# Weight analysis (last updated 2023-04-25)

Luka Negoita

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Key methods:

- Study completed using data between April 2021 & April 2023
- Participants in the study are those who automatically logged their weight through third-party weight tracking devices & shared these data with Nutrisense. Only those who recorded at least 4 weight measurements that spanned at least one week were included in the study.
- Data were cleaned to exclude outlier weight measurements.
- In total, that was 7356 members. Of those, 5062 recorded weight across at least one month, 3386 across at least two months, and 2361 across at least three months.
- These time periods are based on the first time a member started recording weight data and not since they started at NS. For example, if someone started recording their weight after one month, then they would only be at month 2 of weight data when they were at month 3 of Nutrisense.
- Median starting weight was 185 lbs

Visualize initial weight:
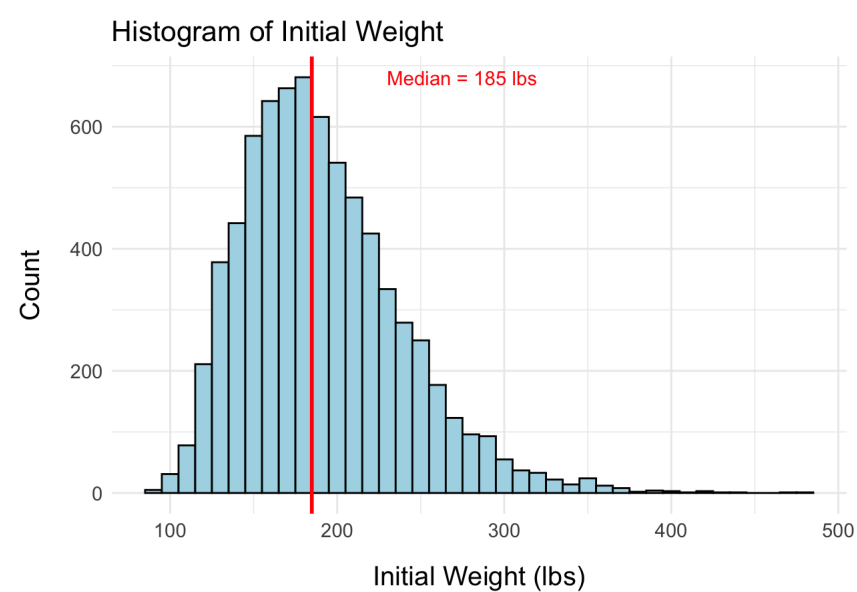
Visualize the weight change by month:
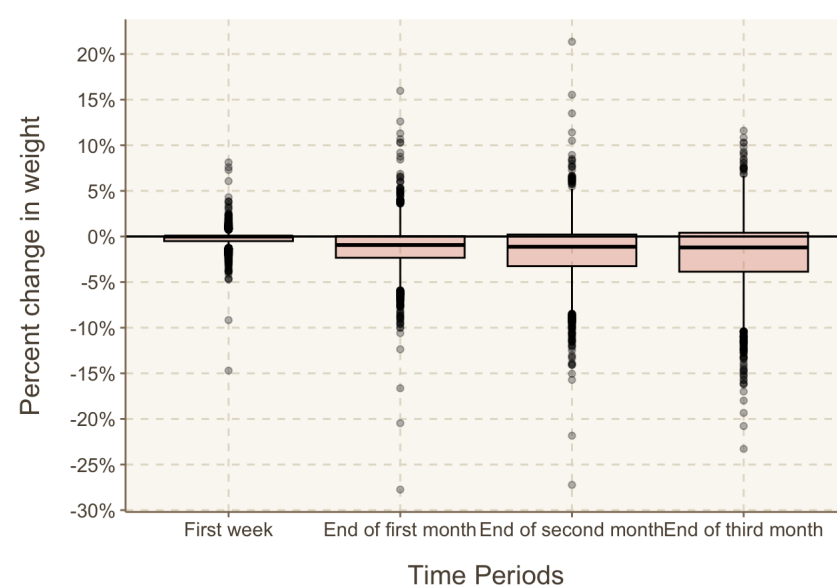
Summary table with numbers:

How to use the columns:

- **time_periods** = the length of time since a member first started recording weight data (not since they started NS)

- **mean_weight_change** = the percentage by which the average member changed their weight

- **number_of_members** = total sample of members in each month grouping

- **perc_of_members_lost_weight** = the percentage of members that lost any weight at all. If you look at the highest value of lbs list in the 'weight_lbs_in_best_##perc' columns, you could combine the two to say (for example, based on three month): "64% of members lost up to 24 lbs after three months."

- **weight_change_in_best_25perc** = the range in weight change percent of the best 25% of all members. Here you could say (for month 3): "25% of members lost between 3.9 and 13.2% of their weight by the end of the third month". This and all following ranges exclude the top 1% for a more conservative estimate that excludes exceptional members. For example, if you look at the boxplot for month one, you can see a point that goes down as far as −27% weight loss. By excluding the top 1%, we can remove those anomalies and the greatest weight lost seen after the first month is only 6.6%.

- **weight_change_in_best_50perc** = the range in weight change percent of the best 50% of all members.

- **weight_change_in_best_65perc** = the range in weight change percent of the top 65% of all members. Used 65%, because if I used 75, it would include members that also gained weight. If I used 70, it includes many members that didn't gain or lose weight.

- **weight_lbs_in_best_##perc** = same as the metrics above, but multiplied by the median weight of 185 lbs to show the actual loss in lbs. Here you could say (for 25% month 3): "25% of members lost between 7 and 24 lbs by the end of the third month"

	time_periods	mean_weight_change	number_of_members	perc_of_members_lost_weight	weight_change_in_bes
1	First week	-0.2 %	7356	50.3	-0.51 to -2.07 %
2	End of first month	-1.12 %	5062	68	-2.33 to -6.6 %
3	End of second month	-1.54 %	3386	65.9	-3.25 to -10.11 %
4	End of third month	-1.8 %	2361	64.3	-3.86 to -13.21 %