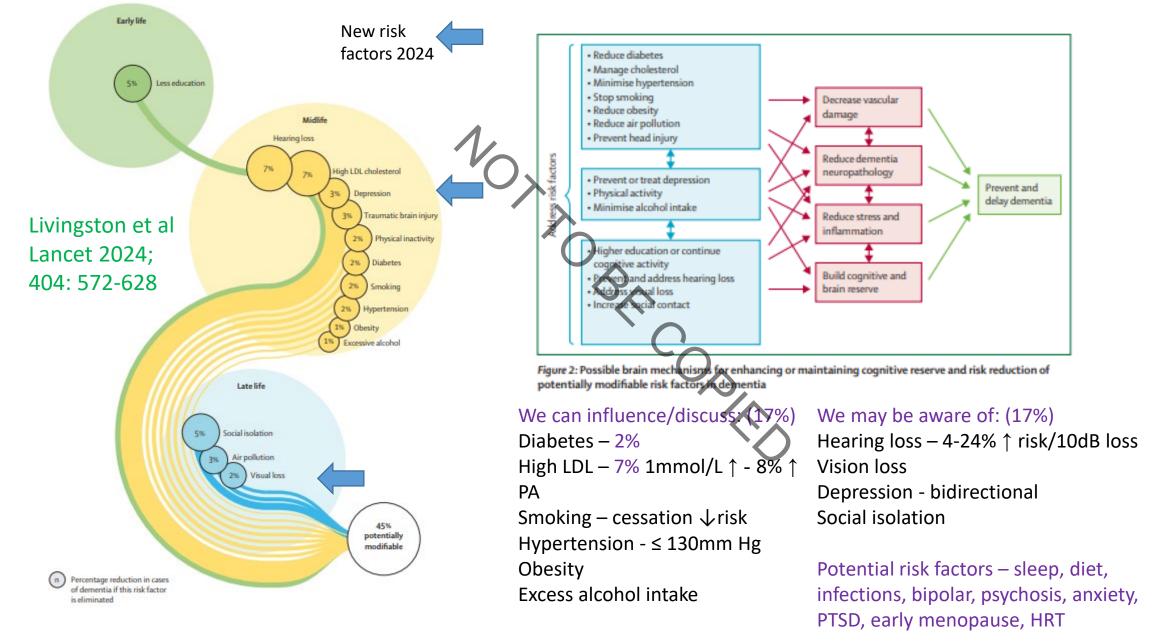


Eat some bacteria – sauerkraut, kimchi, kefir, live yoghurt for physical and mental health



# What's new in dementia?

# Dementia prevention, intervention and care: 2024 report of the Lancet standing Commission



# Dementia prevention, intervention and care: 2024 report of the Lancet standing Commission

# Diabetes specific contribution:

- ✓ Midlife (<65 yrs) impact
- ✓ Increased risk:
  - ✓ Midlife obesity, higher WC ↑ risk >65 years
  - ✓ every 5 year earlier onset HR 1.24 up to age 70 yrs
  - ✓ Long duration and less than optimal control ↑ risk
  - ✓ SU treatment
- ✓ Improved risk:
  - ✓ Even 2kg weight loss by diet/PA improves cognition
  - ✓ SGLT2i, GLP-1RAs, DPP4is associated lower risk; metformin some studies
- ✓ Effective diabetes treatment may not decrease dementia.
- ✓ Some obesity effects may be due to diabetes or ↓ PA

# Other key messages:

- ✓ Remain cognitively, socially and physically active in midlife and later life (>65 years)
- ✓ Target risk factors as early as possible and keep them low throughout life
- ✓ Risk modifiable even in APOE4
- ✓ Improved cognitive reserve can mean no signs or symptoms despite neuropathology

Meta-analysis 8M with diabetes – some heterogeneity

- ✓ Diabetes overall relative risk 1.59
- Impact may begin early after diagnosis
- ✓ Hypoglycaemia significantly increased risk Cao et al 2024 Diabet Metab Synd 16

Dance. Sing. Learn a new skill.



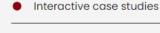
Target risk factors early to make most difference It is never too early or too late to reduce dementia risk

# https://diabetesonthenet.com/journals/

# Diabetes on the net.

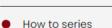
News





**RESOURCES** 





Need to know series

Prescribing pearls

Diabetes Distilled





# Diabetes & **Primary Care**

The journal for healthcare professionals with an interest in primary care diabetes

### **Diabetes Distilled: Deep dive** into diabetes and infection

The increased risk of, and impaired response to, infection in people with diabetes, and... how we can help in primary

8 Jul 2024

### **Diabetes Distilled: Smoking** cessation cuts excess mortality rates after as little as 3 years

The mortality benefits of smoking cessation may be greater and accrue more... rapidly than previously

20 May 2024

### **Diabetes Distilled: Keeping** kidneys FLOWing semaglutide improves renal outcomes

First dedicated randomised controlled trial of kidney outcomes with a GLP-1 recepto... agonist shows significant renal

8 Jul 2024

### **Diabetes Distilled: Statin** heart benefits outweigh diabetes risks

Quantifying the risk of worsening glycaemia, and how should healthcare professional... respond?

20 May 2024

### Diabetes Distilled: Fib-4 – A diagnostic and prognostic marker for liver and cardiovascular events and mortality

Should sequential Fib-4 testing now be made part of ongoing care in people with obesity... and/or type 2 diabetes?

20 May 2024

## **Diabetes Distilled: Predicting** risk of kidney failure and mortality - a new tool

KDpredict algorithm accurately estimates risk of renal failure and mortality over 1-5 years.

20 May 2024

# Diabetes Distilled: Diabetes remission in the real world

Early data from the NHS Type 2 Diabetes Path to Remission programme show it is effective... in achieving remission at scale

3 Sep 2024

## **Diabetes Distilled:** Pneumonia hospitalisation associated with long- and short-term risk of cardiovascular mortality

More than a 4-fold increased risk of cardiovascular death in the long term (>30 days post-... infection) following pneumonia

15 Jul 2024

# Diabetes Distilled: Impact of metformin timing on glucose and GLP-1 response

Administering standard-release metformin 30-60 minutes before meals may lead to... improved postprandial

25 Jul 2024

# **Diabetes Distilled:** Optimising sleep – simple questions and goals

21 Aug 2024

The importance of sleep in type 2 diabetes management.

# Diabetes Distilled: UKPDS at 44 years

**Diabetes Distilled: Diabetes-**

related foot ulcers - detailed

Review and guidelines highlight

opportunities for primary care

to really make a difference.

advice for primary care

Persistent benefits reinforce the need to aim for tight glycaemic control as early as possible... after type 2 diabetes diagnosis.

8 Jul 2024

8 Jul 2024





To read the latest summaries and sign up for Diabetes Distilled, visit <a href="https://www.pcdsociety.org/diabetes-distilled">https://www.pcdsociety.org/diabetes-distilled</a> or scan the QR code

Thank you for your attention!