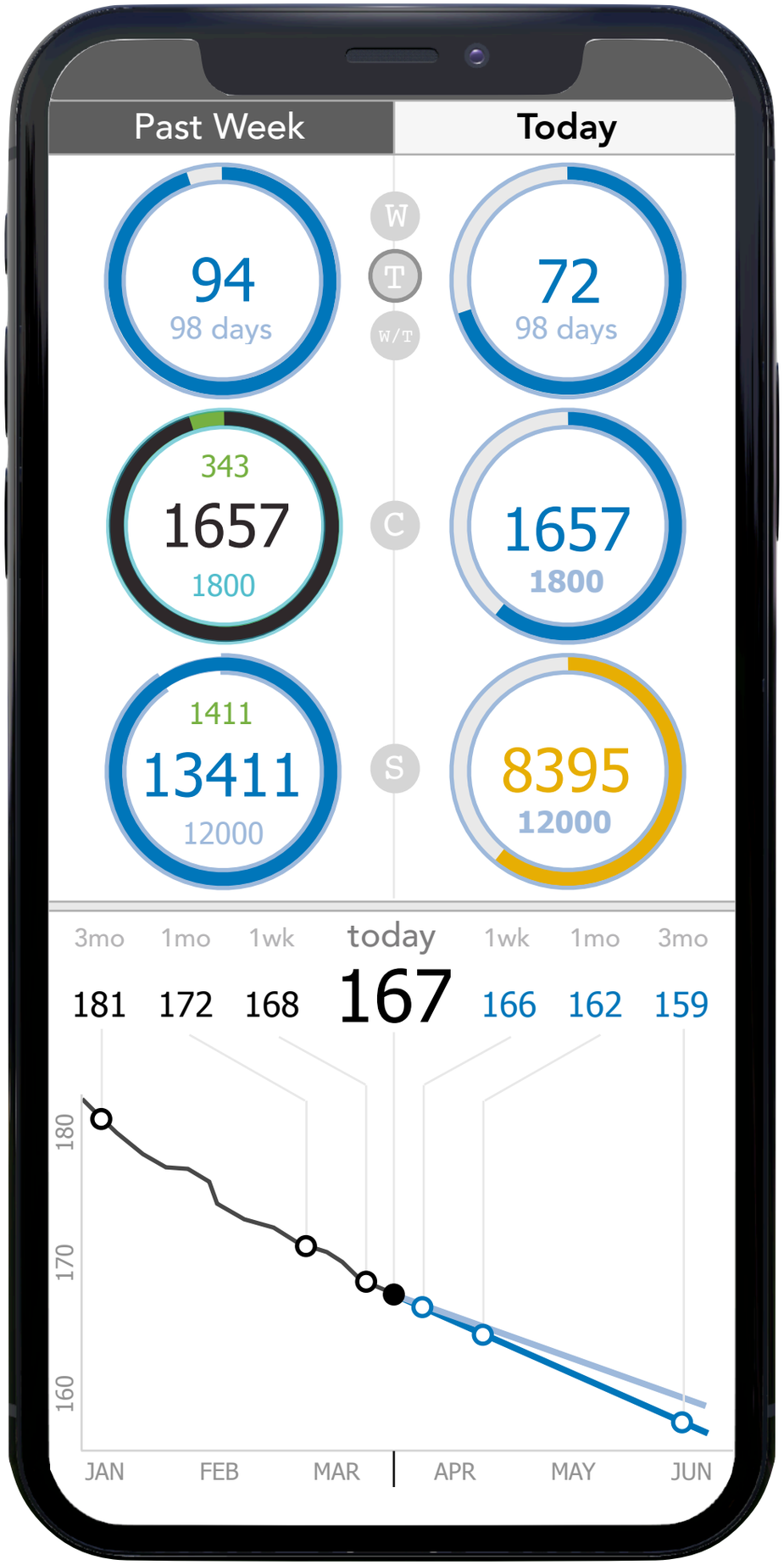


After using the simple table-based MVP, it's become clearer what bits of info are important to show:

TODAY:
- latest 7-day avg weight: show as a horizontal line/bar that indicates where the goal is. Perhaps the scale is set by your weight 1mo or 3mo ago.
- calories & steps: perhaps show these two as ring charts
  - today's current values
  - target set by steps: either 7-day avg, user defined, or current value
  - current - target difference
- also indicate with sequential squares how many days the goal was achieved (perhaps the goal is based on calories)

WEEK:
- date: goal/target/diff
- calories: 7d/target/diff
- steps: 7d/target/diff
- similarly to TODAY, show sequential squares of how many days the goal was achieved

HISTORY:
- similar to mockup I think…

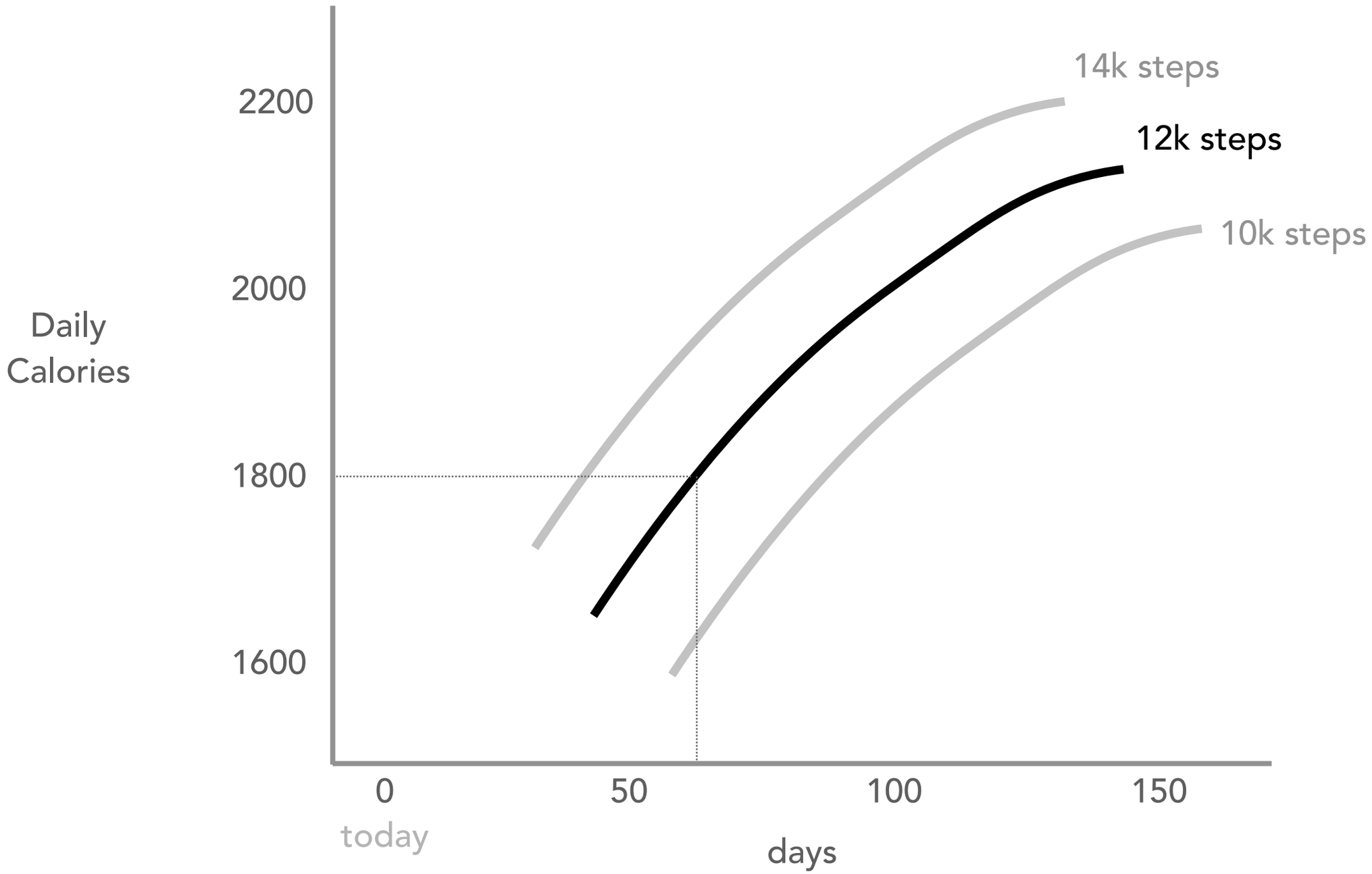
Two modes:
- modify weight
- maintain weight

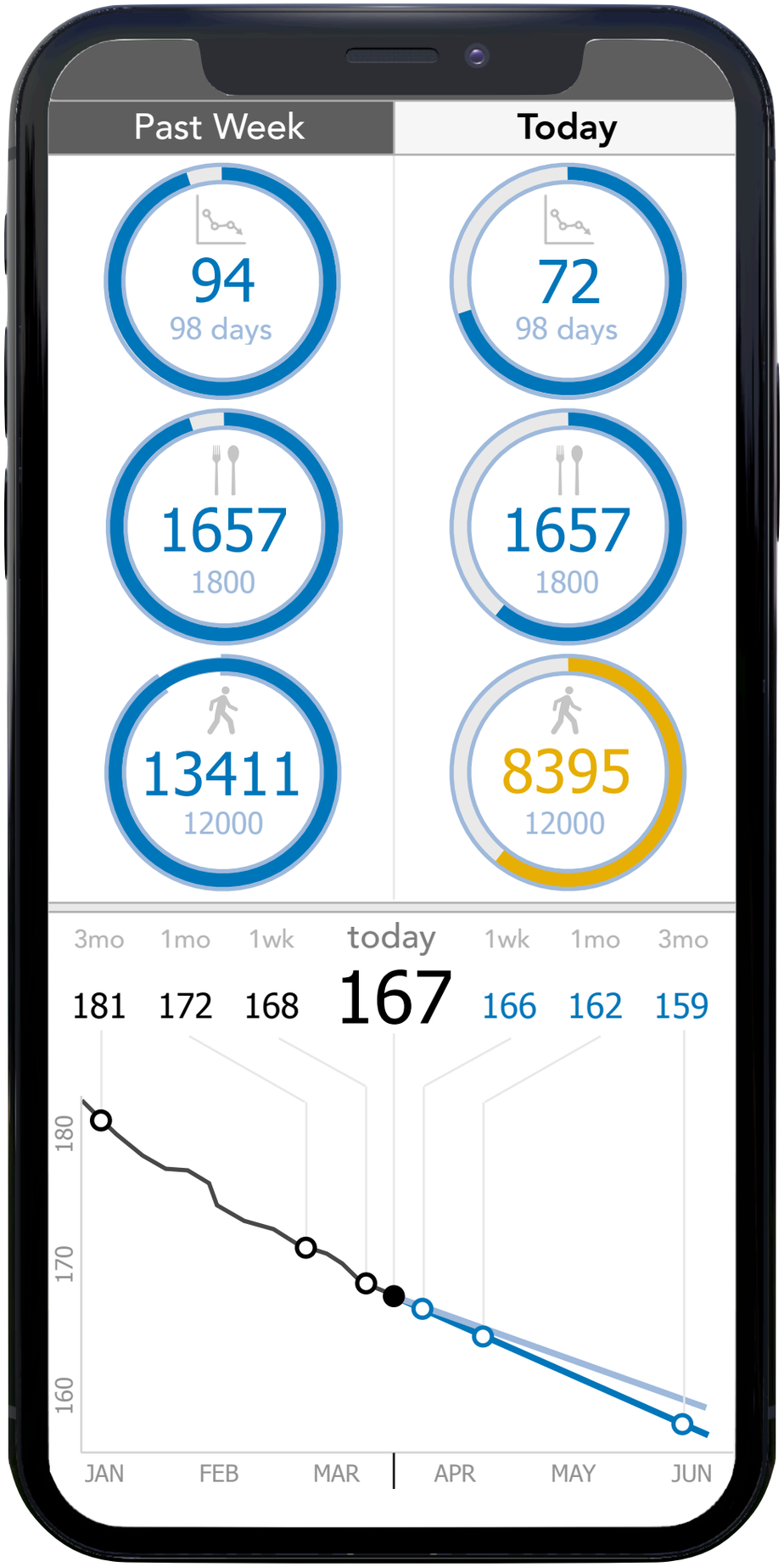
Modify weight:
- setup screen
- daily screen

Setup screen:
- input target weight
- interactive GUI to select steps, cals, date, which are constrained by model

Main/daily screen:
- top: show current day's steps, cals; indicate target values
- middle: show forecasted date target reached for:
    - target
    - yesterday
    - past week
    - past month
- bottom: show weight time series, with forecasts

target weight: **160 lbs**
target steps: **12000/day**



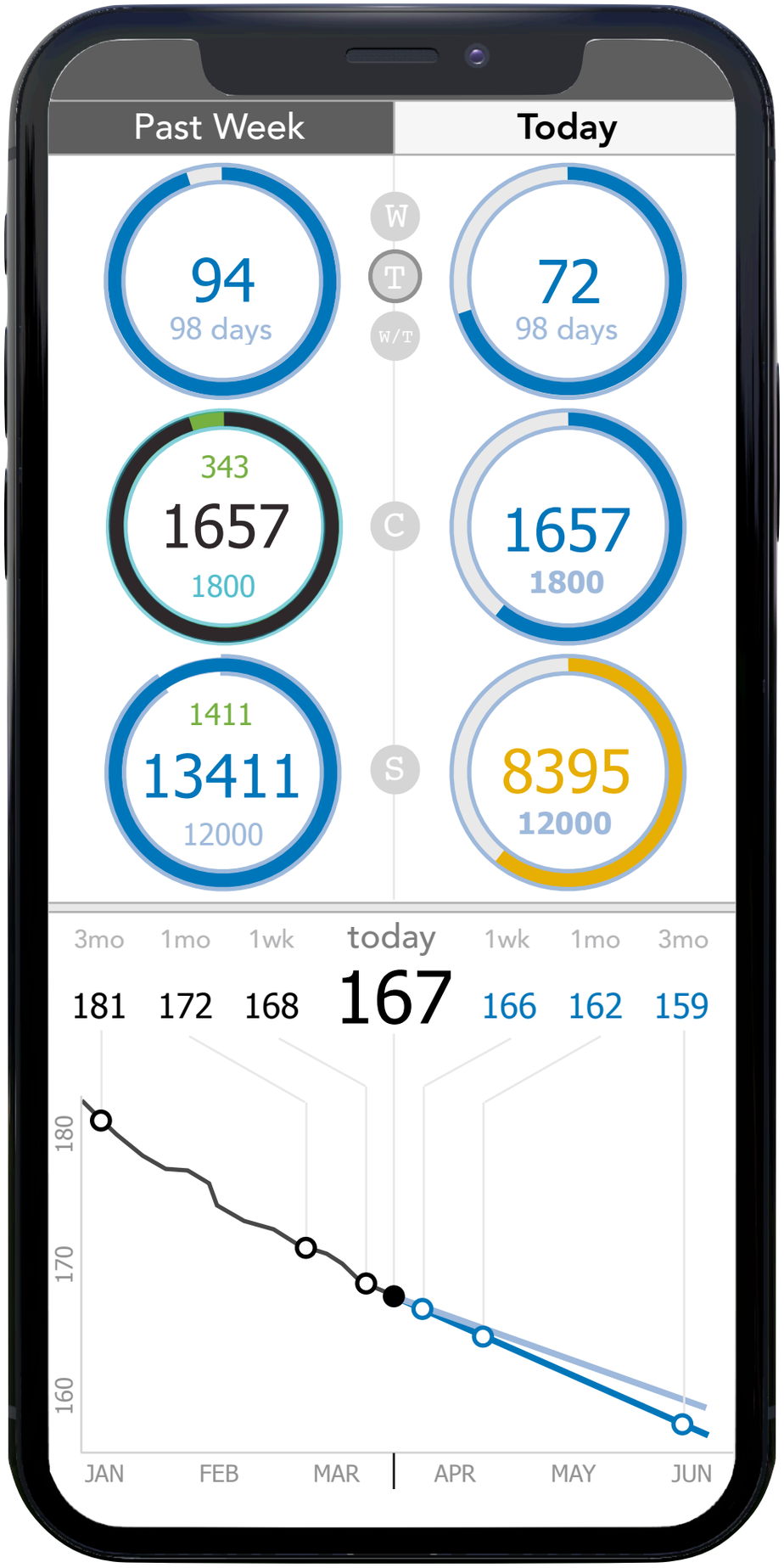


color scheme

goal

achieving goal

missing goal

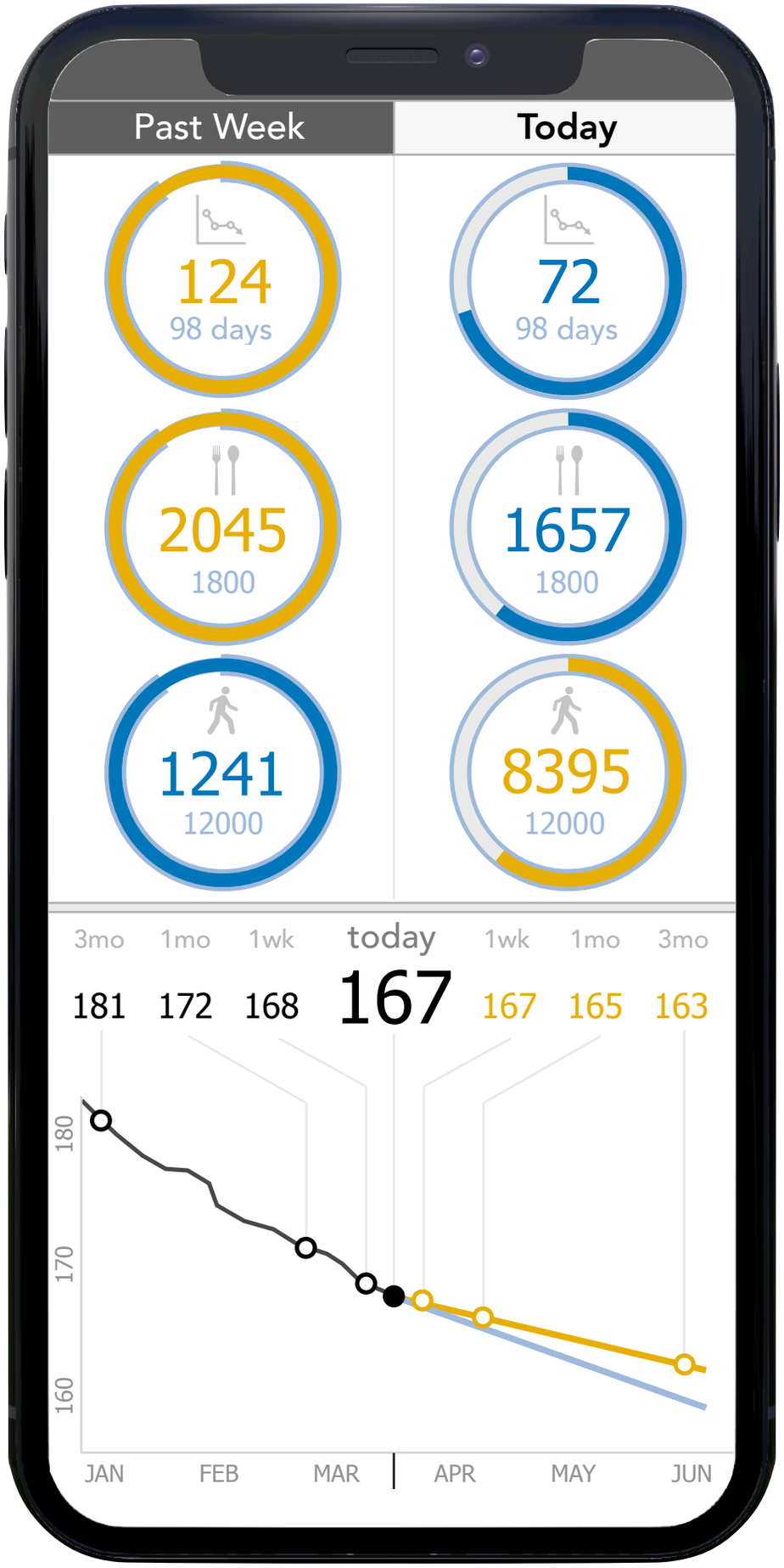


color scheme

- goal
- achieving goal
- missing goal

NOTES:

- top row: user can toggle through: days, date, lbs/day, etc
- on RHS, user can select two measures to fix in the model, and the model will then recalculate and update the others. E.g. I might want to fix steps to the current value 8395 and keep target date fixed to 98 days, then calories would update.
- colors:
  - goal #s all the same color: gray
  - achieving/missing: perhaps only show these in the deviation #s, and in the ring pie gap/overshoot.
- xxx

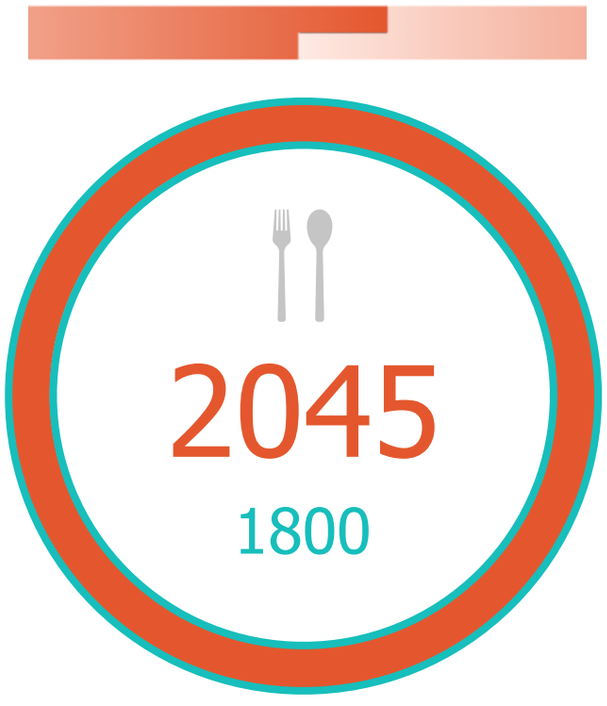


color scheme

- goal
- achieving goal
- missing goal

Idea: allow user to modify model target by selecting to fix steps or calories to current value, which would cause days to match target days (98 in this case) and then the non-selected metric would update. So for example, if you had 8000 steps, then you might need to eat fewer calories than 1800 to reach the target within 98 days.

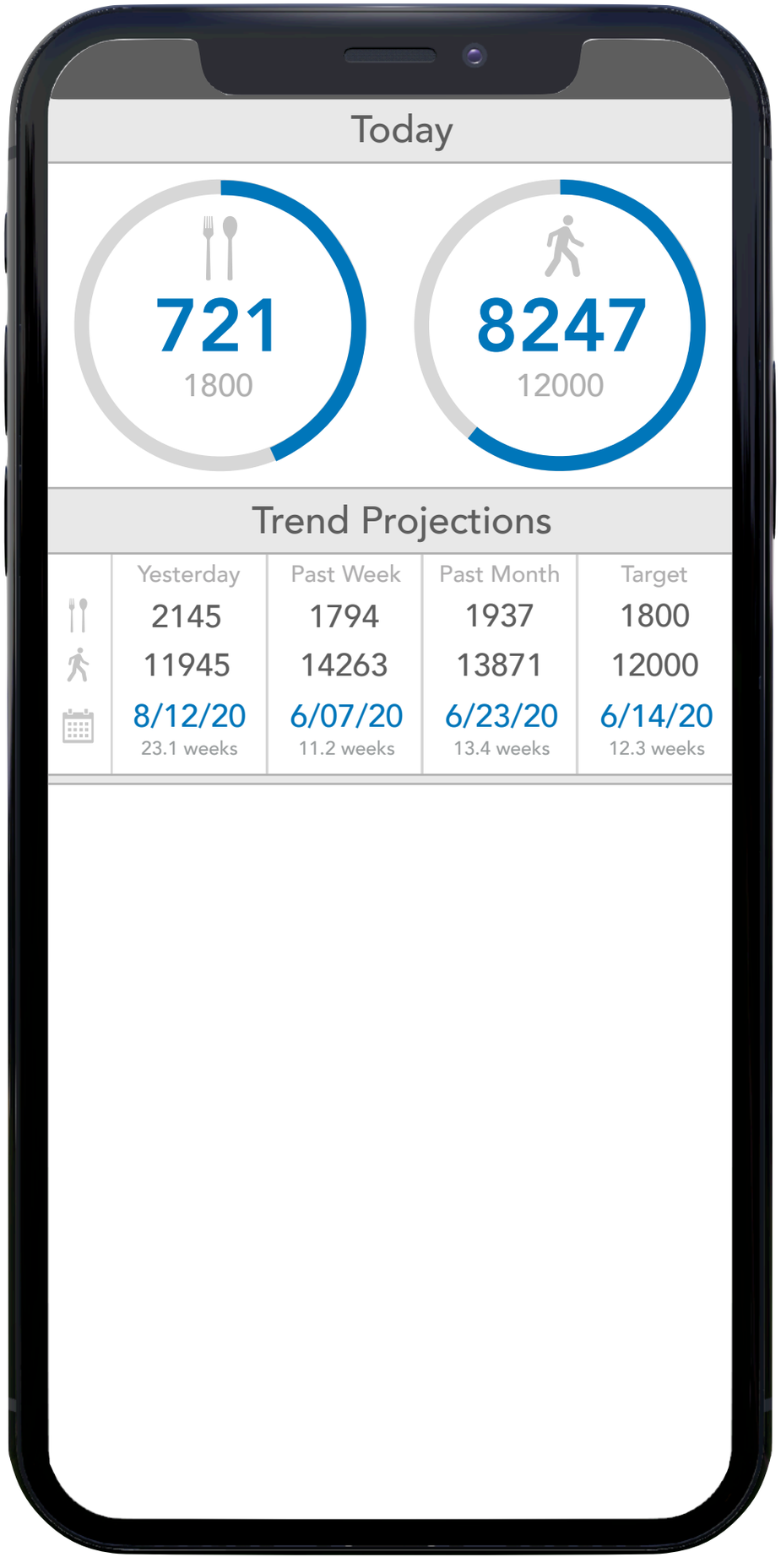
You could set it up so that the user could toggle this on/off, so they could view the current version, or select cals or steps to make this adjustment.


2045
1800


1435
12000


1234
1800


8765
12000


Today
721
1800
8247
12000
Trend Projections
Yesterday
Past Week
Past Month
Target
2145
1794
1937
1800
11945
14263
13871
12000
8/12/20
23.1 weeks
6/07/20
11.2 weeks
6/23/20
13.4 weeks
6/14/20
12.3 weeks

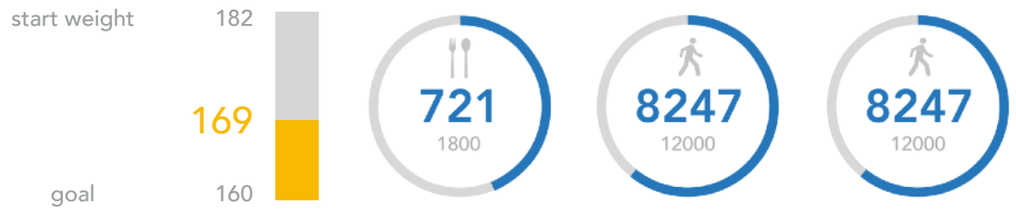
Notes:

- you're not displaying the **weight** so far
- you need to figure out a color palette that can indicate when you are on track and when off track (e.g. green/red or such)
- how much is it possible to come up with a unified design that satisfies both modes: modify/maintain?

- IDEA: repeat circle indicator for trend projections, i.e.

make this third one show days until goal reached

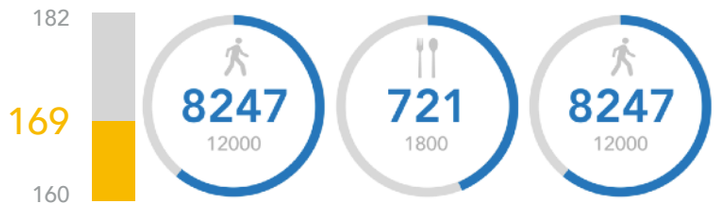
- ALSO: you can use same motif for days until target weight
- perhaps show only one at a time of yesterday / past week / past month (selectable). Sho
- show current weight with a vertical bar

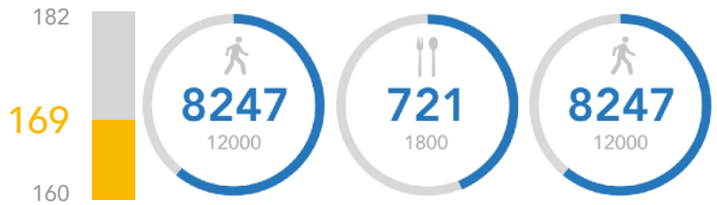


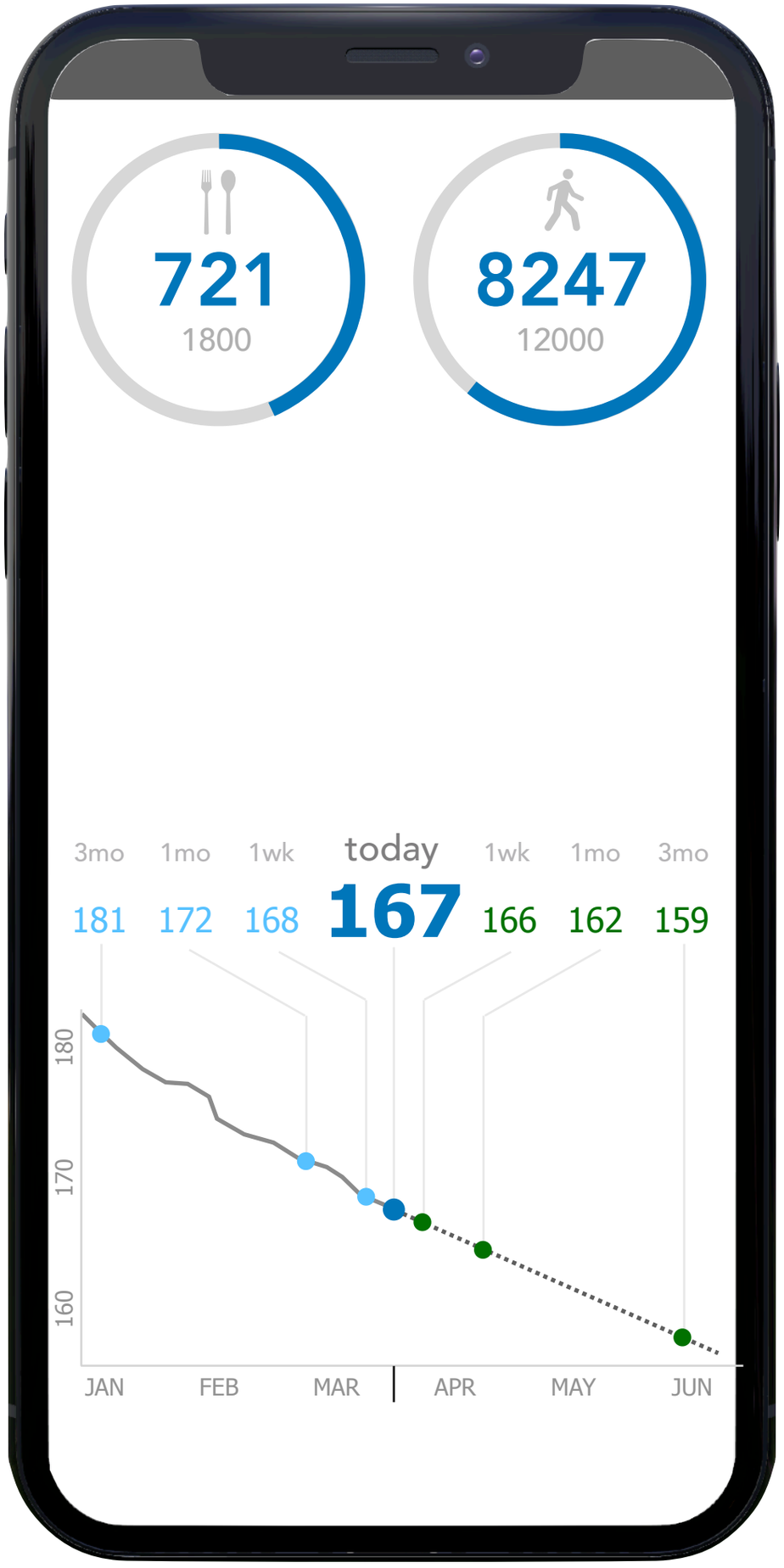
- you could show all four for current day, and selected trend projection. For current day, base days on yesterday until steps/cals are in valid range for prediction.

Notes:

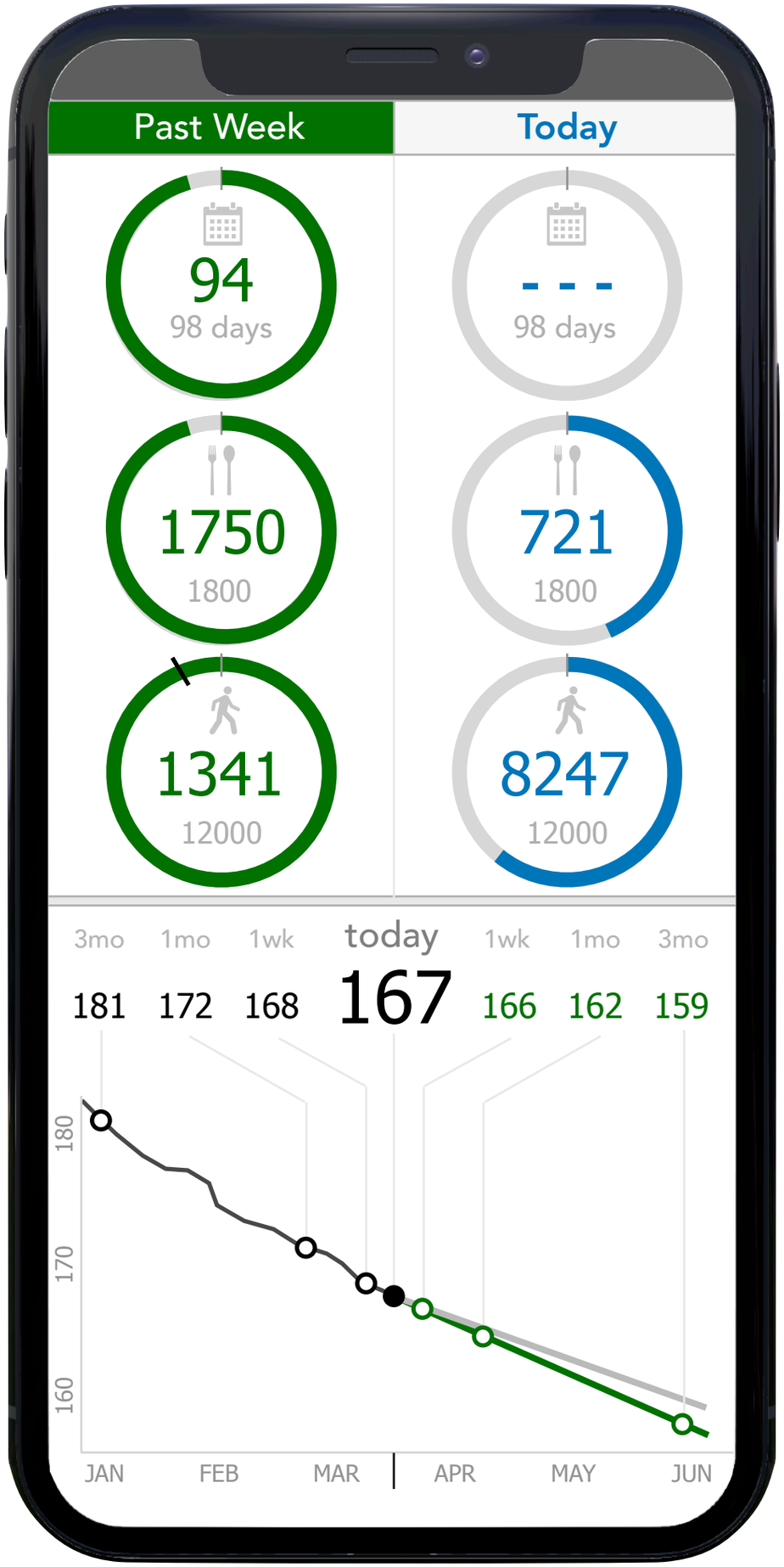
- So, maybe try showing all four visuals, for today, past week, past month (4 weeks). Then, tie them to the time series plot in the bottom half of the screen.

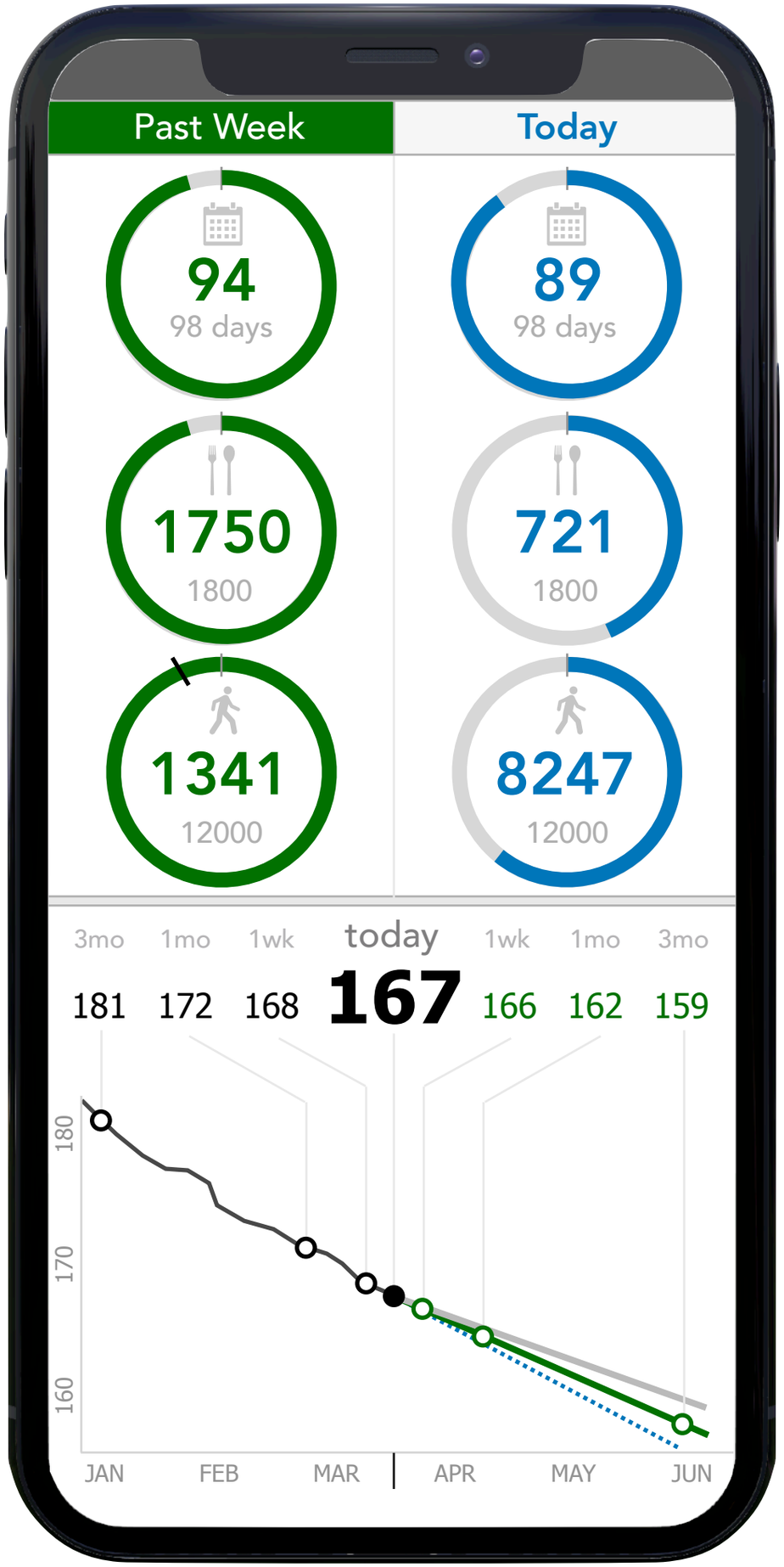


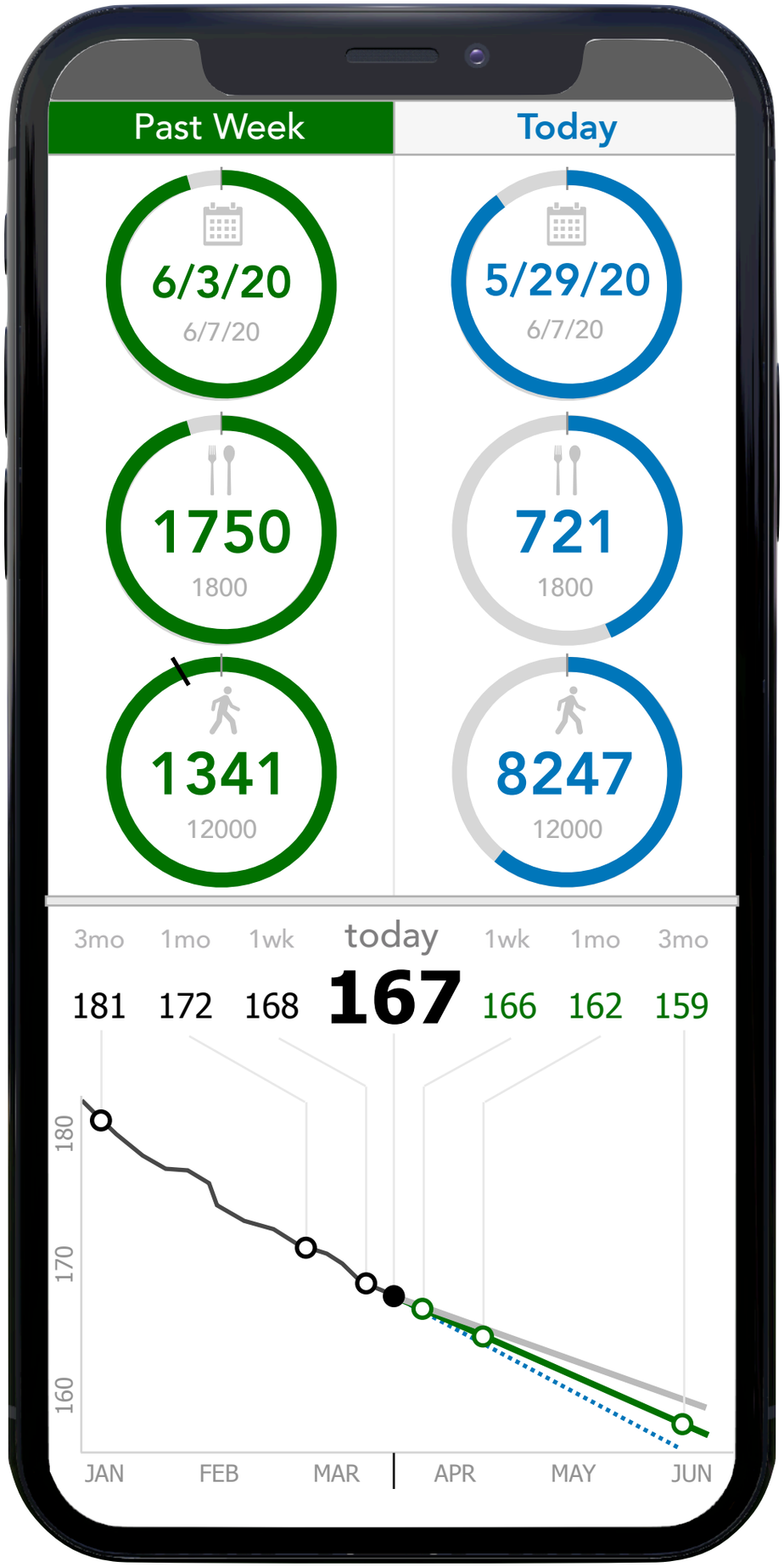


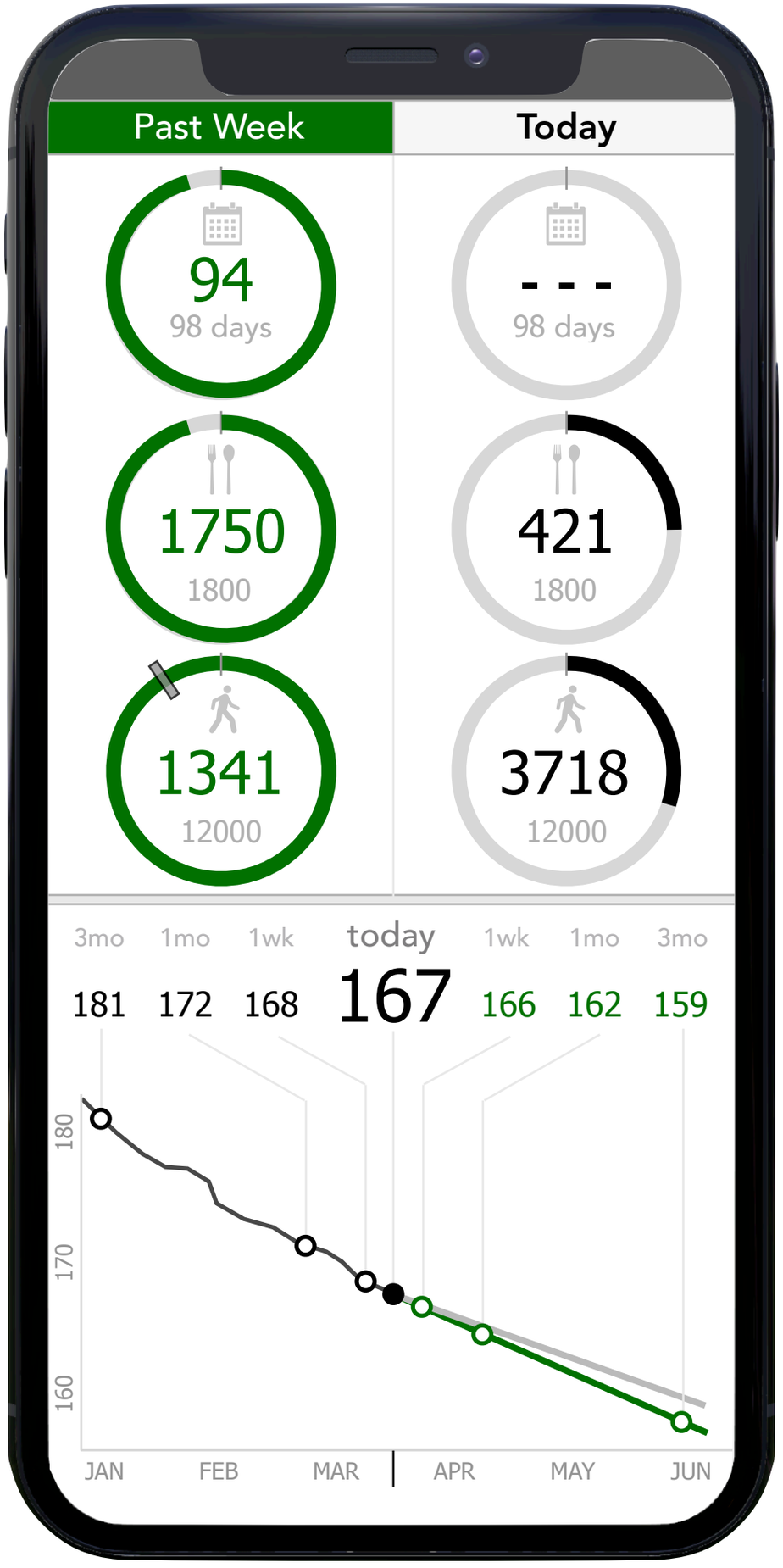

721
1800
8247
12000
3mo
1mo
1wk
today
1wk
1mo
3mo
181
172
168
167
166
162
159
180
170
160
JAN
FEB
MAR
APR
MAY
JUN

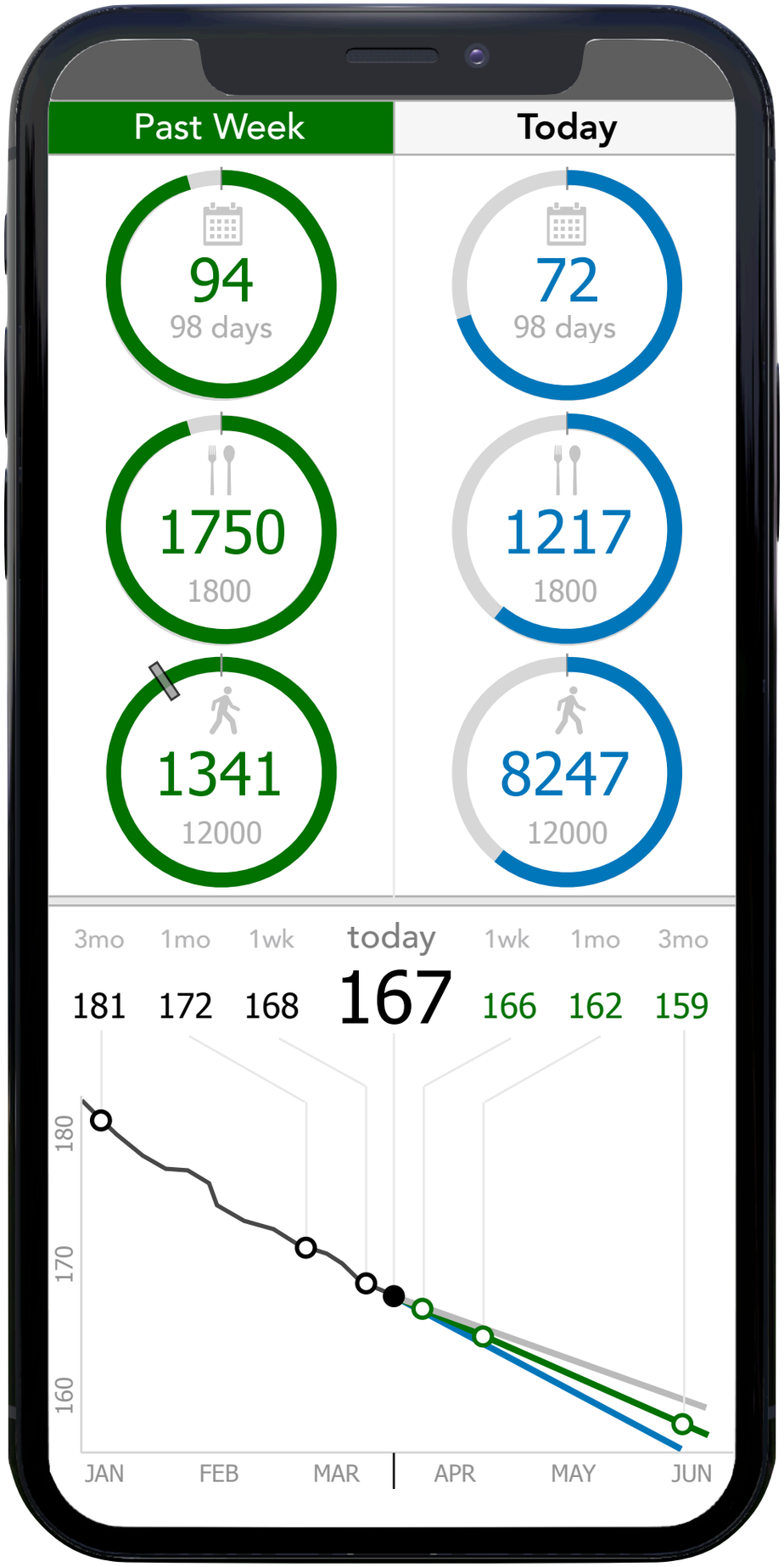

Today
721
1800
8247
12000
Past Week
1921
1800
1459
12000
3mo
1mo
1wk
today
1wk
1mo
3mo
181
172
168
167
166
162
159
180
170
160
JAN
FEB
MAR
APR
MAY
JUN

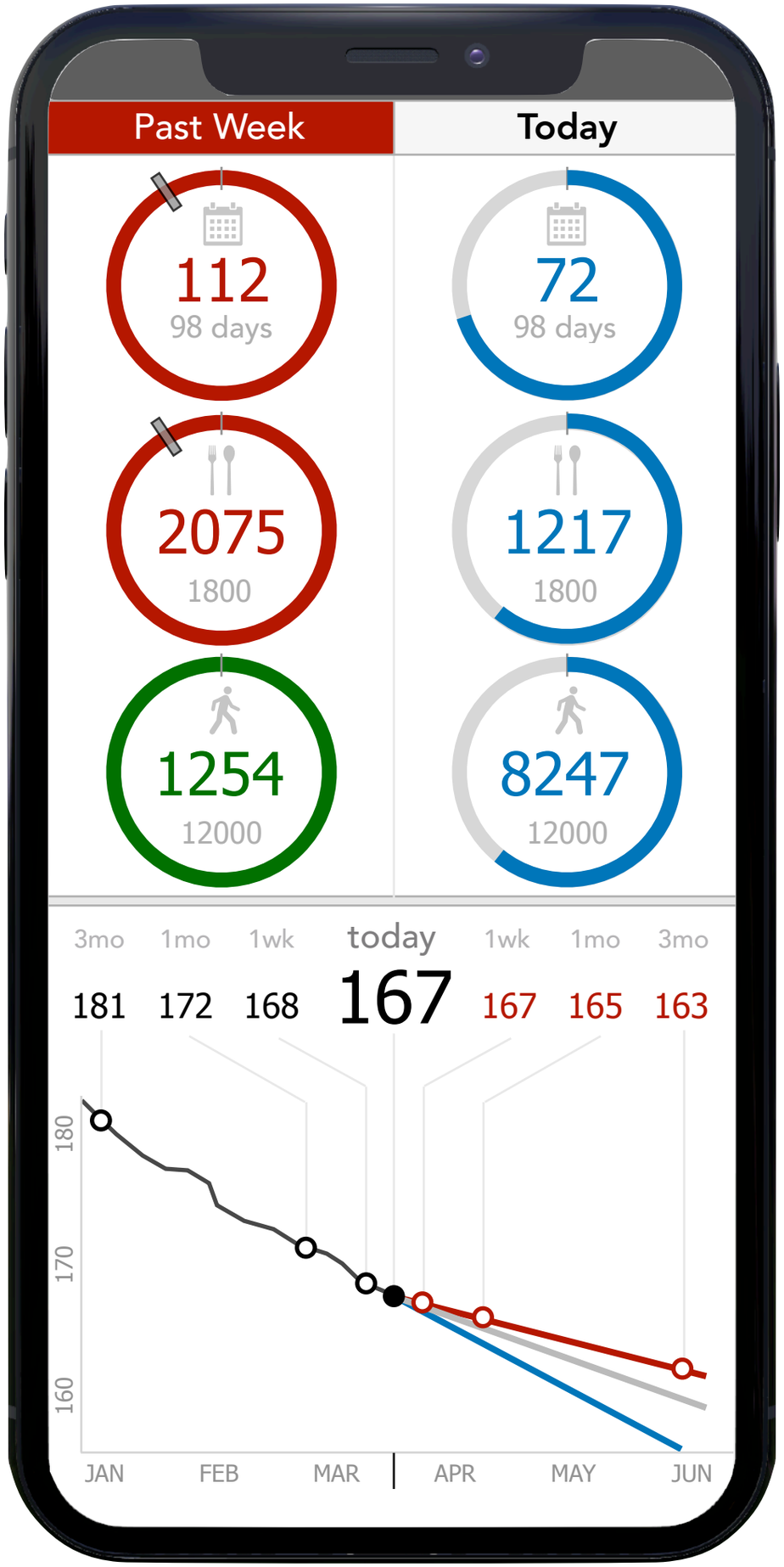

Past Week
Today
94
98 days
- - -
98 days
1750
1800
721
1800
1341
12000
8247
12000
3mo
1mo
1wk
today
1wk
1mo
3mo
181
172
168
167
166
162
159
180
170
160
JAN
FEB
MAR
APR
MAY
JUN


Past Week
Today
94
98 days
89
98 days
1750
1800
721
1800
1341
12000
8247
12000
3mo
1mo
1wk
today
1wk
1mo
3mo
181
172
168
167
166
162
159
180
170
160
JAN
FEB
MAR
APR
MAY
JUN


Past Week
Today
6/3/20
6/7/20
5/29/20
6/7/20
1750
1800
721
1800
1341
12000
8247
12000
3mo
1mo
1wk
today
1wk
1mo
3mo
181
172
168
167
166
162
159
180
170
160
JAN
FEB
MAR
APR
MAY
JUN


Past Week
Today
94
98 days
- - -
98 days
1750
1800
421
1800
1341
12000
3718
12000
3mo
1mo
1wk
today
1wk
1mo
3mo
181
172
168
167
166
162
159
180
170
160
JAN
FEB
MAR
APR
MAY
JUN


Past Week
Today
94
98 days
72
98 days
1750
1800
1217
1800
1341
12000
8247
12000
3mo
1mo
1wk
today
1wk
1mo
3mo
181
172
168
167
166
162
159
180
170
160
JAN
FEB
MAR
APR
MAY
JUN

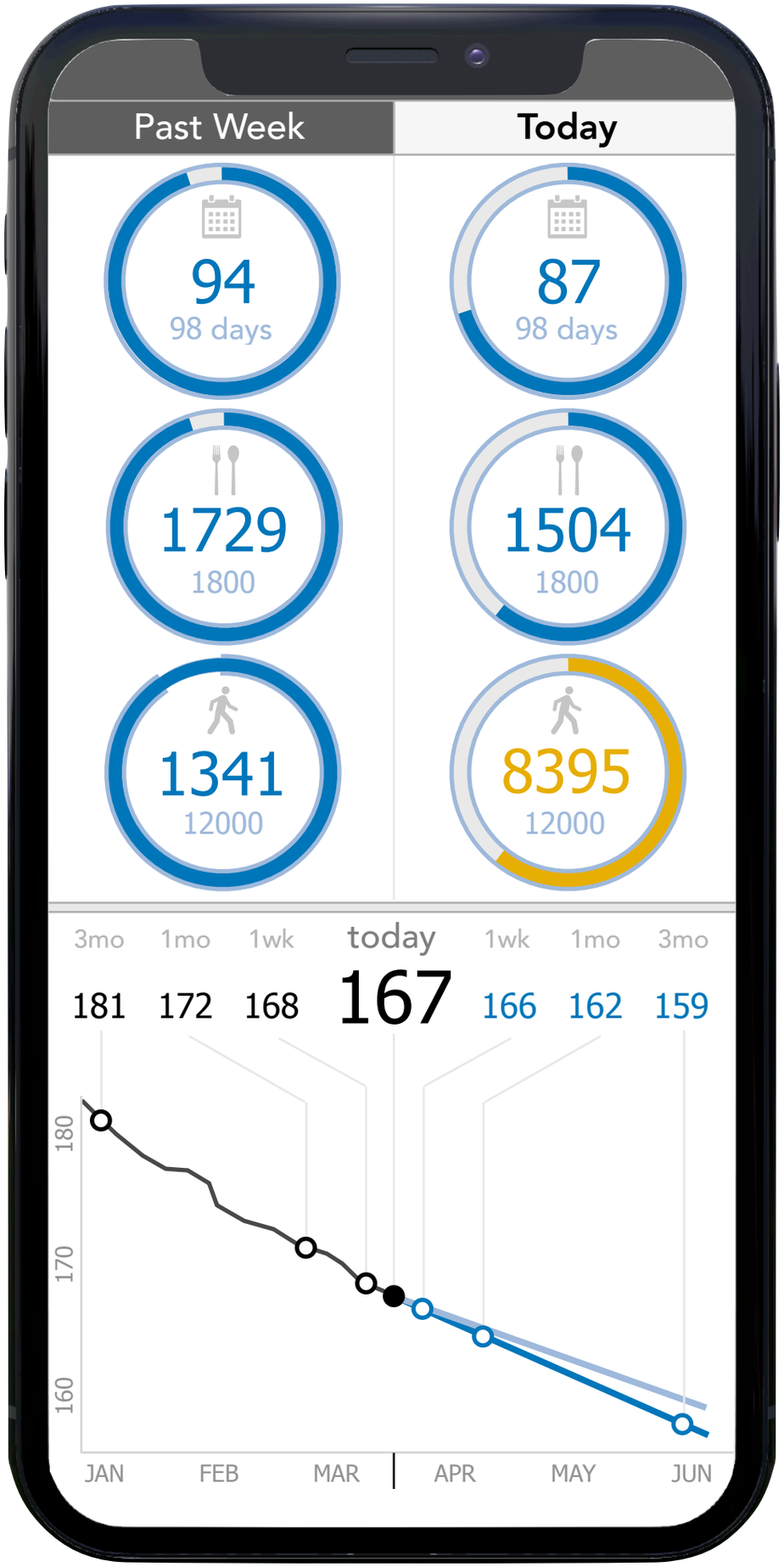

Past Week
Today
112
98 days
72
98 days
2075
1800
1217
1800
1254
12000
8247
12000
3mo
1mo
1wk
today
1wk
1mo
3mo
181
172
168
167
167
165
163
180
170
160
JAN
FEB
MAR
APR
MAY
JUN


1657
1800


2189
1800


8395
12000


1421
12000

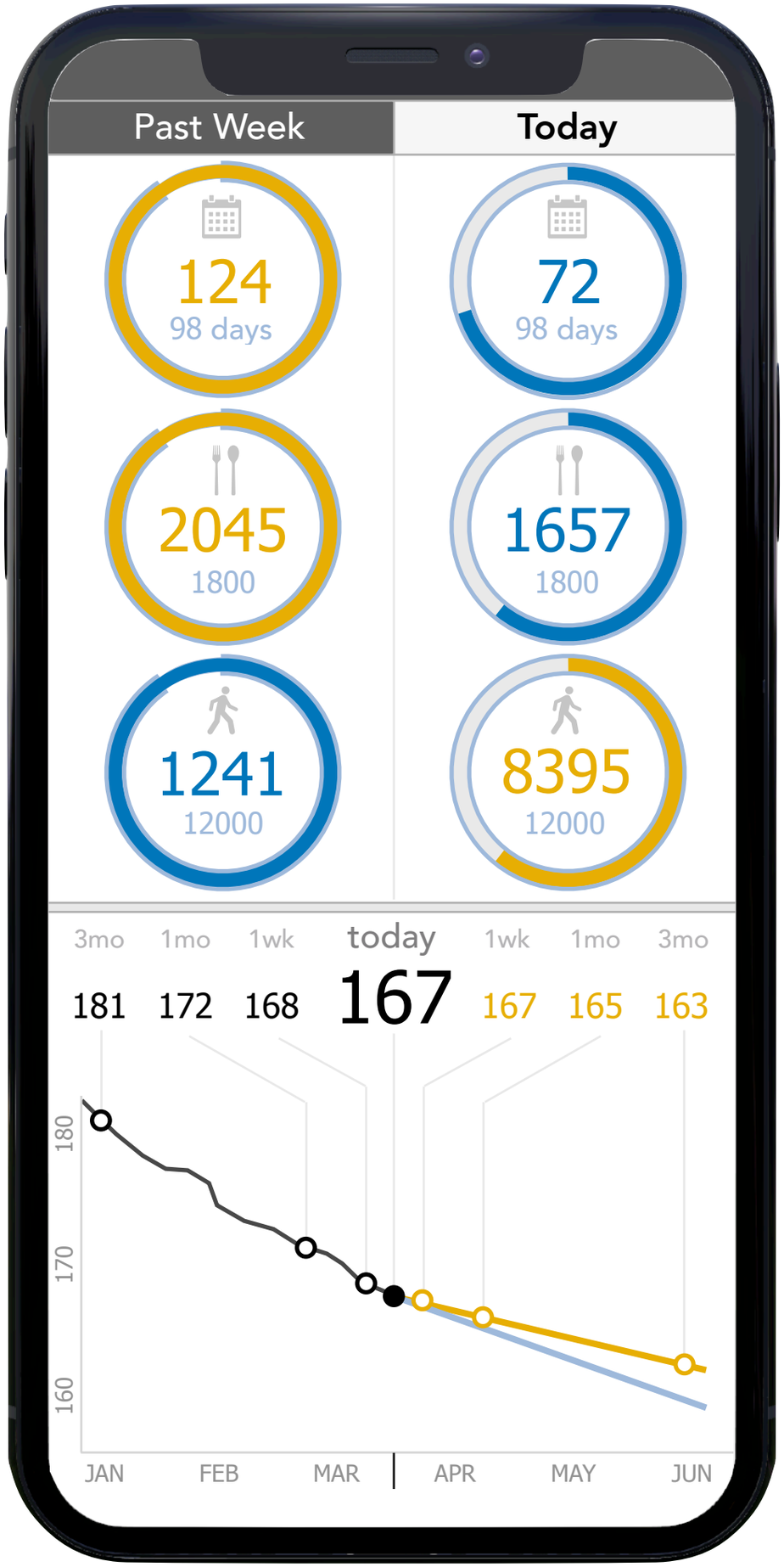


color scheme

goal

achieving goal

missing goal



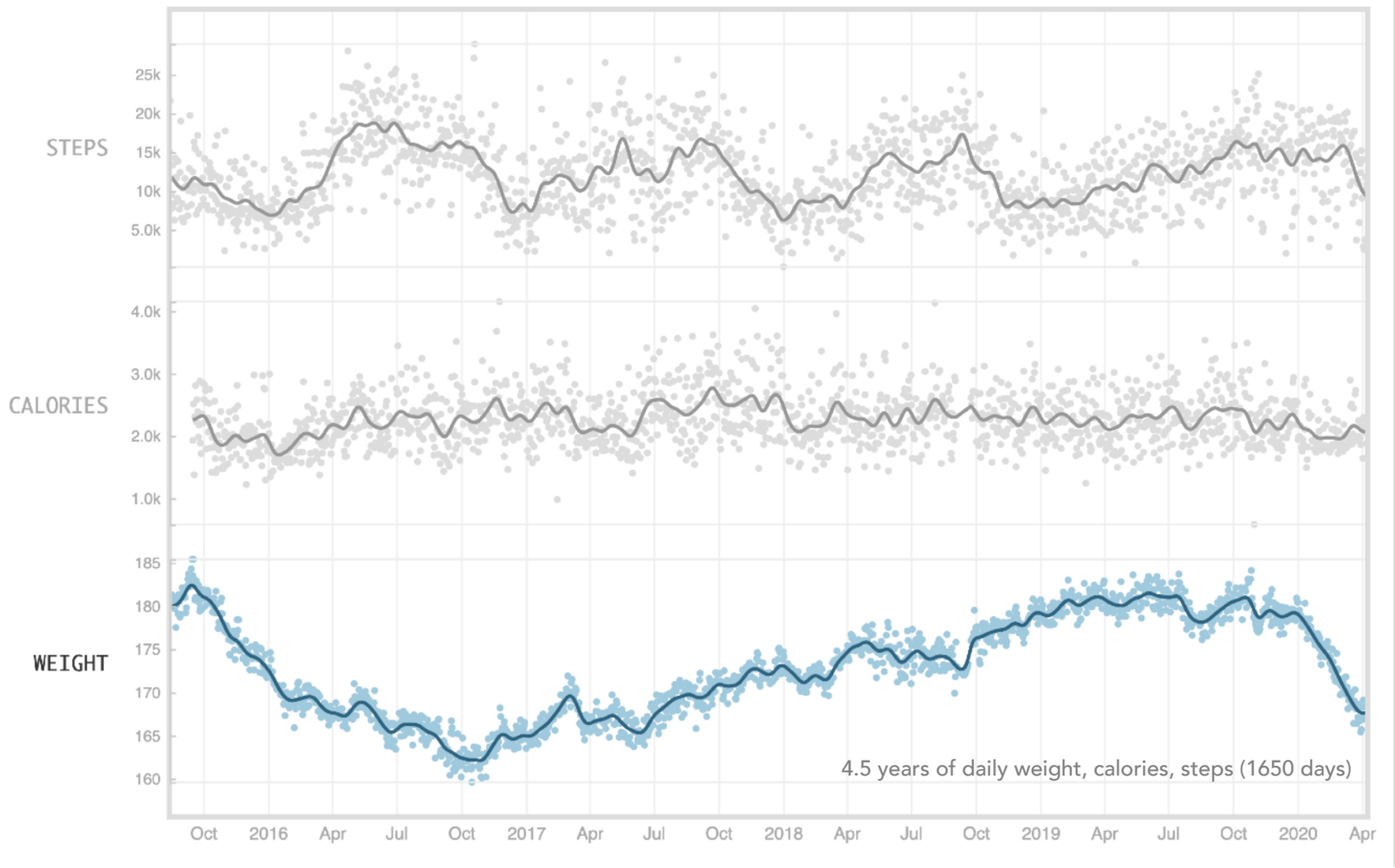
color scheme

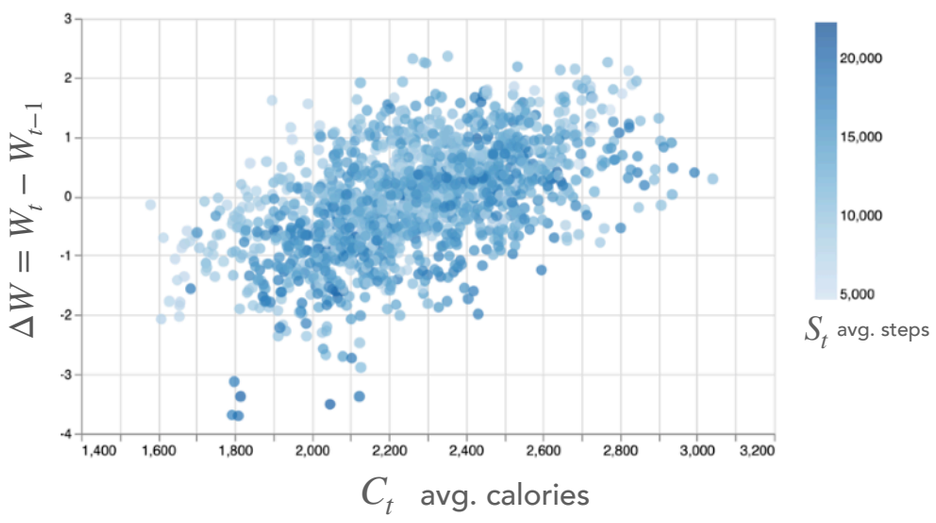
goal

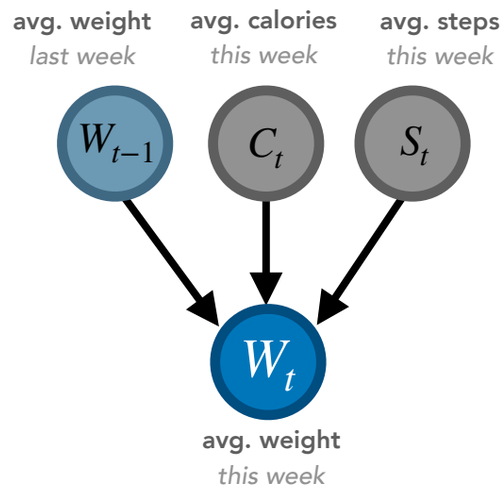
achieving goal

missing goal

Probabilistic Causal Modeling of Weight Change







$$W_t = \alpha_0 + \alpha_W W_0 + \alpha_C C_t^{(\text{in})} + \alpha_S S_t$$

$$S_t = -\beta_C C_t^{(\text{out})}$$ => assuming linear relation

$$W_t = \alpha_0 + \alpha_W W_0 + \alpha_C C_t^{(\text{in})} - \alpha_S \beta_C C_t^{(\text{out})}$$

$$\alpha'_C \equiv \alpha_S \beta_C$$

$$W_t = \alpha_0 + \alpha_W W_0 + \alpha_C C_t^{(\text{in})} - \alpha'_C C_t^{(\text{out})}$$

equivalent for linear model

	week	today	target
weeks	gaining weight!	8.1 (-1.1) 6/4/20	9.2 6/15/20
weekly change	0.4 (1.3)	-1.3 (-0.4)	-0.9
weight	169.1 (9.1)	170.7 (10.7)	160.0
calories	2353 (553)	1236 (-564)	1800
steps	10195 (195)	9948 (-62)	10000

	<wk>	<wk>-target	today	today - target	target
W (lbs)	169.1	9.1	167.3	7.3	160
T (weeks)	21 (9/18/20)	9	10 (6/27/20)	-2	12 (7/9/20)
W/T (lbs/week)	-0.34	0.56	-1.2	-0.3	-0.9
C (Calories)	1971	171	1350	-450	1800
S (steps)	10374	374	3421	-6579	10000