

Anything is
everything
Exercise Intelligence



Helping millions to accelerate
the achievement of a healthy
and sustainable weight.

Why medical interventions as a
monotherapy are not the answer.

Dr Lou Atkinson BSc, MSc, PhD

Dr. Brendon Stubbs BSc, MCSP, MSc, PhD

Marie Schiller BSc

Summary

Obesity is the most prevalent chronic disease worldwide. The world has finally reached that pivotal moment where, for the first time, the industry could actually see a reversal in overweight and obesity trends.

The new class of medications, collectively named glucagon-like peptide agonists (GLP-1s) are gaining regulatory approval for chronic weight management. The phenomenal success shown in clinical studies is showing superiority over existing generation products and near the levels seen via surgical intervention.

Whilst GLP1s have shown to be significantly beneficial for weight loss up to 22% in clinical trials, a number of considerations are needed.

1. All the trials included behavioral interventions of exercises and nutrition.
2. Most people regain the weight when they stop taking the medication (Trials have not yet provided evidence of the behaviour change needed to maintain weight loss);
3. Not all weight lost is visceral fat, skeletal muscle mass is also lost (and may not be regained after cessation of GLP1s).

We propose that every prescription of GLP-1 is accompanied by EXI Exercise Intelligence, the only MedTech providing an engagement program with personalized exercise. Therefore supporting every person to change their lifestyle sustainable, retain the weight loss, reduce the muscle mass loss and provide the capability to remote monitor people's success during and after taking the medication in order to enable insurance coverage.

More than half (51%) of the global population will be living with obesity or overweight within 12 years unless prevention, treatment and support improve”¹

In its World Obesity Atlas 2023, the World Obesity Federation estimates the worldwide economic impact of overweight and obesity will reach US\$4.32trn (3% of global GDP) annually by 2035 – a figure comparable with the impact of COVID-19 in 2020. By 2060, that figure will rise to 3.3% of global GDP².

A Global Crisis? Yes, worldwide 38% of the population is suffering from overweight or obesity.

In England, 26% of adults live with obesity today³ – up only a few percentage points from 2019⁴ with government estimates putting the associated cost at £6.1bn to the NHS and £27bn to wider society.

In the US, where more than 40% of Americans struggle with obesity, the cost to the US healthcare system is nearly US\$173bn a year, according to the US Centers for Disease Control and Prevention (CDC) where, on average, an adult with obesity experiences US\$1,861 higher medical costs per year than an adult of a healthy weight.

Other countries around the world are facing similar challenges.

Some Key Predictions

Global Population



> 51% will be living with obesity or overweight within 12 years.


Equating to nearly:

3%
↑ Global GDP

\$ 4.3 TRN

USD by 2035

- <https://www.bmj.com/content/380/bmj.p523#:~:text=In%20its%20World%20Obesity%20Atlas,of%20covid%2D19%20in%202020>
- <https://www.worldobesity.org/news/economic-cost-of-overweight-and-obesity-set-to-reach-3.3-of-global-gdp-by-2060>
- <https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2021#summary>
- <https://files.digital.nhs.uk/9D/4195D5/HSE19-Overweight-obesity-rep.pdf>



“As long ago as 2005, Harvard University quoted **US\$190bn** as the annual cost of “obesity-related conditions”⁵, adding: “The enormity of this economic burden and the huge toll that excess weight takes on health and wellbeing are beginning to raise global political awareness that individuals, communities, states, nations and international organizations must do more to stem the rising tide of obesity.”

Historically, medical interventions have had limited effects, due either to lack of efficacy or to side-effects that prevented prolonged use.

In 2014, a new drug in a new class of medications – collectively known as glucagon-like peptide agonists (GLP-1s) and initially targeted towards type 2 diabetes – gained approval for chronic weight management. This drove leading diabetes pharma companies Novo Nordisk and Eli Lilly & Co to evaluate the effects these medications have on people who are overweight or struggle with obesity.

The new class of medications aid weight loss by mimicking and expanding the action of a gut hormone called GLP-1, which delays gastric emptying and slows the movement of food in your gut, so you stay full for longer. Future generations are now combining GLP-1 with additional mechanisms that are proving to add additional weight loss benefit.

Saxenda (liraglutide), the first-generation product from Novo Nordisk (Novo), brings modest weight loss (5%) but requires daily dosing. Wegovy (semaglutide) and Rybelsus (semaglutide) enabled weekly and oral dosing with slightly better weight loss.

Simultaneously, Eli Lilly focused its first weekly GLP-1 product exclusively on diabetes but is submitting its FDA application for a best-in-class dual agonist, tirzepatide, for overweight and obese patients. Branded as Mounjaro, this Eli Lilly medication is already approved for type 2 diabetes but its impact on weight loss in clinical studies shows superiority over existing products that approach the levels of weight loss seen from surgical interventions.

Amgen and Pfizer have products entering Phase III that could yield similar benefits.

5. <https://www.hsph.harvard.edu/obesity-prevention-source/obesity-consequences/economic/>

Based on published clinical studies, many view GLP-1s agonists and dual agonists as revolutionary changes in weight loss. In Wegovy's STEP 1 clinical trial, people on the maximum dose lost 12% more of their body weight than those who were not on the medication. The latest phase 3 study for Mounjaro found that diabetes patients taking the highest dose lost up to 15.7% of their body weight.

For the first time, the world could see a reversal in overweight and obesity trends. The new medications offer great possibility but, to effect change at scale, we, as stakeholders, must address a few remaining issues such as sustainability, affordability, and the management of side-effects that likely could limit outcomes. Let's turn to these now.

Of critical importance: GLP-1s, as a monotherapy, are not recommended for weight loss. The drug trials also prescribe changes to diet, activity levels and behaviors.

A multidisciplinary approach

In the Wegovy STEP 1 trial, both the medicated and placebo groups received guidance to reduce their calorie intake and increase their physical activity levels.

2.6 billion people around the world suffering with the disease of obesity⁶, the medication alone won't provide a long-term solution.

Add to that the cost of GLP-1s, and the strong evidence that lifestyle interventions can help with weight management, and it's clear a huge opportunity exists to combine drug therapy with less expensive, non-medical interventions that have no side effects and substantial efficacy upside.

6. <https://www.weforum.org/agenda/2023/03/top-health-stories-global-obesity-march-15/>.



EXI has supported over **8200** people with obesity to start a physical activity journey

EXI users with obesity have achieved an average increase in objectively measured:

Weekly Activity Mins

30%
↑ 51 mins per week

Weight Loss

4.2%
↓ 4.7kg average

Over 12 weeks, as well as significant improvements in waist circumference and blood pressure.

As a case study in the UK, NICE has currently only approved semaglutide for a maximum of two years and has specified that its use should be within a specialist, multidisciplinary weight management service – i.e., medication should be implemented alongside a reduced-calorie diet and increased physical activity. In other words, NICE has recognized that sustainable lifestyle change should be embedded while GLP-1s are used to kick-start weight loss.

This is critical, because many people regain the weight once they've come off the medication: two-thirds of those in the Novo Nordisk trials⁷ had done so just one year on from the intervention.

“Studies show that 40% of the weight lost in the studies was lean mass⁸. Extremely difficult to rebuild once lost, and bringing with it a huge risk of sarcopenia, this is an issue that requires further exploration, including the potential role of physical activity in mitigating that loss; at this point, drug trial data doesn't clearly reveal whether the recommended lifestyle changes were achieved by patients.

This opens the question of whether the recommended lifestyle changes were a factor for the one-third who kept the weight off? Did more active people lose less lean mass? What if we could properly measure the impact of physical activity to understand how it complements the new drugs, to in turn establish a new gold standard for sustainable weight loss interventions?

Given current statistics on adherence and persistence on chronic medications, in addition to the cost, the likelihood that people struggle to stay on the medication forever is high. In the US is the added issue of affordability: a price tag of US\$10,000+ a year puts these drugs beyond the reach of most eligible individuals, and weight loss medication is not currently covered by many private insurers or public health insurers. Medicare current policy is to exclude coverage of any weight management medications.

This despite the numerous, proven health benefits of losing weight, as recently noted by Caroline Apovian, Professor of Medicine at Harvard Medical School: “If everybody who had obesity in this country lost 20% of their body weight, we would be taking people off all these medications for reflux, for diabetes, for hypertension. We would not be sending people for stent replacement.”

And so, the pressing challenge now facing national health care systems is how to pay for this new class of medications that could potentially transform health outcomes for billions of people. Despite the growing support for obesity to be recognized as a chronic disease, coverage and policy have not yet been updated to enable access. Pharmaceutical companies will need to convince insurers to change the (largely aesthetic) way many still view obesity – bringing them in line with the American Medical Association's 2013 categorization of obesity as a disease⁹– and to recognize the broader health benefits, and healthcare savings, brought about by weight loss.

7. Diabetes, Obesity and Metabolism, published 19 April 2022 – <https://doi.org/10.1111/dom.14725>

8. Journal of the Endocrine Society, published 1 May 2021 – <https://doi.org/10.1210/jeendo/bvab048.030>

9. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6179496/#:~:text=The%20National%20Institutes%20of%20Health%20had%20declared%20obesity%20a%20disease,Society%20did%20so%20in%202008>

To quote Bloomberg: “To help their cause, companies are trying to show that their drugs don’t just cause weight loss, but can improve people’s health – and in turn, save the US on broader healthcare costs.” As an example, Novo is currently running an outcomes study that will answer the question of how weight loss translates to a benefit in long-term health outcomes.

If successful, the opportunity is undeniably huge: US data indicates that 130 million adults are eligible for GLP-1 based products due to their weight and other health conditions. “If just a third of Americans with severe obesity took them, US sales of weight loss drugs would swell more than 30 times, into an US\$80bn industry,” said Bloomberg in April 2023, quoting data analytics company Airfinity Ltd. Additionally: **“Analysts at Jefferies Financial Group Inc. predict that GLP-1 based products for diabetes and obesity could become the biggest blockbusters of all time, bringing in as much as US\$150bn a year globally.”**

Affordability linked to durability open the door to considering GLP-1 therapies as part of a comprehensive disease management approach for people who are overweight or obese. However, robust clinical data is needed to make this health improvement case – and as yet, it is sparse. While exercise was “prescribed” in existing studies, capturing passive, accurate data on exercise has been challenging to measure. New studies with better tools will help provide the right level of evidence to drive this likely important combination.

The Power of Medication + Physical Activity + Diet (1+1+1 > 3)

These revolutionary drugs are most impactful when combined with changes in diet and physical activity levels. The official instructions that accompany each offering recommend lifestyle changes and some recommend caloric intake management solutions, like Noom and Weight Watchers. Yet, despite its importance, no guidance is offered for increases in physical activity.

Up to this point, exercise or increases in physical activity, while long recognized as providing health benefits, have not been ‘packaged’ as a therapeutic. “Dosing recommendations” don’t exist so “prescribing” has not been possible. Providers and drug manufacturers suggest “more” physical activity with little other guidance.

With millions of people around the world excited about the possibility of achieving their desired weight loss goals, the challenge of providing exercise guidance at scale is immense.

At EXI, our mission is to help millions to accelerate the achievement of a healthy and sustainable weight by helping them with on-going guidance for the physical activity levels that are appropriate for them. And to do that for millions of people each day.

As a FDA Class 1 Software as a Medical Device, a partner with the American College of Sports Medicine and an ardent supporter of Exercise as Medicine, EXI is the only solution that provides member-specific physical activity monitoring and reporting needed to achieve each members’ healthy and sustainable weight while providing oversight capabilities to their providers. For the first time, EXI allows providers to give physical activity guidance to their patients that leverages digital health information and wearable technology solutions to personalize and monitor this key element of the weight loss journey.



“So, what is EXI? A Software as a Medical Device (SaMD) that is a Class 1 medical device that’s designed for 23 long-term health conditions and co-morbidities. It draws on the latest clinical evidence for behavioral science and exercise to program personalized physical activity that – based on a simple yet proven formula of frequency + time + intensity – is safe and achievable for those with long-term health conditions and co-morbidities”.

This empowers healthcare professionals to quickly and easily refer people to exercise.

EXI then engages, guides, and motivates each person through a progressive program, offering a choice of suitable activities, tracking progress, and providing behavior change support – including rewards for achieving personal goals – to engage people in their program, drive adherence and encourage sustained physical activity.

Connecting a wearable allows for further data-evidenced rewards, as well as empowers people to confidently complete personalized programs in the safe heart rate zone – anytime, anywhere, whichever activity they choose. Use of a wearable also provides a greater breadth of accurate data points, all of which is shared with the healthcare professional via EXI’s secure practitioner portal to enable easy, remote, real-time monitoring of adherence and health improvements.

In turn, this at-a-glance insight into who’s doing well and who needs more help allows support to be targeted and optimized, keeping each person on-track – at home as well as on-site – without overwhelming human resources.

“The information is a useful tool to really identify the people motivated, ambivalent or not ready to make a lifestyle change,” said one pre-bariatric surgery dietician. “I know which tactic I need to adopt when I next speak to them.”

Meanwhile, for people, EXI is about being able to confidently engage and participate on an ongoing basis to maintain weight loss, with integrated behavior change support helping everyone to sustain their new lifestyle.

And so it is that EXI works alongside this new generation of obesity drugs, delivering personalized physical activity and behavior change – simply, safely, and effectively. However complex, the co-morbidities and healthcare pathways – EXI supports the integrated, holistic approach advocated by the pharmaceutical companies themselves.

For example, EXI is successfully embedded in non-surgical obesity management with GLP-1 medication in partnership with the Cornwall Medical Group (CMG), enhancing and sustaining the results being achieved by the drug interventions. Spencer Casey, CMG's business & strategic director, said: "I wanted to break the stigma around so-called 'skinny pens'. I wanted to show this is a safe way to lose weight, but that you need to do it in the proper way, with the right support around you. It isn't just about taking medication. Our comprehensive multidisciplinary weight loss program includes the medical science but also nutritional, cognitive and movement support. This is how you make sustainable, lifelong change."

EXI is also embedded in non-medicated lifestyle interventions across all three UK National Frameworks. In the NHS Digital Weight Management Program, one provider shows 70% of those who engage with EXI lose more weight than those who don't. All the evidence points to personalized physical activity and behavior change support being key to sustained weight loss – both alongside and independently of GLP-1 interventions – with digital therapeutic EXI key to scaling that support.

Recommendations to drive an integrated, superior approach.

Based on the increasing clinical evidence that weight management medications result in better results when prescribed in combination with diet and exercise, better solutions on the diet and exercise component are needed. Real world evidence can be run in collaboration with pharmaceutical companies.

Despite impressive results sparking expectations that new medication will cure the obesity epidemic, many details are lacking. It is known the drugs work better when used in conjunction with physical activity, nutritional advice and behavior change support and education – a comprehensive collaboration that brings together all critical components to enable a scalable, sustainable solution. Together, we are more effective: all weight management and obesity pathways should be multi-discipline.



"Our comprehensive multidisciplinary weight loss program includes the medical science but also nutritional, cognitive and movement support.

This is how you make sustainable, lifelong change.

Spencer Casey,
Cornwall Medical
Group

Recommendations to drive an integrated, superior approach.

(Continued)

To deliver this at scale, digital therapeutics must be integrated into the programs. EXI will not replace human contact, but it will allow in-person or virtual resources to be optimized for maximum impact: it empowers people to self-manage their conditions and take control of their health, and allows support and continued drug interventions to be allocated to those who need them most.

Collaboration between the pharmaceutical companies, EXI and healthcare providers should aim to establish a gold standard for multidisciplinary obesity interventions: evidence-based best practice for taking the drugs, including how exercise – and specifically digital therapeutics – can best complement pharmaceuticals to create a scalable, sustainable solution to the global obesity crisis.

The advice from NHS obesity consultant Dr Zalin:



“People don’t want to feel that digital is their only contact with the service, so it’s how we link things together.” Collaboration across all elements of multi-disciplinary weight management – medication, physical activity, nutrition, behavior change support – can create best practice digital/physical patient pathways that ensure every patient has the support they need, when they need it, over the long term.

Finally, stakeholders must collaboratively and continually strengthen the evidence base to promote the further integration of physical activity into the healthcare system, accelerating Exercise is Medicine[®] for a wide range of people with long-term health conditions – including obesity and its associated health issues. As part of this, stakeholders can together grow the body of evidence to promote the adoption and funding of GLP-1 medication by insurance companies as one aspect of multidisciplinary, sustainable, affordable obesity and weight management pathways.



About EXI

EXI is Exercise Intelligence – a Software as a Medical Device (SaMD), part of the emerging field of digital therapeutics, that supports professionals to program and refer patients to exercise appropriately, and people with long-term health conditions to safely increase their physical activity. It's designed for people living with obesity and co-morbid physical and mental health conditions, including prevalent and serious non-communicable diseases (NCDs) such as cardiovascular disease, Type 2 diabetes, hypertension, stroke, asthma, COPD, depression, anxiety and stress.

Regulated and bringing together behavior change science with the latest clinical physical activity guidelines, it delivers safe, scalable, measurable health interventions that are medically proven, achievable for the end user, and quick and simple to program and monitor. It also harnesses behavior change support and rewards to engage people in their program, drive adherence and support sustained physical activity. A smartphone app supports end users while a secure data portal allows the professional to monitor outcomes and adherence.

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EXI Therapeutics, Battlefield Overlook,
10432 Balls Ford Road Manassas,
VA, 20109, USA

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