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GLP-1 weight-loss medicine and Retatrutide use for anabolic effects among online weight trainers: cultural understandings of risk

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ABSTRACT

Glucagon-like peptide-1 receptor agonists (GLP-1s) have rapidly transitioned from treatments for type 2 diabetes to widely used weight-loss medications. While compounds such as Semaglutide and Tirzepatide are clinically approved, the experimental triple-agonist Retatrutide has begun circulating through illicit online markets. Despite growing clinical research on their metabolic effects, little is known about how these substances are being incorporated into bodybuilding cultures. This study explores how GLP-1s, particularly Retatrutide, are discussed within online weight-training communities and how they are positioned relative to non-medical insulin use. Two netnographies of publicly accessible forums were conducted, analyzing 1,774 Reddit posts on Retatrutide and 12,392 posts from two major bodybuilding forums. Reflexive thematic analysis revealed that GLP-1s are framed as tools for improving insulin sensitivity, nutrient partitioning, and lean mass accrual, often promoted as a 'safer' alternative to insulin. These findings highlight risks related to unapproved compounds, misinformation, and polysubstance use within online enhancement communities.

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Introduction

Glucagon-like peptide-1 receptor agonists (GLP-1s) are drugs that regulate insulin levels, blood glucose and gastric emptying (Moore et al. 2023). While they have been used as diabetes medicines for some time, in recent years these drugs have come to prominence as weight-loss treatments for obese individuals, with GLP-1s such as Liraglutide (Saxenda), Semaglutide (Wegovy/Ozempic) and Tirzepatide (Mounjaro) being approved as prescription-only medicines for these purposes in the UK, Australia and elsewhere (MHRA 2023; TGA 2024).

As GLP-1s were going through the approval processes to become prescription weight-loss drugs, knowledge of their utility for weight-loss purposes began to spread rapidly through social media and other sources, resulting in a large increase in non-medical use. Several studies have noted the marked increase in interest in drugs like Semaglutide and Tirzepatide from 2022, with Google searches for these drugs massively increasing at this time (Han et al. 2023), fueled

by social media posts and celebrities' use and endorsements of these drugs (Basch et al. 2023; Han et al. 2023).

Since 2024, the most prominent emerging drug in this class is Retatrutide, a GLP-1 that is currently undergoing clinical trials with Eli Lilly as a potential 'next generation' weight-loss medicine (Davis 2025). Retatrutide is an experimental GLP-1 that is promoted as having a 'triple action' effect, targeting three receptor sites – GLP-1, glucose-dependent insulinotropic polypeptide (GIP) and glucagon (GCG) (Jastreboff et al. 2023) – compared to Semaglutide's one (GLP-1) or Tirzepatide's two (GLP-1 & GIP), ostensibly making it more potent than either (Donnelly 2024). While not yet approved by any national health regulatory agency, Turnock et al. (2025) in a 2024 scoping review of GLP-1 e-commerce sales found that Retatrutide was the most commonly listed drug. Subsequently, much media reporting has noted the prevalence of Retatrutide on social media sites (Braybrook 2025; Davis 2025; Pinkstone 2025), with TikTok restricting

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searches for ‘Retatrutide’ or ‘Reta’ in response to public interest in purchasing the drug through links hosted on its platform in 2025 (Davis 2025). Despite this growing trend, scant literature has focused on this specific drug.

While many GLP-1 consumers will be accessing illicit market products for weight-loss purposes, these drugs are also used by individuals involved in sport and bodybuilding communities. In 2023, the World Anti-Doping Agency (WADA) added Semaglutide to its 2024 Monitoring List, ‘to examine the prevalence and pattern of use in sport’ (WADA. 2023: 6), which is distinct from its Prohibited List, but reflecting a belief that athletes were increasingly accessing these currently non-prohibited drugs to enhance sports performance. Martin et al. (2025) in a survey of non-elite athletes and exercisers noted that, among those who had heard of GLP-1 medicines, 25.5% had considered using them for either aesthetic or sporting purposes. More notably, among bodybuilders and hardcore weight trainers (e.g. powerlifters), Turnock et al. (2025) found significant discussion of GLP-1 drugs posted to bodybuilding forums, with GLP-1 medicines seemingly becoming an integrated part of bodybuilders’ communal ‘folk pharmacology’.

Bodybuilders are often at the forefront of experimentation with emerging image and performance enhancing drugs (IPEDs), a broad category of human enhancement drugs, including anabolic androgenic steroids (AAS), human growth hormone (HGH), clenbuterol etc., and their evolving drug use practices and understandings of risk can therefore be significant for public health to understand (Fraser et al. 2020; McVeigh et al. 2021; Underwood 2025), especially since innovations in drug use by bodybuilders will often be disseminated to broader gym and fitness spaces. Turnock et al. (2025) note that bodybuilders do not use GLP-1s solely for weight loss, but for a diversity of motivations, including replacing perceived higher risk compounds (e.g. DNP) in their drug ‘stacks’, anti-ageing and anti-inflammatory effects, off-setting the side-effects of drugs like human growth hormone (HGH), and importantly, for improving insulin sensitivity.

This aspect of GLP-1 use for their insulinotropic effects is currently under-explored in the literature relating to recreational or off-label consumers. In contrast to many stimulant ‘fat burners’ (e.g. ephedrine; pseudoephedrine; T3), GLP-1s are not catabolic, but stimulate insulin secretion when blood glucose is elevated, resulting in an anabolic effect. This means that GLP-1s can be used for not only losing fat, but also preserving and even building muscle. Given bodybuilders frequently

use insulin for its anabolic properties, despite the high risks associated with this drug (Piatkowski and Cox 2024; Akrigg et al. 2026), the insulinotropic effects of GLP-1s and their use for anabolic purposes by bodybuilders is therefore important to explore as an evolution in the off-label use of these drugs.

Insulin is a peptide hormone produced by the pancreatic β -cells and is central to the regulation of glucose metabolism, facilitating the uptake of glucose and amino acids into muscle and adipose tissue. Within bodybuilding and wider IPED communities, insulin has been adopted as a potent, though highly dangerous, enhancement agent due to its ability to promote glycogen replenishment, augment nutrient partitioning, and stimulate anabolic processes (Piatkowski and Cox 2024). Consumers typically administer rapid-acting insulin in conjunction with high-carbohydrate feeding to exploit its capacity to increase muscle glycogen stores and enhance post-training recovery, often stacking it with AAS and HGH to amplify hypertrophic effects (Akrigg et al. 2026). However, these practices occur entirely outside medical supervision and rely heavily on peer-generated dosing protocols circulated on internet forums, social media and through ‘drug coaches’ (Gibbs et al. 2022). The appeal of insulin lies in its perceived ability to accelerate muscle growth beyond what can be achieved through training and AAS alone, but its misuse poses profound health risks, including acute hypoglycemia, seizures, coma, and death. Despite these dangers, insulin persists within bodybuilding subcultures because it is relatively accessible, difficult to detect in anti-doping contexts, and embedded within community norms that valorize extreme, pharmacologically driven physique enhancement (Piatkowski et al. 2025a).

Based on their ability to stimulate insulin secretion in response to blood glucose elevation, GLP-1s appear to offer some of the anabolic benefits associated with insulin use, while being a lower risk for negative health events. Nonetheless, cases of hypoglycemia and other negative health events have been linked to GLP-1 use (MHRA, 2024), and the use of non-clinically approved compounds like Retatrutide for these purposes pose potential risks to consumers, especially given that the dosing and quality of illicit market and counterfeit products can vary significantly (Ashraf et al. 2024). It is therefore important to understand how bodybuilders and the broader IPED community are using GLP-1s for their insulin stimulating and anabolic properties, and the potential risks associated with this emergent form of drug use.

Approach

This study is grounded in ethnopharmacological approaches to drug use, which conceptualize pharmacological knowledge as emerging through lived experience, collective experimentation, and peer-based validation rather than formal biomedical authority. Ethnopharmacology has been used to examine how drug knowledge is socially produced within communities of people who use IPEDs, emphasizing experimentation, observation, and collective sense-making over formal clinical trial evidence (see Monaghan 1999, 2001, 2002). Rather than treating people who use drugs as passive recipients of pharmacological effects, this perspective recognizes them as active interpreters of substances, risks, and bodily responses (Underwood 2025). Drug effects are understood as contingent and context-dependent, shaped by setting, dosing practices, combinations with other substances, and prior experience.

Building on this tradition, the analysis draws on Piatkowski et al. (2025) concept of *ethnopharmacological connoisseurship*, which captures how experienced IPED consumers develop refined evaluative capacities to distinguish between compounds, delivery methods, and risk profiles based on accumulated experiential knowledge. Connoisseurship here denotes the ability to appraise drug quality, contextualize side effects, and situate novel substances within existing pharmacological repertoires. It reflects a form of embodied expertise that is neither uncritical nor reckless, but oriented toward optimization, risk minimization, and bodily management.

Within enhancement cultures, ethnopharmacological knowledge often circulates through peer networks and online forums, where credibility is established through experiential authority, consistency of outcomes, and practical utility rather than institutional validation. Online bodybuilding forums function as key sites for the circulation and refinement of this connoisseurial knowledge (Easton et al. 2025; Lamb et al. 2025). Drawing on detailed accounts of mechanisms of action, comparative risk, and self-reported outcomes, this study utilizes online discussions of GLP-1 medicines to explore how collective knowledge about these substances is produced, negotiated, and utilized.

Method

This article is based on findings from two distinct but interconnected netnographies (Kozinets 2010) of digital forum spaces (Reddit and two long-standing popular bodybuilding and steroid forums), conducted by the

first and second authors respectively. Importantly, online forums vary in their likely user composition and subcultural orientation. Platforms such as Reddit may attract a broader and more heterogeneous user base, whereas dedicated bodybuilding forums are more likely to comprise individuals more deeply embedded within bodybuilding, fitness, and enhancement-oriented communities. While such boundaries are neither fixed nor mutually exclusive, and users may participate across multiple platforms, it is important to recognize these distinctions when interpreting discourse, norms, and patterns of engagement across digital environments.

Study A explored a variety of subreddits on Reddit.com to examine discourse about Retatrutide. Reddit was selected due to its high-traffic, publicly accessible discussion platform, frequently used for peer exchange on drug use (Balsamo et al. 2021; Pestana et al. 2021; Chi and Chen 2023). Reddit was selected for its open, large-scale, and unmediated discussion environment, where individuals routinely share experiential knowledge and link to external information. In contrast to specialist bodybuilding forum contexts that tend to reflect highly technical, performance-driven practices (Tighe et al. 2017; Turnock and Townshend 2022; Easton et al. 2025; Lamb et al. 2025), study A targeted a more general-interest population of GLP-1 consumers to capture a broader, more heterogeneous population and their motivations. Although specialist bodybuilders may also post on these forums, this sampling frame was judged to offer greater ecological validity for exploring diverse perspectives on Retatrutide use.

Relevant threads were located using the platform's built-in search and keyword querying. Initial search terms included: 'Retatrutide', 'Reta'. Searches were subsequently refined with additional terms, 'anabolic', 'glucose', 'glucose sensitivity', 'muscle gain', 'fat loss', and 'insulin' to increase topical relevance. Data were restricted to posts dated 2020–2025 to reflect contemporary practices and discourse. A total of 1,774 unique posts from 16 threads met inclusion criteria and were exported to a secure Microsoft Word document for analysis. Threads were retained when they contained substantive discussion of Retatrutide, anabolic effects, and glucose sensitivity, as determined by the first author's close reading. The first author's prior research experience in human enhancement drugs supported judgments of topical relevance during sampling.

Data was analyzed using reflexive thematic analysis following the method outlined by Braun and Clarke (2006, 2019). The first author conducted an initial inductive reading of the corpus to generate preliminary

codes. Commonly applied codes included: motivations for use; experiences; advice-seeking; dosing; efficacy; tolerance; health harms; managing side-effects; and product quality. Coding progressed iteratively using the constant comparative method: codes were refined, clustered, and abstracted into candidate themes. Retatrutide as ‘anabolic’ emerged as a principal theme encapsulating explicit accounts. Subsequent refinement produced four core sub-themes, which structure the findings presented in the ‘findings’ section. Codes and themes not directly pertinent to Retatrutide, its anabolic effects and increased glucose sensitivity were documented but excluded from this article’s analytic focus.

Study B examined two of the largest bodybuilding forums online (one UK-based, one US-based, both allowing discussion of steroids and other IPEDs), exploring the top 80 threads returned for GLP-1 related-searches on each forum (160 threads total), and was conducted in late 2024. Search terms included: GLP; Semaglutide; Tirzepatide; Ozempic; Wegovy; Mounjaro, Retatrutide; Liraglutide; Sema; Tirz and Reta, with the most relevant threads collected for analysis (determined by post volume and the author’s initial reading of thread content). This resulted in a total of 5683 unique posts being collected for analysis from forum one, and 6709 for forum two (for a total of 12,392 posts).

Data analysis similarly followed the approach to thematic analysis outlined for study A (see Braun and Clarke 2006, 2019) with the second author reading forum threads and developing initial codes relating to GLP-1 use, including ‘motivations for use’, ‘effects’, ‘advice seeking’, ‘weight-loss’, ‘side-effects’, ‘managing side-effects’, ‘product quality’ and others. This was followed by a rereading of threads and refining of themes, with ‘anabolic use’ identified as one theme, as well as ‘experimental use’, which was a theme often attached to the unapproved drug Retatrutide. Other themes were developed and have been published elsewhere (Turnock 2025), but were excluded from the present publication, which focusses on those themes that fit the article’s analytic focus. The first and second authors then shared their analysis documents and data extracts and checked each other’s coding before assembling the findings section of this article.

For the combined study, the authors began with the separately coded data relating to Retatrutide, anabolic effects, comparisons with insulin, community understandings of risk, and other themes relevant to the agreed focus of the combined study. The authors then extracted data from these categories from each

separate study, and consolidated these into a single document of the dataset and assigned them to overlapping sub-themes. The combined document was then reanalyzed, grouping the overlapping categories before refining them into the final themes used in this paper (finding section titles).

Reflecting established ethical standards for netnographic research, data were collected exclusively from subreddits and forums on which posts could be accessed without registration or login requirements, thereby constituting interactions occurring within a publicly observable space (Enghoff and Aldridge 2019). Although such platforms are already characterized by a degree of pseudonymity (Germain et al. 2019), all potentially identifiable information, such as usernames, references to specific locations, or any personal details, was removed during data extraction. Age and gender information were retained only when users voluntarily disclosed these attributes, given their potential relevance to the interpretive analysis. This approach aligns with methodological practices adopted in prior netnographic studies of IPED-related discussions (Van Hout and Hearne 2016; Brennan et al. 2018; Henning and Andreasson 2021).

Ethical approval for study A was granted by Swansea University (Ref 2025 14043 13594). Ethics approval for study B was granted by the University of Lincoln (Ref 2024-19099).

Findings

GLP-1 use for anabolic effects

While much discussion of GLP-1 use within weight training communities related to their efficacy for fat loss or ‘cutting’, a notable portion of threads discussed how GLP-1s could be used for ‘bulking’, or their anabolic properties. Despite largely being perceived as ‘weight-loss meds’, among bodybuilders who are used to following strict dietary regimes, the drugs’ broader benefits were commonly discussed, with several posters noting that they could actually help with building lean muscle:

I’ve seen multiple posts on bulking with GLP1 agonists, which on paper makes a lot of sense due to nutrient partitioning and better insulin sensitivity.

Reflecting this understanding of GLP-1s’ potential anabolic effects, several posters discussed the mechanism by which increased insulin sensitivity, and therefore GLP-1 use, would be beneficial to bulking (i.e. anabolism), suggesting that these drugs could be used

consistently throughout one's training regime, and not purely as 'cutting' (fat loss) drugs:

The more insulin sensitive you become, the more anabolic you are.

If you are insulin sensitive, your muscles are going to grab that sugar and turn it into muscle.

It [Retatrutide] improves the way insulin works on the body... that is a major improvement as insulin is the most anabolic hormone in the body.

With this cultural understanding of how insulin sensitivity and nutrient partitioning could be beneficial to building muscle, it is unsurprising that many bodybuilders believed GLP-1s would be beneficial to use regardless of whether one was in a fat loss or muscle building phase of one's training cycle, since they could help with both:

Reta [Retatrutide] does increase your insulin sensitivity so it's not only good in a fat loss period but it's actually incredible when you are bulking.

In addition to seemingly offering a direct anabolic effect, some posters noted that the high consumption of calories when undergoing a 'bulking' phase without GLP-1s would normally have a negative impact on insulin sensitivity, which running a low dose of GLP-1s could offset. Thus 'bulking' would be more efficient (i.e. building lean mass easier):

Personally think it [Semaglutide] does have a place in a bulk because when people bulk their insulin sensitivity usually gets worse, this is where Semaglutide could really shine in a bulk.

While bodybuilders were increasingly discussing the utility and benefits of using GLP-1s even when in a bulking phase, some forum users cautioned that the improved benefits to insulin sensitivity and muscle building could be off-set by the appetite suppression associated with these drugs, emphasizing that they would not facilitate muscle growth if one was not able to eat enough:

If you can eat enough the extra insulin sensitivity will help with building muscle.

They [GLP-1s] are mild partitioning agents, but not potent enough to overcome third factor (i.e. negative energy balance & insufficient protein ingestion) catabolism.

While some noted that stimulating hunger would not be difficult when taking steroids, which tend to boost appetite, other posters believed that the negative impacts on appetite from using Semaglutide or Tirzepatide made them ill-suited as bulking drugs, regardless of their insulinotropic effects. However, this

perspective was interrupted by the rising prominence of the experimental GLP-1 Retatrutide by 2024, which has less effect on GLP-1 receptors (as a triple receptor agonist, splitting its effect between GLP-1, GIP and GCG), meaning one could get the benefits to insulin sensitivity from using it without the same appetite suppression as seen for drugs with a stronger impact on just GLP-1 receptors:

True. But Reta's [Retatrutide] not very active at GLP-1, and its activity at the other two sites can actually make you feel hungrier.

Consequently, the emergence of Retatrutide as an alternative GLP-1 drug that did not suppress appetite as much as Semaglutide or Tirzepatide, but did seemingly offer the same insulinotropic effects, led to a large number of posts recommending Retatrutide as the most effective GLP-1 for those interested in bodybuilding and weight training, especially during bulking periods.

Retatrutide

With Retatrutide appearing to be the dominant GLP-1 promoted in illicit market spaces since 2024 (Turnock et al. 2025), discussion of the potential benefits of the drug compared to other GLP-1s was prevalent among weight-trainers. Particularly in relation to the drug's perceived anabolic effects, several posters suggested that Retatrutide offered significant benefits to insulin sensitivity, and therefore anabolism, compared to alternative GLP-1 compounds:

Reta [Retatrutide] is extremely anabolic.

Reta [Retatrutide] is the absolute king of insulin sensitivity.

Despite not yet being a clinically approved medicine, a large number of forum users had taken Retatrutide, sourced from illicit market 'generic' sellers (see Turnock et al. 2025), and relayed their personal experiences using the drug to the forums. This included both examples of individuals using Retatrutide to cut fat, as well as build muscle, with numerous positive reviews posted regarding each form of use:

I've made incredible gains so definitely no loss of muscle, if anything I feel like it [Retatrutide] might have made my body more anabolic because of the increased insulin sensitivity.

It [Retatrutide] allows you to stay lean throughout the bulking phase.

Bodybuilding forums are spaces where knowledge derived from self-experimentation is shared

collaboratively with peers, especially with regards to emerging drugs or novel approaches to drug use, and forum users would draw on each other's experiences with compounds to refine their cultural understandings of drug use. Notably, as Retatrutide increased in prominence and more sellers began to advertise it, several forum users discussed how they were aware of top level competitive bodybuilders who were integrating Retatrutide into their drug 'stacks', taking advantage of the drug's ability to help build muscle whilst staying lean:

Top level bodybuilders are experiencing this and using it [Retatrutide].

They are using [Retatrutide], they are growing on it and they are staying super fucking lean on it.

In discussing the prominence of Retatrutide and its applicability for bodybuilding and recreational weight training, some users made explicit reference to the drug's mechanism of action to highlight why it was so effective at allowing one to build lean muscle, reflecting the shift toward more 'scientific' understandings of drugs in bodybuilding forum spaces (Underwood 2025; Turnock et al. 2025):

It's [Retatrutide] a triple stage agonist - it's increasing metabolism, it's increasing white adipose tissue formation and of course, suppressing appetite. So if you're eating enough and you have enough muscle, it would be anabolic as it's literally allowing you to burn more calories at an accelerated rate.

With bodybuilders sharing information on the drug's mechanism of action, and use for both weight-loss and muscle building routines, some individuals who worked as personal trainers discussed how they had clients who they were coaching using Retatrutide, and commented on the success of using the drug for both 'cutting' and 'bulking':

I've got clients cutting on this [Retatrutide] and I've got clients bulking on this.

This illustrates the intersections of online and 'offline' forms of advice, as individuals who gained knowledge of experimental drugs and novel forms of use would then apply this in gym settings with clients, and share their successes back to the forums. This highlights the importance of forum spaces as sites where cultural understandings of drug use and risk develop (Van Hout and Hearne 2016; Turnock and Hearne 2025; Underwood 2025), and further points to the prominence of 'anabolic coaches' in disseminating such ethnopharmacological knowledge to broader gym communities (Gibbs et al. 2022; Piatkowski et al. 2025b).

Comparisons with insulin

A key finding that came through in the data related to how the insulinotropic effects of GLP-1 drugs were compared by forum posters to the direct use of insulin. With insulin being used off-label by many bodybuilders owing to its significant anabolic effects (Piatkowski and Cox 2024; Akrigg et al. 2026), the notion of a once per week drug that could potentially increase insulin sensitivity unsurprisingly led to significant discussion of how GLP-1s, particularly Retatrutide, compared with injecting insulin after workouts directly.

Notably, several posters when recommending GLP-1s for their anabolic effects explicitly described them as being equivalent to running a low dose cycle of insulin that could be injected weekly rather than post-workout:

Think of it [Retatrutide] as a once a week insulin.

On paper it [Retatrutide] seems like it is the same as running low dose insulin.

While insulin is far more anabolic than GLP-1 drugs, and therefore likely preferable for simple mass gaining, there are a variety of reasons why weight trainers might prefer to use Retatrutide rather than inject insulin. Given insulin has the potential to be a very high-risk compound (Piatkowski and Cox 2024; Akrigg et al. 2026), the perception was that GLP-1s were broadly safer, and less likely to cause hypoglycemic shock, was a key reason for recommending consumers avoid insulin and use alternatives, even if some consumers acknowledged that the risk of hypoglycemia still remained to a lesser extent with GLP-1s:

The danger of insulin is as real as it gets. Too much of it [Insulin] will indeed kill your ass... better safe than sorry with that stuff.

If you start to feel off [on GLP-1s], check your glucose.

In addition to being perceived as broadly safer than insulin, despite Retatrutide still being an experimental, unapproved drug (at the time of the research), Retatrutide was also felt to be preferable to insulin for specific training goals. While insulin is far more anabolic than Retatrutide, and therefore more effective for increasing overall muscle mass, Retatrutide was considered more targeted in growing muscles without adding fat, allowing one to add lean muscle more effectively:

The reason you might prefer Reta [Retatrutide] to insulin for bulking is not because Reta [Retatrutide] is more anabolic (insulin wins here). It's because Reta [Retatrutide] is the king of lean bulks. Insulin actively

increases fat storage (particularly visceral fat) and insulin resistance whereas Reta [Retatrutide] reduces these things so you can get a much cleaner bulking cycle.

Consequently, for those who wanted to remain lean during their ‘bulking’ phase, Retatrutide’s method of action was arguably preferable to the direct use of insulin. For recreational bodybuilders and weight trainers who were not competitive strongmen or powerlifters, therefore, Retatrutide was arguably the more suitable compound even before considering the risks of insulin.

However, an important area of concern to highlight is the potential for polysubstance use, if individuals used both insulin and GLP-1s. While our research did not return any specific reports of this, the growing prominence of both insulin and GLP-1s among bodybuilders (Piatkowski and Cox 2024; Turnock et al. 2025), highlights a potential risk of less-informed consumers trying to ‘stack’ these compounds, which is likely to increase the risks of hypoglycemia, given both drugs elevate the risk of this independently. Notably, one poster asked ‘*is there any interaction between insulin and GLP-1’s?*’, showing that some were considering stacking these drugs in this manner. While forum spaces afford opportunities to share advice on safe use and which drugs not to ‘stack’ (as in this case), as each compound becomes more prevalent, there may be increased risk of harm linked to such polysubstance use.

Community-led risk reduction

Internet forums have become central sites of knowledge production, social interaction, and identity formation within communities engaged in IPED use. These digital spaces function as informal, peer-driven health ecosystems in which individuals seek guidance, evaluate risk, and negotiate the meanings attached to enhancement practices (Tighe et al. 2017; Turnock and Townshend 2022). A growing body of research demonstrates that online platforms do not merely reflect preexisting beliefs or behaviors; rather, they actively shape them (Cox and Piatkowski 2026). Information shared on forums, ranging from experiential accounts to dosing protocols and harm-reduction advice, can recalibrate perceptions of safety, normalize particular drug practices, and construct community-specific norms around ‘responsible’ or ‘unsafe’ use (Piatkowski and Cox 2024):

I would also suggest splitting your dose [of Retatrutide] into two shots a week rather than the

standard once weekly. This will reduce the highs and lows and give you a more stable side effect profile. Some people also report their hunger coming back towards the end of the week so it’s good to have that second shot halfway through to keep you going.

The half life of reta [Retatrutide] is around 7 days which means it takes roughly 4 weeks for a specific dosage to fully saturate into your blood. There’s no point increasing the dose weekly if you can yield the same effects at a lower dosage, which is why titrating up 4 weekly is most sensible, as the clinical trials suggest.

In this sense, forums serve as powerful epistemic environments that influence how people understand their bodies, evaluate risk, and make decisions about drug consumption. Similarly, social media platforms, including YouTube, Instagram and TikTok, underscore distinct parallels, marking the importance of understanding online digital ecosystems (Cox and Paoli 2023).

This dynamic creates a paradoxical landscape. On one hand, forums may provide critical harm-reduction opportunities in contexts where formal healthcare systems have historically failed to engage productively with the IPED population (Bates et al. 2022; Cox et al. 2025). Many individuals report distrust of clinicians, fear of stigma, or experiences of being dismissed when seeking support related to steroid use (Turnock 2022; Richardson et al. 2024; Cox et al. 2025). In this vacuum, online communities often compensate for institutional neglect by generating peer-validated knowledge, highlighting dangers, and offering practical strategies to reduce harm (Cox and Paoli 2023). Such spaces can foster protective effects by disseminating warnings about counterfeit products, unsafe injection practices, or excessive dosing, and by validating consumers’ concerns in ways clinical settings frequently do not:

Is the heart rate increase the only indicator, that glucagon is kicking in? I’m at 2mg per week [of Retatrutide] currently and the results are still crazy good. So I don’t want to titrate up since there’s still good progress.

Yes Tirz [Tirzepatide] hits GLP-1 + GIP, which is great for appetite + blood sugar, but RETA [Retatrutide] adds glucagon which doesn’t just crank up fat burning, it also helps shift energy use so your body isn’t pulling from muscle as much. That’s why people running RETA [Retatrutide] usually notice better muscle preservation compared to Tirz [Tirzepatide], even in a calorie deficit.

You do not need to inject [Retatrutide] for 5 straight days. The half-life is 7 days. I currently do 1mg [Retatrutide] every 3 days. So I’m roughly getting

2.5mg [Retatrutide] per week. If you want 5mg [Retatrutide] per week, 2.5mg [Retatrutide] twice per week is plenty often. The stuff stays in your system. You are just wasting money on excess syringes and alcohol wipes by injecting 5 times in a week.

Most of the weight loss happened at about 5mg [Retatrutide] a week during July. Most of the body composition change happened at around 6mg [Retatrutide] a week during August, and now I'm at about 7mg [Retatrutide] a week and feeling weekly composition changes, tighter abdomen, more striations in my muscles, etc.

On the other hand, the absence of professional oversight and the reliance on anecdotal expertise mean that forums also facilitate the spread of misinformation, unsafe experimentation, and exaggerated claims of efficacy. Narratives that minimize health risks, valorize extreme muscularity, or normalize polypharmacy can produce social pressures that encourage escalation, rather than the reduction of harm (Cox and Piatkowski 2026). Because norms within these communities are internally constructed, practices deemed 'safe' may diverge sharply from biomedical consensus. Moreover, social reinforcement, through upvotes, endorsement, and the authority of long-standing contributors, can give misleading advice the appearance of legitimacy, influencing inexperienced consumers' behavior in potentially hazardous ways:

We have clinical trials for doses up to 7.2mg of Sema [Semaglutide] that are in Phase 3, enough to convince me it's reasonably safe to titrate up to that dose... So you have a very long runway with Sema [Semaglutide]. You can just keep increasing the dose every time you plateau.

Switched to Reta [Retatrutide]. Nothing under 2mg [Retatrutide] did ANYTHING for food noise bumped to 4mg [Retatrutide]. Some noise reduction. Then went to 6mg [Retatrutide]. Much better. Finally settled at 8mg [Retatrutide] (4mg splitx2) and noise in down a lot. I'm down to 225 [lbs] now. Had a HUGE plateau at 240 [lbs]. For about 4 weeks. That's when I went from 4-6-8mg's over a 4-week period. I generally do not have nauseous side effects with any of the GLP peptides.

I'd go straight to 7.5mg [Retatrutide]. There's no risk of getting severe sides with this jump... If you still feel nothing after two weeks, two doses, go to 10mg [Retatrutide].

Thus, internet forums represent both a compensatory health resource and a site of considerable risk. They emerge precisely because of gaps in accessible, non-judgmental, evidence-based support for IPED consumers, yet their community-generated knowledge can simultaneously protect and imperil their members.

Understanding this dual function is essential for designing effective harm-reduction strategies and public-health interventions, that respect the epistemic cultures of these communities while mitigating the risks associated with misinformation and socially reinforced norms.

Discussion

This study demonstrates an emergent and under-recognized form of non-medical pharmacological practice in bodybuilding and wider IPED communities: the use of GLP-1 receptor agonists not only for weight loss, but for their insulinotropic and anabolic properties. While GLP-1s such as Semaglutide and Tirzepatide are increasingly used outside clinical contexts for cosmetic or metabolic outcomes (Han et al. 2023; Propfe and Seifert 2026), the bodybuilding cultural framing identified here extends existing work by showing how these drugs are integrated into folk pharmacologies to support lean mass gains, a use largely absent from mainstream medical literature and practice. This extension aligns with recent netnographic research highlighting the role of online communities in generating experimental, risk-laden drug regimens and collective interpretive frameworks for novel compounds (Turnock et al. 2025).

The prominence of Retatrutide in forum discussions signals the rapid diffusion of experimental substances *via* online parallel markets and influencer networks, fueled by social media visibility and the promise of superior effects. This mirrors broader patterns in GLP-1 off-label uptake, where digital platforms shape consumer demand and perceptions of safety, often outpacing regulatory and clinical guidance (Turnock et al. 2025). In doing so, such platforms blur the distinctions between therapeutic use and enhancement, and contribute to evolving medicinal meanings that complicate traditional biomedically oriented risk assessments. Underwood (2017) suggests that the complex interplay between drugs and culture may be understood by adopting a 'social lives' approach to drugs. As IPEDs moved from performance contexts to recreational contexts, they acquired value through newly identified instrumental benefits, with the social contexts to their use (including social benefits) an important factor in their consumption. Beyond just risks, it is therefore important to understand the social contexts of Retatrutide use, and the medical and public health communities must understand the social aspects to Retatrutide use as an image enhancer and communally celebrated tool for

achieving subcultural (aesthetic; training) goals, as articulated in this article, beyond its simple clinical applications and risks.

The comparative framing of GLP-1s as alternatives to insulin further illustrates how embodied expertise is locally produced, reordering biomedical risk hierarchies in ways that privilege experiential utility over clinical evidence. This resonates with research on online IPED communities where peers negotiate risk and identity through shared knowledge, status hierarchies, and social validation (Piatkowski et al. 2025). Yet, this experientially grounded risk negotiation carries potential harms: combining or ‘stacking’ GLP-1s with AAS and other IPEDs may exacerbate adverse outcomes (e.g. renal failure; hypoglycemia), echoing pharmacological risk profiles and emerging regulatory warnings about unapproved and misbranded products in informal markets. Sagoe et al. (2015) previously highlighted the harms associated with polypharmacy, the concurrent use of multiple substances, which may compound physiological burden and increase the likelihood of adverse psychophysical effects. Such practices can amplify health risks through unpredictable drug interactions, cumulative toxicity, and heightened strain across multiple bodily systems.

A community-led lens elucidates how bodily optimization goals, subcultural validation mechanisms, and online epistemic environments co-produce drug meanings that diverge from clinical risk logic. Consumers reinterpret insulinotropic action as anabolic leverage, and forums operate as key sites where such interpretations are legitimized and circulated peer-to-peer. This process is also consistent with work demonstrating that risk, competence, and identity are socially co-constructed in IPED communities (Piatkowski et al. 2023). This is the essence of ethnopharmacological connoisseurship, as outlined by Piatkowski et al. (2025). In the absence of a robust, single ‘science’ (in this case, on the bodybuilding applications of GLP-1s and the experimental Retatrutide), consumers harness their living-lived experiences of consuming substances to become ‘connoisseurs’, providing a rich repository of insights into their use that contributes to the prevailing communal ethnopharmacology, or ‘folk pharmacology’ (Van Hout and Hearne 2016; Underwood 2017) of these digital cultures. This pattern or ethnopharmacological connoisseurship was prevalent in our data, with forum posters drawing on living-lived experience of GLP-1 use, experiences advising clients and other trainers, and their reading and interpretation of emerging scientific literature, to form communal

norms of advice and guidance relating to their use, and understanding of risks. These posters thus contributed to the development of communal biomedical knowledge and knowledge of harm reduction techniques and risk.

Although these digital ecosystems can provide relatively inclusive spaces for harm-focused dialogue, they also facilitate misinformation and normalize potentially hazardous practices (Cox et al. 2024). This duality supports findings that online forums act simultaneously as harm reduction resources and vectors of risk, particularly when biomedical oversight is absent (Turnock et al. 2023). Andreasson and Henning (2023) map how these digital doping ecosystems formulate cultural norms and values through the interaction of individuals within the posting community and the environment of the digital space. While different domains (environments) will feature different ‘rules’, the emergence of cultural values in the spaces explored in study A and study B respectively, highlight how cultural norms of GLP-1 use, particularly with regards to Retatrutide, emerged within these two spaces as desirable and effective tools with which to pursue subcultural goals. The ‘rules’ of both Reddit and the bodybuilding forums encouraged consumers to engage with self-experimentation and experiential knowledge sharing, creating two digital ‘doping’ environments in which ethnopharmacological connoisseurship was significant in shaping approaches to use and understanding of risks. Importantly, while some risks were minimized in discussions, an emphasis on harm reduction was present in the prevailing ethnopharmacologies of each platform. The paradox of peer-validated risk management highlights the need for public health responses that engage with, rather than dismiss, community epistemologies of drug use (see Piatkowski et al. 2025c).

Conclusion

This study has demonstrated that GLP-1 receptor agonists such as Semaglutide and Retatrutide are being used not only for weight loss, but also for their insulinotropic and perceived anabolic properties to support lean mass growth, and are increasingly framed as lower-risk alternatives to non-medical insulin use. Digital platforms facilitate the rapid diffusion and uptake of experimental compounds, with peer influence shaping consumer demand, perceived efficacy, and understandings of safety. In this context, GLP-1s are being reimagined from ‘weight-loss medications’ into anabolic and ‘bulking’ tools, extending current

accounts of non-medical GLP-1 use beyond cosmetic fat loss and illustrating how novel metabolic drugs can quickly acquire new functions within IPED cultures, often well before clinical or regulatory discourse recognizes these practices. The normalization of experimental triple agonists such as Retatrutide for both cutting and bulking points to increasingly complex, polypharmacy-based enhancement strategies that outpace available safety data, while online forums operate as key ethnopharmacological sites where mechanisms of action, dosing strategies, and risk hierarchies are collectively constructed and circulated.

Findings highlight the importance of ethnopharmacological connoisseurship on these platforms, and how communal understandings of risk and harm reduction emerge through the sharing of living-lived experiences and posters' understanding of available scientific information. However, this is importantly mediated by the specific platforms in question, and while tight-knit IPED communities with a culture of information sharing such as bodybuilders may engage with risk mitigation practices, other digital platforms (e.g. TikTok) and user populations (i.e. non-bodybuilding recreational trainers) may have a less established ethnopharmacological understanding to that illustrated here. Importantly, even in the comparatively informed populations studied, it is clear that some degree of high-risk behaviors and potentially harmful information was present, even alongside a communal emphasis on harm reduction. This highlights the need for public health and future research to engage with these populations directly with regards to risk mitigation, especially in relation to emerging drugs like Retatrutide. It is clear that the bodybuilding population will continue to use Retatrutide and other emerging GLP-1 agonists, both for its positive aesthetic effects, as well as its perceived lower comparative risk to insulin, and engaging with this population in a way that acknowledges these benefits is likely to better suit the needs and wants of consumers rather than a purely medical or criminal justice-focused approach.

Limitations

This study acknowledges some limitations. Reddit and bodybuilding forum users constitute self-selected, platform-specific populations, likely skewed by age, geography, and digital literacy, and may therefore differ from the broader IPED consumer population, especially in relation to GLP-1s, which are likely to be more prominent among the general population than other IPEDs (e.g. AAS). Anonymity and pseudonyms

restrict the verification of demographic characteristics, drug use status, and the veracity of experiential claims, and forum posts capture only what participants choose to disclose, with important contextual variables (such as dose, medical supervision, and off-line harms) often absent or underspecified. Future research should investigate the longitudinal dynamics of GLP-1 ethnopharmacologies, examining how practices, advice, and norms shift over time as experiential data accumulates, and should develop community partnerships and peer-led approaches to co-design harm-reduction resources that explicitly address GLP-1 use within enhancement cultures, which will be critical for mitigating emergent harms while engaging, rather than dismissing, community expertise. Future research should also investigate other platforms such as Instagram and TikTok, where there are likely to be differing cultural norms of use to that seen in the digital ecosystems studied in this article.

Author contributions

CRedit: **Luke Cox:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing; **Luke A. Turnock:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing; **Kim Akrigg:** Formal analysis, Writing – original draft, Writing – review & editing; **Timothy Piatkowski:** Investigation, Project administration, Writing – original draft, Writing – review & editing.

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