

Active Lumen usage is associated with significant body weight reduction

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Background

Lumen's "Healthy Weight Loss" track is the most popular track among Lumen users with 85% of users choosing it.

A weight loss of 5% of body weight is recommended by the International Diabetes Federation (IDF) for people who are overweight or obese to prevent type 2 diabetes¹.

A recent clinical study by Buch et al., found that Lumen usage significantly reduced body weight (as well as other parameters) in pre-diabetic adults².

Objective

The purpose of this cross-sectional study was to determine if Lumen users who chose the "healthy weight loss" track reported weight loss, and if their reports were consistent with the data.

Moreover, we aim to find out what the characteristics of these users are by looking at their demographics and their engagement with Lumen.

Methods

We surveyed active Lumen users who had been on the program for at least eight weeks.

Data for analysis was retrieved on September 9th 2022 from a survey submitted on May 22nd 2022.

Participants' information

828 users responded to the survey with a completion rate of 95%.

Users who responded to the survey were typically experienced with Lumen, with 295 ± 205 (mean \pm SD) days with at least one Lumen breath.

65% of these users were female, initial BMI of all users was 28 ± 5 , and their age was 51 ± 10 .

Results

Survey responses

93.3% (774) of respondents reported 3 to 5 stars (out of 5) as a reply to “How satisfied are you with your Lumen?”.

Only 6.7% (54) responded with 1-2 stars.

Following an unsatisfied response (1-2 stars), participants were asked to provide a free text explanation for future analysis.

All other respondents were given multiple-choice questions around the benefits Lumen provided them.

Out of the 774 users who answered the survey, 128 users reported ‘Weight loss’ as their main benefit from Lumen.

205 reported ‘Improved health and metabolism’ as their main goal, and 396 reported ‘Understanding my body’.

Survey-based results

This subset of users were further surveyed to find out what percentage of their total body weight they had lost. All 128 users answered this question.

More than 80% of users reported a weight loss of 5% or more of their total body weight. Furthermore, almost half of them lost more than 10% (Figure 1).

A validation of the aforementioned results were obtained via additional questions about their current and prior body weights. 74% of them responded, exhibiting a significant weight loss (8 ± 5.6 kg; 17.5 ± 12.3 lbs; Figure 2).

Figure 1

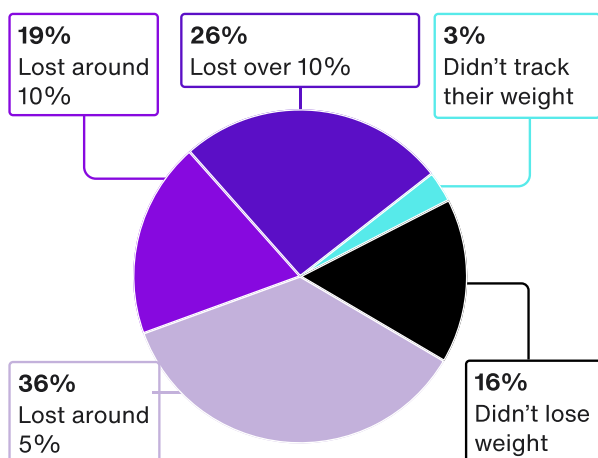


Figure 1. Distribution of body weight changes reported by 128 users who used Lumen for weight loss purposes.

Figure 2

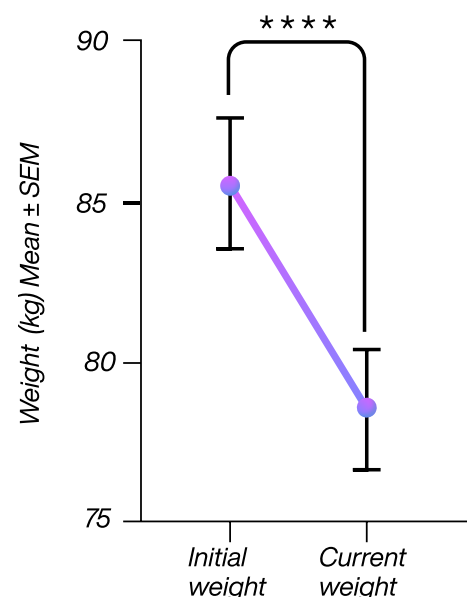


Figure 2. Reported weight loss in Kg.

Data-based results

Our team reviewed the users' data after the survey was completed to determine whether the reported weight aligned with our data.

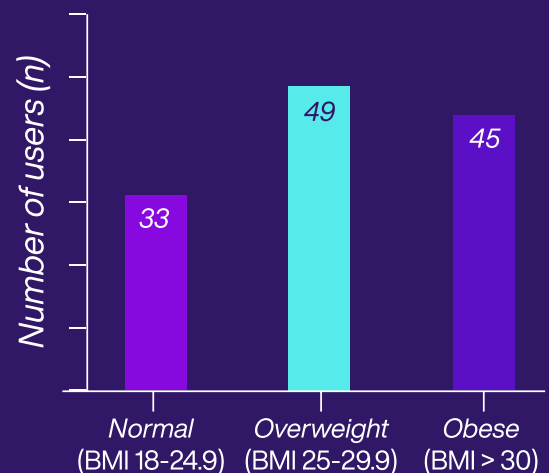
Furthermore, we were interested in the relationship between Lumen usage and weight loss, and whether that relationship is demographic in nature or not.

Accordingly, we have acquired the data from these users with the following characteristics (Figure 3)

Figure 3

Gender: ♀ 73 (57%) ♂ 55 (43%)

Age: 52 ± 10



According to our data analysis, weight loss was similar to what was reported in the survey with a significant reduction of weight (5 ± 6.6 kg / 11 ± 14.5 lbs; Figure 4). Over half of the users (69 users) lost 5% or more of their body weight, while above 50% of those lost 10% or more. This corresponds to the average loss of 5.5% of body weight that is recommended by the IDF for healthy weight loss.

Consequently, 16 out of 49 overweight users (33%) lowered their BMI to normal. From the 45 obese users, 14 lowered their BMI to overweight, and 2 more have lowered to normal weight (together 35% from all obese, Figure 4).

Figure 4

Initial Current

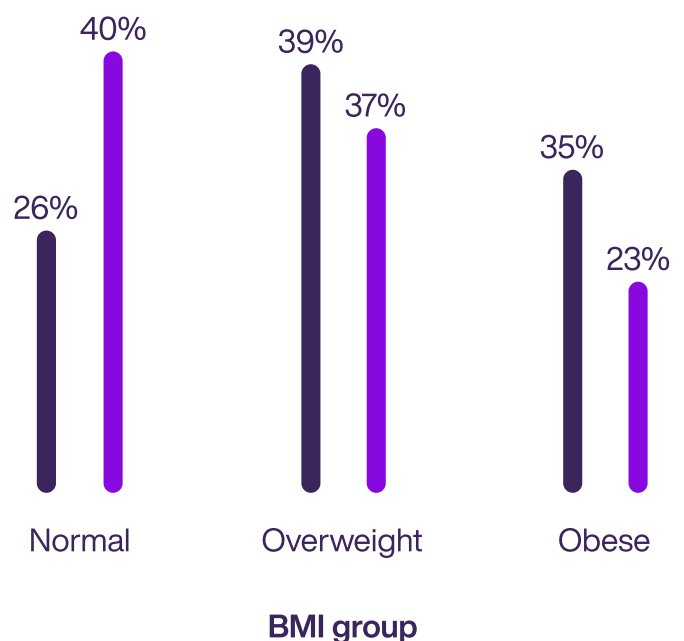


Figure 4. Initial and current BMI groups of the users.

According to the acquired data, significant weight loss was achieved in all BMI groups. On average, obese users lost 7.5%, overweight users lost 5% and users with a normal BMI lost 4% of their total body weight (Figure 5).

Figure 5

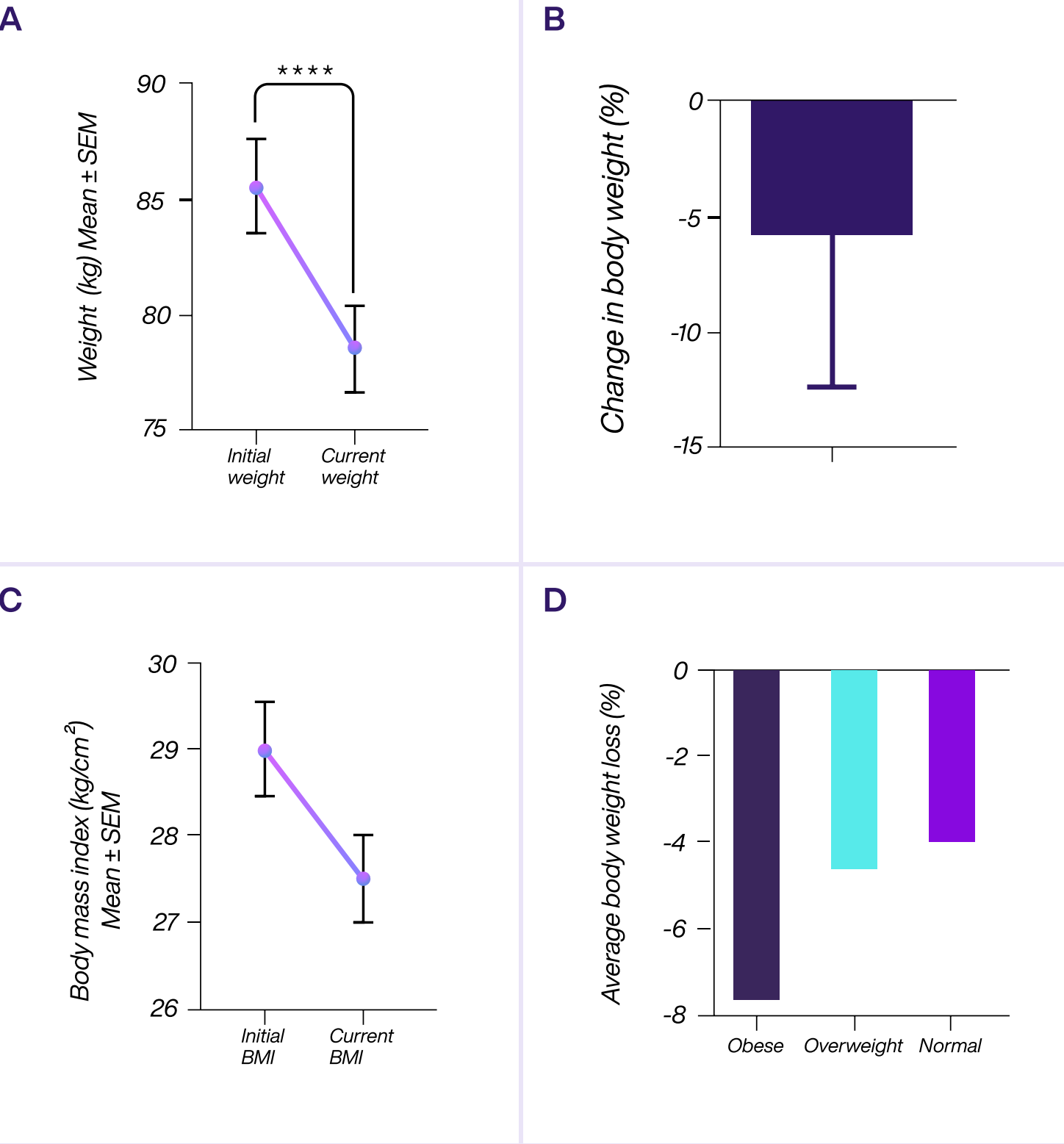


Figure 5. Body weight and BMI reduction according to acquired data. (A) Initial vs current body weight (kg). (B) Overall reduction in body weight (%). (C) Initial vs current BMI reduction (kg/cm²). (D) Overall body weight changes in the three different BMI groups (%).

Demographics and Lumen engagement

A significant correlation was found between engagement with Lumen and successful weight loss (Figure 6). This was exhibited via several parameters in respect to weight loss percentage: percentage of breathing

days out of the total days ($r = -0.4$), average daily breaths ($r = -0.38$), and total number of breathing days ($r = -0.32$). Interestingly, neither age nor gender were significantly correlated with weight loss changes.

Figure 6

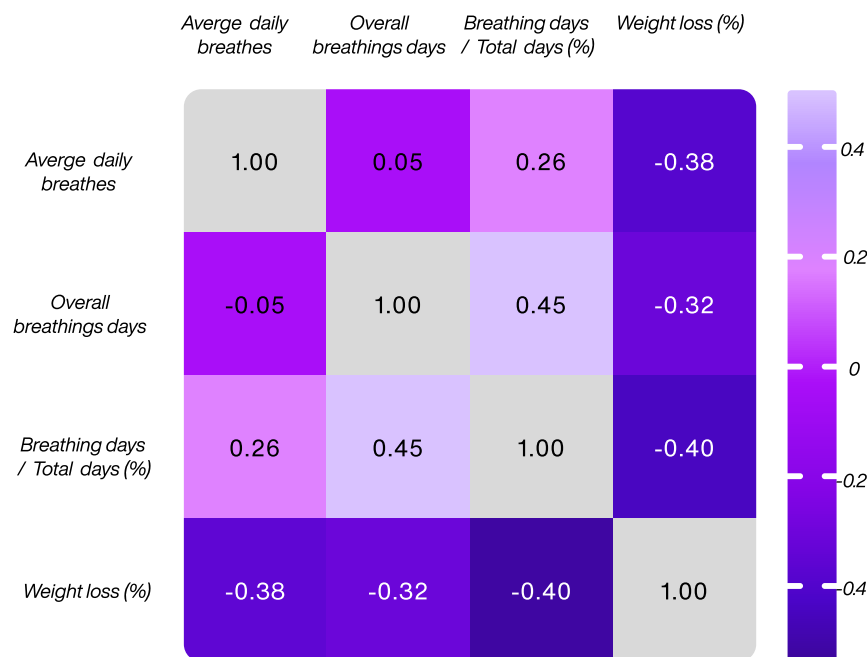


Figure 6. Correlation matrix showing the relationship between Lumen usage parameters and % body weight loss. This matrix shows a negative correlation between Lumen daily usage and body weight loss.

Data from unsatisfied users

From the 54 unsatisfied users, 23 reported weight loss expectation from Lumen. 21 females and 2 males. The age and BMI of these respondents did not differ from the general respondents' distribution (including 5 obese, 11 overweight and 7 normal weight users). These unsatisfied users were significantly less engaged with

Lumen compared with satisfied users. Unsatisfied users had an average of 164 breathing days (0.66 of all days) as opposed to 299 days (0.78 of all days) for satisfied users. Despite this, an average weight loss of 1% was found in these users, with one user losing 6% of body weight within 146 breathing days.

Notable responses from our users

“Great motivator, wouldn't be able to lose the weight I have on my own will.”

“The experience adapts as you use it, which I love. I've gone from focused weight loss, to increased exercise whilst improving my metabolism, to learning more about my body and how it works with food and exercise. It is a never ending tool. Great!”

“Now that I have reached my goal weight, I rely on Lumen to keep me on track. It is a normal thing for me to take my breaths.”

“Not only has my weight come down, but also my blood pressure! Lumen gives me insight in how my body works. It's not meant for specific diets, but it takes some time to understand this and get away from the traditional diet mindset ("carbs are bad!", "fat is bad", etc.) Once I understood this and trusted Lumen, I became more confident in trusting my body and keep losing the weight. Thank you for creating it! 🎉”

Conclusion

Our cross-sectional analysis of Lumen users found that engaged users lost over 5% of their body weight. Furthermore, higher levels of engagement with Lumen were associated with greater weight loss.

References

1. International Diabetes Federation. Recommendations For Managing Type 2 Diabetes In Primary Care, 2017.
2. Buch et al. Using the Lumen Device for Prediabetes Prevention. Obes Facts 2022.