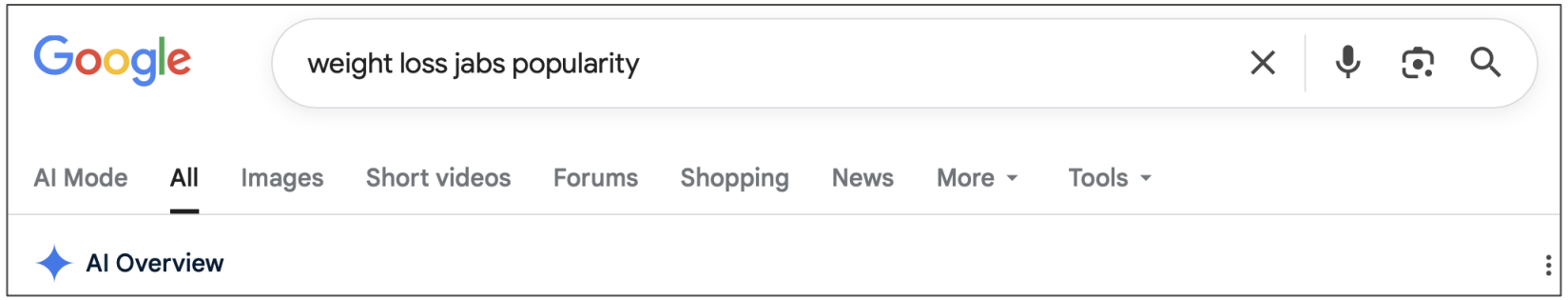
CYTOPLAN
NATURE MEETS SCIENCE

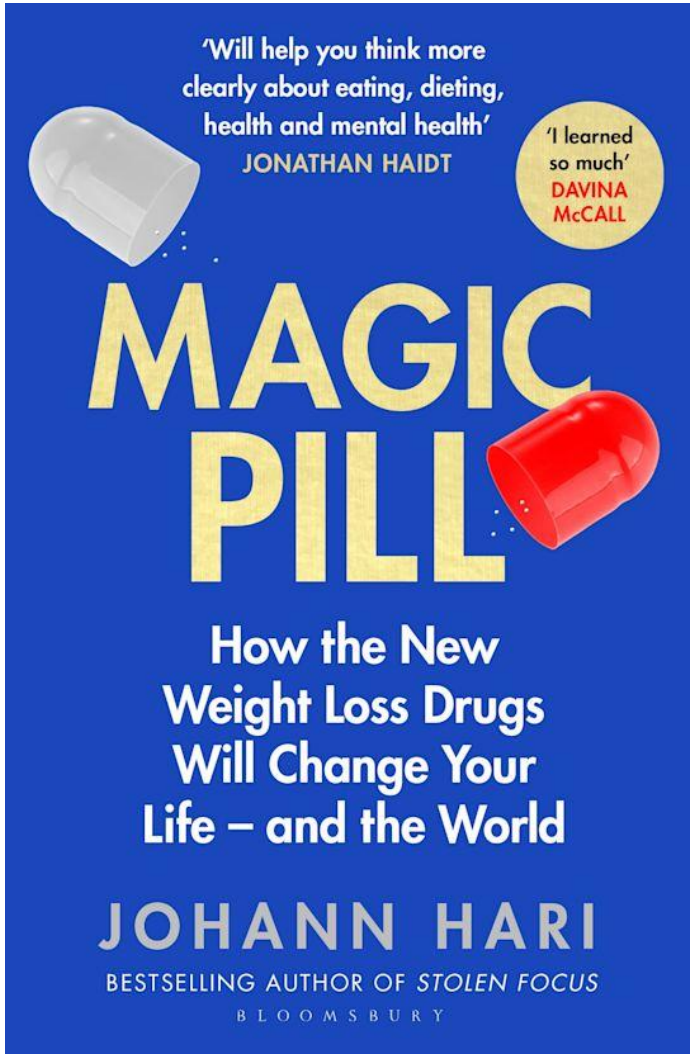
The Gut-Energy Axis – GLP-1, glucose metabolism and beyond

Chris Newbold

WEIGHT LOSS JABS – MAGIC WAND?



"Weight-loss 'jabs' (GLP-1 agonists like Wegovy, Mounjaro) have seen a massive surge in popularity globally, especially in the UK, driven by celebrity endorsements (Elon Musk, Adele) and social media, with millions accessing them privately despite NHS restrictions, leading to concerns about unregulated sales, accessibility creating a wealth gap, and potential long-term health effects in non-diabetic users. Usage is growing rapidly, with significant spending and increasing prescriptions, though public opinion remains mixed, with many preferring diet/exercise but a majority finding jabs acceptable."

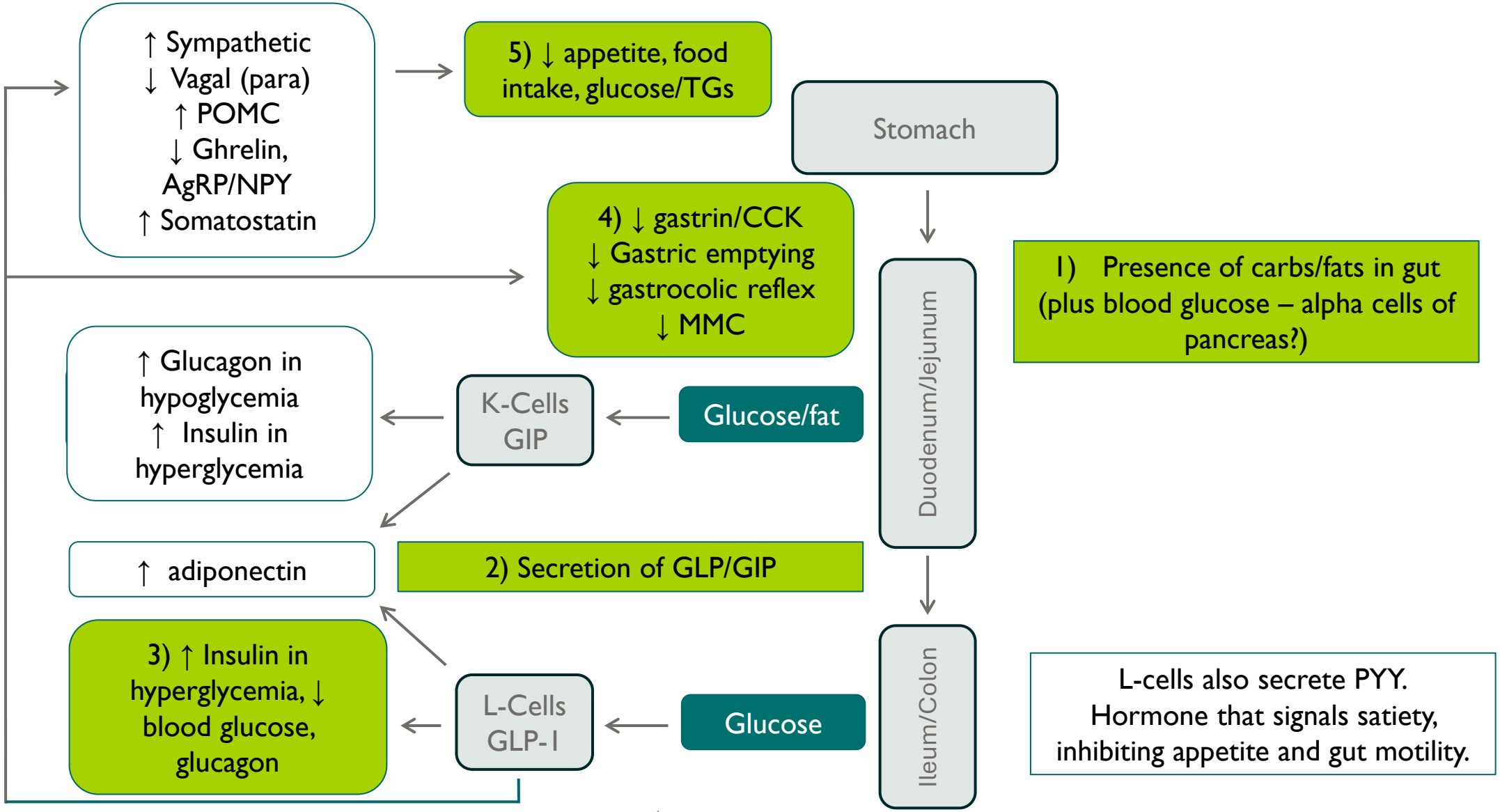


INCRETINS 'GUT-METABOLISM AXIS'?

- Short-lived gut hormones that regulate aspects of physiology in response to food intake.
- Essentially a 'food sufficiency' regulatory mechanism.
- As carbohydrate and fat levels rise in gut, and plasma glucose increases, incretins signal that we have sufficient 'potential energy' to use up, so up/downregulate key processes.
- GIP (glucose-dependent insulinotropic polypeptide) is released from K-cells in duodenum/jejunum in presence of carbohydrate/fat.
- GLP-1 (Glucagon-like peptide 1) primarily produced by distal L-cells in small/large intestine, mostly in presence of carbohydrate.
- Both are *rapidly degraded* by DPP-4 (Dipeptidyl Peptidase-4), resulting in inactive forms.
- GIP/GLP-1 concentrations highly variable among individuals, with and without T2DM.

(Liu, 2024)

INCRETIN ACTIONS



BENEFITS vs RISKS

- GLP-1 receptor agonists associated with lower risk of 42 health outcomes, including cardiometabolic disorders, kidney disease, infection, and respiratory conditions, substance misuse, psychiatric disorder and Alzheimer's disease in diabetics.
- **BUT there are 2 types of medications – those that don't work and those that have side effects..! (Dr Carel le Roux, quoted in Hari 2024).**
- Patients also show increased risk of gastrointestinal disorders, hypotension, kidney stones, syncope, arthritic disorders, nephrolithiasis, interstitial nephritis and drug-induced pancreatitis. (Xie, 2025)
- Many of the reported side effects are drawn from pooled RCT data and summarised at https://www.drugs.com/pro/mounjaro-injection.html#s75
- The same mechanism can be therapeutic in one person, and deleterious in another.
- What's the pre-existing 'terrain' that GLP-1 medications modify and affect/accentuate?

THE BIG ISSUES

↑ Metabolism	↓ Digestion	↓ Food intake	↓ Appetite Mechanisms
↑ Insulin, (↓ glucagon) ↓ blood glucose, TGs, adiposity, inflammation	↓ gastrin/CCK, gastric emptying, gastrocolic reflex, HCl, bile flow, enzymes, absorption, MMC, IBS?	↓ calories, frequency of eating, fats, sugars, alcohol	↓ ghrelin, AgRP and NPY ↑ POMC/leptin, ↓ appetite, ↑ serotonin, GABA, mood ↓ dopamine in VTA (reward pathway), addictive behaviours.
↑ hypoglycemia, fatigue?	↑ nausea, reflux, gastroparesis, gall bladder disease, pancreatitis, diarrhoea constipation, dysbiosis?	↓ micronutrients esp fat soluble, EFAs, B12, minerals. ↓ macronutrients, esp protein, water. ↑ nutrient deficiency, catabolism, muscle loss, sarcopenia, dehydration.?	↑ sympathetic, stress, heart rate ↓ mood, motivation, attention?

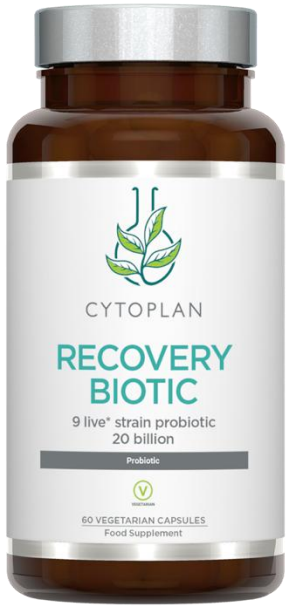
GENERAL SUPPORT

- **Use the opportunity** of reduced appetite/cravings for high fat/sugar foods to cement new eating habits, portion size and **sensible** time-restricted eating.
- Ensure regular mealtimes of very **high-quality macronutrients** – focus on adequate protein, essential fats, high vegetable content with soluble fibre.
- Supplement a good **multivitamin** with vitamin A, D, zinc, iron, folate, B12.
- Consider **additional B12** support especially if insufficient, digestive issues, vegan etc.
- Test and consider additional **vitamin D**, preferably with **K2**.
- Essential fat supplement – **fish oil** or **vegan omega 3**.
- **Probiotic** – to support gut microbiome, especially if there are motility issues (constipation or diarrhoea)

SUPPLEMENTS

Advanced Multi

High potency multi with vitamin A, iron, optimum methylation support, ALA, NAC, resveratrol and lutein.



Recovery Biotic

High strength 20 billion CFU.

9 strain probiotic.

Including *L. Rhamnosus GG*.

For powerful microbiome rebalancing.

Omega 3 Vegan

Omega 3 - Algal DHA and EPA.

Vitamin B12, D & D3 & K2 Sprays

Sublingual, flexible, convenient.

DIGESTIVE & SPECIFIC SUPPORT

- **Digestive Enzymes** – to support optimal digestion of nutrients, especially in context of inhibited gastric function, reduced motility.
- Consider also **liver/gall bladder** support to optimise bile flow, especially if pale/fatty stools, poor fat digestion, increased nausea when eating fats.
- (Coming soon – GLP Digestive Support!)
- Exercise – emphasise strength training, monitor muscle mass. Also monitor bone density, especially if older/menopause.
- Consider **creatine/electrolyte** supplementation especially to support increased activity and energy.
- Consider **collagen** support for optimal gut, skin, connective tissue repair and growth.
- **Stress/mood support** if required.

SUPPLEMENTS

Cyto-Zyme

HCl plus digestive enzymes bromelain, papain, protease, amylase, lipase, lactase, cellulase.

Also, **Betaine and Pepsin** – higher strength HCl and pepsin for protein breakdown.

CytoProtect Liver Health

Milk thistle, schisandra, turmeric, dandelion, burdock, artichoke.

Choline Bitartrate (esp. for gall bladder issues, high cholesterol).

Electrolyte Creatine Complex

Magnesium malate, calcium/potassium ascorbate & Himalayan salt with creatine for cell energy & muscle support.

Marine Collagen

High strength powder

Type I collagen

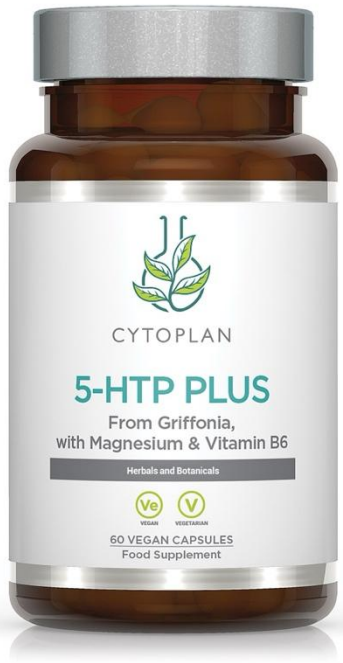
For skin, ligaments, tendons, gut

Peptan, peptide form – well-absorbed.

SUPPLEMENTS

Calm Support

GABA support for stress, anxiety, insomnia, heart arrhythmia, Magnesium bisglycinate/taurate, lemon balm, theanine promote GABA counteracting stress response, lowering cortisol/adrenaline.



5HTP Plus

Mood support
5-HTP with saffron, magnesium, zinc, vitamin B6 and saffron to support serotonin levels.

ALTERNATIVE APPROACHES

- **Promote natural GLP-1** levels directly – DNF-10 peptides promote DPP-4, increases GLP-1/glucose control. Steady weight loss, reducing calorie intake with up to 2.6kg from fat mass in 8 weeks, 5% reduction in abdominal fat/ 2" waist. (Jung, 2014, 2017)
- **Dietary changes as above** – low GL, mediterranean, time restricted eating.
- **Emphasis protein, healthy fats, high soluble fibre** (oats).
- **Regulate blood glucose levels/insulin** – the right dietary balance as above will help this significantly, and consider blood glucose supporting supplements including chromium, cinnamon and magnesium. (Allen, 2013)
- **High prebiotic to promote SCFA production/probiotic -** SCFAs stimulate GLP-1 release, improving insulin release, appetite control. (Münte, 2025) *Bifidobacterium* species in particular increase SCFA production. *Akkermansia* also increases acylglycerol, which activates L-cells, thereby promoting secretion of GLP-1. (Everard, 2013)

SUPPLEMENTS

Satiety Support

Natural GLP-1 support for weight loss, appetite and blood glucose control.

DNF-10 peptides reduce natural GLP-1 breakdown helping maintain levels.

2 caps per day, but safe to increase 2,3x

Blood Glucose Support

With chromium, cinnamon, magnesium, manganese, zinc to improve insulin action, glucose uptake. Esp. if overweight, sugar cravings, energy up and down. Take with each meal.

Also, Gymnema Silvestre

PreBio Restore

Plant soluble fibres/prebiotic powder for a diverse microbiome. Marshmallow, FOS, pectin, PHGG, acacia, arabinogalactins and GOS

Also, FOS-A-Dophilus
Daily, broad spectrum. 40 years +
Focus on *bifidobacterium*.

CALAMITY OR OPPORTUNITY?

CYTOPLAN

- The ‘miracle meds’ are here to stay, creating a new audience who are potentially concerned about metabolic health, and now have a new entry point to dramatically change their diets and lifestyles.
- We might prefer alternative approaches, but bear in mind most people with these needs do not normally come to see us..
- If they do, as practitioners we need to be equipped to support clients using them, guide them on their journey, and help them evaluate risks & benefits and explore alternatives.
- Potentially in the next few years we will get the ‘rebound’ clients…
- This is an opportunity to seize, and in doing so, we can potentially support people to make huge changes that could really improve their metabolic health and reduce chronic disease risk.

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SEE YOU AGAIN

nutrition@cytoplan.co.uk

Practitioner education hub

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