PODCAST RESEARCH · SOURCE NOTES

GLP-1s: the sources

Sixteen sources, one at a time — what each one says & where each one is coming from.

16 sources 4 links confirmed Not for publication

Robert Lustig with Casey Means

PEDIATRIC NEUROENDOCRINOLOGY · THE BAND-AID ARGUMENT

LEVELS — A Whole New Level, ep 226 · 17 Aug 2023 · youtube.com/watch?v=AKNnxKAaONc

Origin story from pre-proglucagon through Gila monster venom, exenatide, semaglutide. The central claim: nobody has GLP-1 deficiency, so this is not hormone replacement — it bypasses the problem rather than treating it. DEXA shows equal muscle and fat loss, the signature of starvation. "An emaciated fat person is not a thin person." Metabolic improvements are real but come from eating less, not from dietary improvement — sugar remains a mitochondrial toxin at any intake.

Economics: $2.1tn/yr if everyone eligible were treated, against a $4.1tn system, for 16% weight loss — versus a claimed 70% improvement in metabolic dysfunction from bringing sugar to USDA guidelines. Also: bariatric surgery as precedent (a third regain; it fixes hunger, not reward or stress), gastroparesis reports, the AAP guidance for twelve-year-olds, and a third discontinuing quickly from side effects. He is explicit that he supports use for the right patient, and would be a proponent if these were used as a jump-start alongside a nutritionist and a lifestyle programme.

Zachary Knight with Andrew Huberman

UCSF PHYSIOLOGY, HHMI · THE MOST RIGOROUS SOURCE IN THE SET

Huberman Lab · 17 Jun 2024 · hubermanlab.com/episode/dr-zachary-knight-the-science-of-hunger-medications-to-combat-obesity

Two systems: brainstem — nucleus tractus solitarius and area postrema — governing meal size over 10–20 minutes, and hypothalamus — AgRP and POMC neurons, melanocortin-4 receptor — tracking fat stores over weeks to years, with leptin as the long-term signal. AgRP neurons fall within seconds of seeing food, predicting how

much will be eaten before the first bite. The drugs act on the two brainstem regions where the blood-brain barrier is weak: area postrema explains nausea, NTS explains satiety. Weight loss is almost entirely appetite reduction, and almost entirely central.

Regain has a measured physiology: per two pounds lost, expenditure falls about 30 kcal/day while hunger rises about 100 kcal/day. Hunger, not metabolic rate, is the main force. Reduced-obese people burn roughly 25% less than never-obese people of the same size. Leptin failed as a drug because obesity involves leptin resistance, not deficiency — but it worked best in those with the lowest levels, which is precisely the post-weight-loss state, making a leptin-type maintenance drug a live idea.

Also: Kevin Hall's inpatient trial, where matched-palatability ultra-processed food produced more intake and weight gain; sensory-specific satiety, which may explain why elimination diets work regardless of what is eliminated; cardiovascular benefit appearing before meaningful weight loss and uncorrelated with the amount lost, suggesting an anti-inflammatory route via the vagal inflammatory reflex; and the pipeline — tirzepatide's GIP agonism suppressing nausea and allowing higher dosing (~21%), a triple agonist adding glucagon to raise expenditure (~25% and still falling at 48 weeks), and an Amgen antibody with a month-long half-life that held loss for six months after stopping.

Federica Amati (ZOE)

NUTRITION · THE MOST COMPLETE PROTOCOL FOR WHAT TO DO WHILE IT IS WORKING

The four-stage satiety cascade with timings: cephalic — seeing, smelling and preparing food, bypassed entirely if lunch is drunk at a desk; stomach stretch at 20–30 minutes; small-intestine hormones at around 90 minutes; colonic fermentation releasing GLP-1 and PYY at 2–3 hours. Fibre is what keeps the last stage running. Short-chain fatty acids supply perhaps 10% of energy needs, up to 30% on a very high fibre diet. Hadza intake around 90 g/day; 96% of us miss the minimum.

Protocol: a pre-drug phase building fibre over weeks — the Ferrari on a dirt track — with one patient improving enough to postpone starting; lowest effective dose rather than default escalation; protein 1.2–1.6 g/kg, worthless without resistance training; nutrient density per bite rather than protein tunnel vision; hydration; structured meal timing for motility; snacking as a nutrient opportunity. Lean-mass loss is phased — mostly fat for roughly three months, rising lean risk after, 20–40% of loss overall — with sarcopenic obesity as the failure mode. Undernutrition case reports: scurvy, and a patient with severe cognitive decline mistaken for early dementia who was micronutrient deficient. Discontinuation 50–60% within a year, some analyses two-thirds; over 90% access the drugs with no dietary, exercise or

psychological support. On the way off: taper rather than max-dose-to-zero, and ramp volume back up — high-fibre, high-volume, lower-energy-density food to re-engage natural satiety. Cardiovascular training on top of resistance work predicts maintained fat loss. Her own caveat: successful off-rampers tend not to have lifelong or familial obesity.

Tyna Moore

NATUROPATHIC AND REGENERATIVE MEDICINE · THE LOW-DOSE CASE

On the BMJ regain meta-analysis: 37 studies, 63 arms, 9,441 adults; mean treatment 39 weeks. Regain 0.4 kg/month with baseline projected at 1.7 years; for semaglutide and tirzepatide 0.8 kg/month and 1.5 years. HbA1c, fasting glucose, cholesterol, triglycerides and blood pressure all improved on drug and returned to baseline within about 1.4 years. Behavioural programmes regained more slowly — 0.1 kg/month, 3.9 years — than medication, and added behavioural support neither during nor after treatment meaningfully slowed regain. Limitations she names: follow-up capped near twelve months, linear modelling of a non-linear process, few low-bias trials.

Her arguments: regain is what any chronic-disease drug does when lifestyle is unchanged; leptin falls with fat mass so maintenance is a physiologic uphill fight, with roughly 2–10% keeping it off; the orchestra framing — GLP-1, GIP, glucagon, ghrelin, leptin, CCK, PYY, adiponectin — where hammering one instrument distorts the whole. Physiological claims that need checking: GLP-1 deficiency as a real state in fatty liver, obesity and type 2 diabetes; leptin and ghrelin receptors not surfacing without GLP-1 present; supraphysiologic dosing downregulating endogenous L cells and with them CCK and PYY; SIBO in 45–50% of users via slowed motility, raising LPS. Also regenerative and anti-inflammatory effects, her own use for psoriatic arthritis, cycling, insomnia and HRV effects, and the absence of any off-ramp protocol in conventional care.

Hyman with Moore, two years on

THE FOLLOW-UP · CORRECTIONS, NEW DATA, AND A CHANGED MIND

The Dr. Hyman Show, ep 1168 · Jun 2026 · drhyman.com/blogs/content/podcast-ep1168

The most useful source for showing that this field is moving, and the only one where a participant publicly revises himself. Hyman opens by saying he was skeptical and has changed position — because metabolic health is the core of everything, and these improve it irrespective of weight loss. He still presses his own hypothesis: if you improve metabolic health by any means you get the same results, and the

bariatric-versus-matched-diet comparison suggests the food was doing the work. Moore's answer is that there are direct mechanisms too — receptors on immune cells, mast cells in particular.

Corrections to earlier claims. The lean-mass figure was misread — see Tension 01 in the working notes. On pancreatitis and gallbladder: the alarming 2023 analysis reported relative rather than absolute risk, and a better-designed 2025 gastroenterology study found no significant increase in pancreatitis, bowel obstruction or gallbladder inflammation. She still reports seeing raised amylase and lipase in her own practice and considers the risk real, particularly where a sluggish gallbladder throws a stone into a stressed pancreas. On the vision-loss scare (NAION): a July 2026 JAMA Ophthalmology paper puts the increase at around three hundredths of a percentage point, in a population already carrying diabetic vascular damage — her reading is that dropping glucose too fast is what the vasculature cannot handle, which argues for titration rather than avoidance. On the "lizard venom" claim circulating online: GLP-1 was identified in humans; exendin-4 was a separate rediscovery in Gila monster venom, and the drugs are not made from it.

New material. Three cohorts needing three different strategies: severe obesity and type 2 diabetes, a middle group with 30–50 lb to lose who need close to standard dosing, and metabolically optimised people for whom she intended microdosing — explicitly modelled on low-dose naltrexone, giving the body a little of what it lacks rather than a pharmacologic dose. A study she cites has statins reducing endogenous GLP-1 production by roughly half, which would be a mechanism for their association with insulin resistance. Genetic differences in response explain non-responders, differing nausea, and why some people fail on semaglutide and transform on tirzepatide. Tachyphylaxis: people acclimate, so a low dose stops working if the lifestyle work lapses. Anhedonia is presented as squarely dose-dependent — her phrase is dosing into soul-crushing territory, with a friend's affect flattening on a 0.5 mg increment and recovering on backing off; also that people stall at higher doses and resume losing when the dose comes down. Rotating injection sites as a stall-breaker. Malnutrition: the "brain damage" headlines are thiamine deficiency progressing to Wernicke's encephalopathy in people who were marginal to begin with. SIBO revisited at around 45%, with the irony that raised LPS drives the very obesity and diabetes being treated. Reported off-label effects — mast cell activation, Lyme and mould patients, disordered eating including anorexia and bulimia, oncology adjunct use, addiction with roughly 39% of the benefit persisting after discontinuation. Perimenopause: she went in exceptionally fit and still gained visceral fat, which she attributes via Kieran Krishnan to hormone-driven

microbiome shifts raising LPS and expanding fat cells. PCOS reframed as metabolic reproductive syndrome, with a caution that androgen-dominant women can flare badly — hair loss, worsening androgen excess — and need slow onboarding. HRT may improve response. Men generally need higher doses. Baseline labs she wants: fasting insulin, HbA1c, CRP, CBC and CMP for liver and kidney, thyroid, hormones, and nutrient markers. Fasting insulin is the test she wishes everyone ran; Hyman's lab partner reports it appears on under 1% of orders.

On the market. A May 2026 study of 49 telehealth GLP-1 sites: two required bloodwork, thirteen required a video visit, three a call. She calls the "microdose" marketing unethical — companies quoting her protocol while starting patients on standard first-tier doses. Manufacturer vials and dial-a-dose click pens now allow genuine individualised dosing through legitimate channels at lower prices, and an opinion paper in a diabetes journal frames microdosing as individualised onboarding rather than a destination. Retatrutide is in phase 3, targeted around 2027, with glucagon agonism that was hoped to preserve muscle and, in her reading, is not showing that; there is an attempt to classify it as a biologic so it cannot be compounded. Gray-market analyses show absent active ingredient, contaminants, and LPS.

Her closing worry is the most quotable thing in the episode: people who have reached top-tier dosing, are regaining, and are now waiting for the next agonist — a life tapped into an escalating drug. Also flagged: elderly women with little to lose being treated near frailty, and young women using it for vanity weight loss.

Jen Ashton

OBESITY MEDICINE, OB-GYN, MS HUMAN NUTRITION · THE MICRONUTRIENT CASE

The only source to treat micronutrient status as the central issue rather than a footnote, and she argues it is as important as protein. Her framing of the gap is the sharpest in the set: prescribing protocols have outpaced monitoring protocols. Bariatric surgery has had rigorous lifelong micronutrient testing and prophylaxis for twenty-five years, on similar physiology; GLP-1 users have none. She is explicit that this is not a doctor failing but a system that has not caught up.

Nutrient by nutrient. B12 — less food plus reduced gastric acid production, since acid secretion is stimulated by food arriving; a 2023 analysis in Diabetes, Obesity and Metabolism flagged it as the primary long-term concern. Deficiency can take years to surface and shows as peripheral neuropathy, cognitive change, fatigue, anemia; water-soluble, so testing and sublingual or prenatal supplementation are low-risk. Magnesium — from whole grains, nuts and legumes; about half of

Americans are already insufficient; presents as cramping, anxiety, disrupted sleep, and at extremes arrhythmia. Vitamin D — fat-soluble, so needs dietary fat to absorb, which falls when intake falls; the American Journal of Clinical Nutrition documents fat-soluble depletion as a consistent finding under sustained caloric restriction; cap 4,000 IU, 1,000–2,000 generally safe, optimal serum roughly 35–55. Calcium — deliberately uncoupled from D: supplemental calcium has for about fifteen years failed to prevent osteoporotic fracture while carrying an associated heart-attack signal, so whole-food 1,200 mg is the target and serum calcium is a poor proxy for stores. Zinc — her strongest point for your audience: hair thinning on these drugs is very likely not the molecule but inadequate protein plus zinc depletion; shellfish, poultry and eggs; also wound healing, skin barrier, immune function, and taste changes that further suppress appetite. Hair changes lag three to six months in both directions.

On muscle she sits close to Knight rather than the alarmists: lean body mass includes bone and organ tissue, up to 40–45% of loss can come from it, and that is not uniformly bad because people with obesity carry dysfunctional skeletal muscle. Body composition analysis still essential. She is the only source to name bone explicitly as part of the same problem — musculoskeletal, not just muscular.

The panel she wants run before starting and periodically after: CBC, serum ferritin rather than a one-off iron, B12, 25-hydroxy vitamin D, zinc, red-cell magnesium rather than serum, folate, and a CMP for calcium and renal function. She notes the first published nutritional and lifestyle supportive-care recommendations — Obesity Pillars, open access — call for personalised dietary advice, fibre above 25 g for women, 30 g for men, 35 g with type 2 diabetes, hydration of two to four litres, nutrient density, less alcohol and dietitian involvement — but specify no micronutrient blood testing at all.

Position: strongly pro-drug, well beyond diabetes and obesity, and against DIY strip-mall and online prescribing with no follow-up. Her closing line is usable almost verbatim — many of the side effects driving people off these drugs at six to ten months may be avoidable, and it is as simple as checking.

The fiber paradox episode

GASTROENTEROLOGY · FIBER MAXING VERSUS FIBER MINNING

The one genuinely new idea in this batch, and it complicates Amati directly. The paradox: the drug that most needs fibre is the drug that makes fibre hardest to tolerate. Slowed gastric emptying is the mechanism of action, not a side effect — and high-fibre food is bulky and slow to leave the stomach anyway. Stacked, you get a

traffic jam: food sitting, gas accumulating, bloating and nausea worsening, the same pathophysiology as gastroparesis. Advisory boards specifically warn against high-fibre food in the first days of treatment.

The deficit is real. FDA daily value 28 g. A 2024 NEJM review of NHANES found 94% of Americans aged one and over miss adequate intake, adults averaging 17 g — about half. The Academy of Nutrition and Dietetics finds around 5% hitting 14 g per 1,000 kcal. Two decades of data and the needle has barely moved.

But fiber maxing has a downside your listeners will not have heard: phytobezoars. A 2025 case of a 45-year-old woman with no GI history who ate a large volume of pears and required surgery for complete small bowel obstruction — persimmons and pears are the usual culprits, via tannins. An 87-case series of intestinal bezoars from vegetable fibre, many with no predisposing factor. Psyllium and guar gum have done the same. In someone whose motility is already pharmacologically slowed, the risk calculus changes.

And fibre is also the treatment. A 2026 Journal of Nutrition perspective: supplementation improves bowel function and stool consistency, addressing the constipation and diarrhoea that are the leading reasons people quit. The same substance that worsens nausea during escalation relieves constipation once established — which is why the answer is titration, not a target number. Other figures: 40–70% experience GI effects, 74–84% in some trials; nearly half discontinue within a year with GI effects the primary driver; a secondary analysis of liraglutide RCT data found patients under-consuming multiple key nutrients, not merely eating less.

Framing worth borrowing: the drug slows the gut, fibre feeds it, and the microbiome sits in the middle translating fibre into short-chain fatty acids, endogenous GLP-1 and amino acids. Get the balance right and pharmacology and physiology work together; get it wrong in either direction and you get side effects, non-adherence and muscle loss. Also the prediction that fibre becomes the protein of 2027 — and the warning that reducing a nuanced nutrient to one number to maximise is the exact mistake made with protein.

Doug Lucas with Gabrielle Lyon

FORMER ORTHOPAEDIC SURGEON · BONE, THE HALF OF THE STORY EVERYONE DROPS

Not a GLP-1 episode, but both participants open by agreeing on the prediction that matters most to yours: an epidemic of osteoporosis and sarcopenia that nobody is prepared for, because of how effective these drugs are. Every other source treats

bone as a clause inside the muscle discussion. This one gives it a whole framework, and it turns out to be the more actionable of the two.

The reframe. Bone is a dynamic organ system, not scaffolding — and bone loss is a biomarker of health span, not an inevitability of aging. If you are losing bone, something is wrong; find out what. He rejects "age-related bone loss" as an explanation and reports patients across ages plateauing or reversing the average 0.5–1% annual loss. Loss begins around 45, in perimenopause, not at menopause — while insurance-covered screening starts at 65. That twenty-year gap is the same shape as Ashton's monitoring gap, and lands the same way.

Measurement, and its limits. Fracture risk is quantity plus quality, and DEXA measures only quantity. Its scan-to-scan margin of error runs from just under 2% up to nearly 6%, while real annual change is 1–3% — so a year's gain or loss can sit entirely inside the error. Reference data comes from the general, sedentary population. Z-score under 50, T-score after. Better tool: the bone turnover markers, P1NP for building and CTX for breakdown, measurable as often as you draw blood, responsive in weeks rather than the twelve months DEXA needs. He doses hormones against CTX rather than a serum estradiol target, having found women suppressing CTX at low levels and others unaffected at high ones — a receptor-density problem, explicitly parallel to CAG repeats and testosterone.

Directly relevant to your adequacy section. The playbook for destroying bone: under-eat protein, eat an inflammatory ultra-processed diet, sleep poorly, live in chronic stress — a description of exactly what happens to an unsupported GLP-1 patient. Protein is bad for bone is a myth that should be "dead and buried"; the lowest-protein diets carried the highest hip fracture risk. Most osteoporosis is not calcium deficiency — Americans average 700–800 mg from food, roughly adequate — and it is a mineral problem, not a calcium problem: magnesium, phosphorus, potassium, vitamin D, K, possibly E. Absorption matters as much as intake, so gut function is upstream of all of it; coeliac is frequently first diagnosed via osteoporosis. Medications that surprise people: PPIs, associated with fracture though not with lower density, and SSRIs, association strong and mechanism unknown. The alkaline-diet-for-bone claim fails whenever a study controls for protein first.

Loading. Resistance training is necessary but bone responds to impact, which almost nobody on these drugs is doing — Lyon's own case of a 60-year-old former ultrarunner, optimised on hormones, protein and resistance work, still osteopenic after two years with no plyometrics. Heel drops generate over four times body weight. On vibration plates he is specific: vertical displacement of 2–4 mm at 30–40

Hz has data behind it, the cheap side-to-side and the ultra-low-displacement devices do not, and faster is not better. On osteogenic-loading franchises, four randomised trials in the last eighteen months showed no benefit, though he argues they asked the wrong question by not defining the right population. Estradiol is FDA-approved for osteoporosis prevention; anabolic drugs build bone but are capped at two years, and starting with an anti-resorptive suppresses the metabolism an anabolic would need — so sequence matters.

Two things to carry across. First, Lyon independently makes the DEXA point that resolved your muscle tension — DEXA does not measure skeletal muscle, it extrapolates from lean mass — arriving at it from the bone side. Second, his closing instruction is the cleanest pre-drug action item in the whole set: know your starting point, get a baseline scan, know whether you are losing.

Michael Greger

NUTRITIONFACTS · NATURAL GLP-1 CLAIMS, CHECKED ONE BY ONE

The single most useful source for the "is there a natural alternative" question, and the only one that goes back to primary literature rather than citing a review. Non-commercial, no sponsors, nothing for sale — which matters given how much of your other material is affiliate-funded.

First he rescues the premise. See Tension 02 in the working notes — albumin binding, vagal signalling, and infusion data showing appetite suppression at levels diet can reach. Then he turns that same rigour on the claims themselves, and most collapse.

What fails in humans. A widely cited review lists berberine, quercetin, ginseng, ginger, gardenia, green tea, soy, curcumin, cinnamon and resveratrol as having "potent effects." Pulling the primary sources: soy is mice, rats and Petri dishes. Ginseng is rats and test tubes. Resveratrol works in diabetic rats, not diabetic humans. Green tea did not reach significance. Gardenia lowered GLP-1 in humans. Ginger, no effect. Fenugreek failed even in mice. Berberine — "nature's Ozempic" — has no human GLP-1 studies at all, and neither berberine nor barberry showed any weight effect. Avocado, promoted as working "just like" the drug, produced significantly lower GLP-1 than the control meal. Olive oil versus butter showed no significant difference in healthy subjects and about 15% in diabetics. Several remaining spices have only in silico evidence — computer modelling, nothing biological tested.

What actually survives, in humans. Chewing: 40 chews per bite versus 15 raised GLP-1 and cut intake by about 75 calories — and shredded cabbage beat pureed cabbage, same food, different chewing. Eating rate: identical ice cream over 30 minutes rather than 5 gave roughly a 30% GLP-1 bump for hours; it held in overweight adults and obese adolescents but not in obese adults, which is a caveat worth stating. Spices: a curry blend raised GLP-1 17% at one tablespoon and 32% at two; six months of curcumin quadrupled GLP-1 against placebo; a teaspoon of cinnamon more than doubled the bump, though without reported satiety; cayenne raised GLP-1 at 15 minutes, again without felt fullness. Exercise: four of five studies found higher GLP-1 after both interval and moderate continuous training, though he flags apparent publication bias.

Directly relevant to Moore's off-ramp product: hops extract does have human data. Bitter receptors line the gut on the same L cells that secrete GLP-1. Hops before a meal significantly raised GLP-1 and cut intake at a later all-you-can-eat meal by around 200 calories — without participants feeling less hungry. It also caused nausea and bloating, which he notes is itself suggestive of a GLP-1 mechanism, though the discomfort did not correlate with how much less people ate. His caution is a hops compound called 8-PN, not efficacy. So the Calocurb mechanism is better supported than the L-cell-suppression rationale used to sell it.

The quinine section is a cautionary tale worth its own beat. It genuinely works — raises GLP-1, reduces hedonic eating even when tubed past the mouth so taste is bypassed, and powdered cinchona bark produced weight and waist loss with better lean-mass preservation than placebo. And it is dangerous: the FDA banned it for leg cramps after hundreds of adverse events and 93 deaths; in 175,000 people followed six years, ~200 mg/day carried 25% greater mortality, 300 mg 83%, 400 mg roughly double. Pilots are forbidden tonic water within three days of flying. A near-perfect illustration of your backbone — natural, effective, and not therefore safe.

Peter Attia

LONGEVITY PRACTICE · FIVE YEARS OF CHANGED PRACTICE, STATED PLAINLY

The Peter Attia Drive, ep 398 / AMA #86 · Jun 2026 · peterattiamd.com/ama86

The second source in the set to publicly revise himself, and the more concrete of the two because the revision is procedural. Five years ago, starting patients on semaglutide, he was “watching muscle fall off these people” and doubted the drugs. Now: virtually anybody can use them safely, including for long-term muscle health — but it requires a ton of deliberate attention. DEXA before and after, and he is no

longer seeing the muscle loss of what he calls the V1 approach. That is your backbone stated by someone who arrived at it from the opposite direction: the drug did not change, the protocol around it did.

The protein problem, answered pragmatically. On tirzepatide you do not want a steak, a chicken breast, possibly not even an omelette — so hitting 1.6 g/kg may mean liquid shakes. His framing is worth borrowing because it refuses the purity trap: yes, we can deplore processed food, but the alternative is inadequate protein on a drug that is making someone functionally anorexic. A useful counterweight to Amati's whole-food nutrient-density approach — both are right, and the tension between them is real for a patient who cannot chew their way to target.

On dosing, and against the sawtooth. Most of the benefit arrives by around 10 mg of tirzepatide, with the majority at 5–7.5; 12.5 and 15 add less. He would rather a patient sit on 2.5 mg indefinitely than climb to 10, lose a great deal, stop, regain and restart — cycling on and off he considers probably harmful, which puts him directly against Moore's enthusiasm for cycling and alongside the consensus statement's caution that it remains an open research question.

A third position on microdosing. He is giving 2.5 mg tirzepatide to patients with a BMI around 23 who have diabetes and unexplained beta-cell fatigue — deliberately, without weight loss, with careful nutrition around it. One case had an oral glucose tolerance test almost normalise within three months. That is Moore's practice arrived at independently, with a different rationale and mainstream credentials, and it complicates the flat “subtherapeutic by definition” objection.

His framing of the open question is the sharpest in the set: at the population level these are obviously geroprotective, because correcting metabolic dysfunction extends life. The real question is whether they are geroprotective independent of weight loss — normal-weight, non-diabetic, high Alzheimer's risk, low dose. Alzheimer's biomarkers improving in his non-losing patients is what makes him ask. Also logged, unverified and interesting: patients report stronger appetite suppression injecting into abdominal fat than leg or buttock, with speculative vagal-tone mechanism — meaning injection site might be a lever for people who need less appetite suppression, not more.

Jack Mosley with Louise Newson

GP · AUTHOR OF FOOD NOISE · THE HORMONES-FIRST ARGUMENT

The first source to make an argument about sequence, and it is the one most native to your worldview. Newson's position: it is a shame when perimenopausal women are put on a GLP-1 before anyone has looked at their hormones. Her case — a young woman with PMDD, severe food noise, undetectable testosterone, years on the pill — who on hormone replacement alone changed her diet, lost seven kilos, and eventually came off the hormones because her ovaries resumed. Same pattern in men with low testosterone: treat that and the motivation to cook and train returns, and the weight follows. Neither is anti-drug; both are asking what should be ruled out first.

The gastric banding history is the strongest cautionary parallel in the whole set, and it is first-hand. Manchester in the 1990s: bands fitted too tight, dramatic loss, delighted patients — then hair falling out, nails splitting, no way to get vitamins in. And the workaround that should stop anyone short: patients liquidising crisps to get calories through the band. Nutritionally ruined while visibly succeeding. Many bands were reversed. Restriction without adequacy, thirty years earlier, with the outcome already known.

New material. The personal fat threshold — subcutaneous fat has a capacity, and past it the overspill goes visceral, which explains why the same weight is dangerous in one person and not another. Half of people living with obesity already carry a micronutrient deficiency before any drug, so restriction compounds an existing deficit rather than creating a new one. Muscle loss of roughly 5% per decade from the early thirties, accelerating after sixty, on top of everything else. Osteosarcopenia in menopause as a double hit — bone and muscle going together — with GLP-1s potentially a third. His nutrient list for bone alongside protein: calcium, magnesium, vitamin D, plus weight-bearing exercise named as dancing, running, racquet sports rather than gym prescriptions. And the phrase that summarises the whole adequacy problem: overfed but undernourished.

Also here: the social cost, which only Amati and the Huberman conversation raise — people stop going out to eat, stop hosting, stop the family dinner, in a society already isolating. Newson's line about a man of normal weight planning to microdose after a bottle of wine a night is the vanity-use problem in one sentence. Mosley's own framing: not for or against, but these are powerful drugs, not cosmetic ones, and the online-pharmacy market is the Wild West. His three priorities are food-environment regulation, nutrition training for clinicians, and — because these are not a passing fad — getting the guidance right.

Rocio Solís-Whalen

ENDOCRINOLOGY AND OBESITY MEDICINE · THE MAINSTREAM CLINICAL POSITION

Obesity as a multifactorial chronic disease across five causes — lifestyle, genetics, hormonal change, aging, environment — of which the patient controls one. The framing that lands emotionally: it is not your fault, and grown men cry in her office hearing it. Obesity as leading risk factor for more than fifteen cancers; for breast cancer a larger contributor than alcohol, HRT or genetics.

Practice: body composition at every visit, because the target is fat loss not weight loss; body fat at or above 32% as her obesity threshold, against normals of 18–28% in women and 10–20% in men; "skinny fat" in people who look healthy; protein around 1 g per pound of ideal body weight, practically 90–100 g/day; resistance training twice weekly as a realistic floor; visits every 8–10 weeks with dose reduced if muscle is going. Mechanism split into fuel and reward, the latter covering alcohol. "Ozempic face" attributed to rapid loss and inadequate protein — collagen and elastin — rather than the drug. Chronic disease is controlled, not cured, so duration depends on aetiology: long-term for lifelong obesity, potentially short-term for a discrete gain. Her own use: 30 lb after late pregnancies and perimenopause, six months, off since.

Stacy Sims, and the menopause-clinic conversation

EXERCISE PHYSIOLOGY · WOMEN, MUSCLE AND BONE

A tool in the toolbox, with real relief from food chatter — but no "green prescription": exercise is not being prescribed alongside, and the first things to go with rapid loss are muscle and bone. Against microdosing and against use for ten vanity pounds. Women are taking these at higher rates than men. High-protein diets produce a similar satiety effect and were used before bariatric surgery. The Biggest Loser as the metabolic-rebound precedent, and the framing that we are running a population-level natural experiment. From the clinic alongside her: lifestyle with or without HRT first for three to six months, body composition each visit, an hour-long GLP-1 consult, protein and resistance training mandatory, muscle loss beyond roughly 10% of total loss triggering a dose reduction, prescription not renewed if muscle is going. PCOS and fertility as genuine indications — weight loss lowers estrone, inflammation and insulin resistance fall, ovulation can return. Fat as an endocrine organ; hip and thigh fat cardioprotective premenopausally. Recomposition rather than weight loss; alcohol first to go.

Jason Fung

NEPHROLOGY · REFRAMING RATHER THAN NEW DATA

The drug's real lesson: it burns nothing, it lowers hunger — so the question was never calories in and out, but why intake was so high. Set point as a thermostat, with multiple brakes that normally enforce it: stomach stretch receptors, PYY from protein, CCK from fat, leptin from fat mass. Ultra-processed food strips fibre, protein and fat, so none engage — a thousand calories of soda produce no satiety, a thousand calories of steak do. No obese animals in the wild, because body fat is regulated rather than accumulated by accident. And the argument that removes willpower framing without removing agency: when 70 of 100 students fail, you look at the teacher.

Jessie Inchauspé

BIOCHEMISTRY · ENDOGENOUS PHYSIOLOGY, WITH A COMMERCIAL CAVEAT

The clearest plain-language account of the endogenous hormone: enteroendocrine L cells sensing food, slowing gastric emptying, distending the stomach, signalling the hypothalamus, stimulating insulin. Baselines: fasting total GLP-1 roughly 5–10 pmol/L rising to about 40 after a meal, peaking at 45–60 minutes. She notes she could not find a published figure for how far the drugs exceed this — Knight answers it. Regain figures cited from a manufacturer study: two-thirds of lost weight regained a year after withdrawal, up to 30% of loss from muscle, regain predominantly fat — the body-composition ratchet. Natural levers: food order (up to 38% more GLP-1), chewing, protein and phenylalanine, eriocitrin, yerba maté. The toxic tap-water analogy: a drug to stop us drinking the water rather than cleaning it.

Caveat: heavily interleaved with advertising for her own supplement, and the eriocitrin and food-order figures come from that context. Treat as promotional until checked against the primary studies.

Mark Hyman with Tyna Moore and Calley Means

THREE POSITIONS STAGED AGAINST EACH OTHER

The Dr. Hyman Show, ep 884 · 17 Apr 2024 · drhyman.com/blogs/content/podcast-ep884

Hyman on the paradox: the food environment makes the right thing nearly impossible, and some people are too metabolically stuck to climb out unaided — "sometimes you need a hundred horses." He wants a bundled model where the drug is only available with mandatory lifestyle support, on the MDMA-assisted-therapy pattern. His unanswered study: aggressive diet alone against GLP-1, head to head, on neuroinflammation, fatty liver and heart failure. Means: no chronic-disease drug

in modern American history has lowered the rate of the disease it treats; moral hazard; the AAP guidance; Novo's pricing, far higher in the US than in Denmark where it is not standard of care; opportunity cost; the blackbox warning and the EU investigation. Moore's rebuttals: the thyroid signal is in rats given a hundred times the human dose, of a cancer those rats develop spontaneously, with the control group affected too.

Links, in one place

Confirmed against the publishers' own episode pages. Two — Fung and Sims — appear in several places with overlapping content, so the candidates are listed for you to pick the one you actually watched.

Lustig with Casey Means — LEVELS, ep 226, 17 Aug 2023, 51 min. *How do weight-loss medications affect metabolic health? And will Ozempic and other GLP-1s actually solve the obesity crisis?*

`youtube.com/watch?v=AKNnxKAaONc`
`levels.com/podcasts/226-how-do-weight-loss-medications-affect-metabolic-health-and-will-ozempic-and-other-glp-1s-actually-solve-the-obesity-crisis-dr-rob-lustig-dr-casey-means`

Hyman with Moore, two years on — The Dr. Hyman Show, ep 1168, Jun 2026. *What We Got Wrong About GLP-1s (And What's Right)*

`drhyman.com/blogs/content/podcast-ep1168`

Attia — The Peter Attia Drive, ep 398 / AMA #86, Jun 2026. *GLP-1 RAs and muscle loss: new data, better questions, and how to preserve muscle during weight loss.*

`peterattiamd.com/ama86`

Jason Fung NEEDS YOUR CONFIRMATION

He has made the same argument — set point as thermostat, the brakes ultra-processed food disables, no obese animals in the wild, hunger rather than calories — across a run of appearances promoting *The Hunger Code*. The notes match all of them. Most likely:

The CrossFit Podcast, ep 33, Sept 2025 — *Fasting, Ozempic, and Food Addiction With Dr. Jason Fung.* Closest match on GLP-1 content specifically.

`crossfit.com/podcasts/the-crossfit-podcast-ep-33-fasting-ozempic-and-food-addiction-with-dr-jason-fung`

Alternatives, both heavy on the three types of hunger:

`daveasprey.com/1395-jason-fung` — Apr 2026
`bengreenfieldlife.com/podcast/hungercode` — Mar 2026

Also worth linking regardless, because it states his position in writing: his Medium piece *What Ozempic / Wegovy / Mounjaro teaches us about Weight Loss*.

Stacy Sims NEEDS YOUR CONFIRMATION

Two recent appearances cover GLP-1s, muscle and bone in women, and the notes could come from either. In likely order:

Performance People, 19 May 2026 — *Dr Stacy Sims | GLP-1s, Body Image and the Female Health Crisis.* The only one with GLP-1s in the title, and it covers the vanity-use and body-image material.

The 'Pause Life with Mary Claire Haver, Jul 2026 — GLP-1s, gray-market peptides, and the point about distance runners developing osteoporosis despite years of training, which is close to the ultrarunner material.

`thepauselife.com/blogs/the-unpaused-podcast/lift-heavy-protect-your-brain-strength-creatine-and-sauna-for-women-with-dr-stacy-sims`

One note for the show notes: some of these episodes carry sponsor and affiliate content.