**Daily Meal Planning Calculator — Pro Build Brief**

**1) Purpose & Outcomes**

Design a **comprehensive daily meal-planning calculator** that helps members consistently hit a **Daily Calorie Target** (DCT). The system must:

* Incorporate **logged workouts** (exercise calories) into the DCT.
* Adjust DCT for a **weekly weight-loss goal** (e.g., −3,500 kcal/week ≈ −500 kcal/day).
* Drive selections and macro balance using each member’s **metabolic profile** and **meal frequency**, pre-chosen in their **Personal Profile Assessment** (PPA). These settings **auto-populate**; users don’t have to re-confirm when planning meals.
* Provide **real-time macro/calo tracking**, **intelligent food recommendations**, and **personalized macro targets** per meal.

Reference models: food diary UX patterns like “Your Food Diary” pages that let users log meals, show running macro totals, and save remembered meals/favourites. <https://myfitnesspal.com>. I will attach a My Fitness Pal meal plan table.

**2) Data Source & Food Search**

* **Primary database**: **Canadian Nutrient File (CNF)** via Health Canada’s API.
  + Base docs: *Canadian Nutrient File (CNF) API Guide* and dataset portal. [produits-sante.canada.ca+2open.canada.ca+2](https://produits-sante.canada.ca/api/documentation/cnf-documentation-en.html?utm_source=chatgpt.com)
  + Interactive search app (for parity checks): CNF web search. [food-nutrition.canada.ca](https://food-nutrition.canada.ca/cnf-fce/?utm_source=chatgpt.com)
* **Search UX**:
  + Members **search by food name** (and can browse short, sensible charts).
  + **Important:** users **do not** enter quantities; they **only select items**. The calculator determines ounces/grams automatically from targets and rules.

**3) Core Rules & Calculations**

**3.1 Daily Calorie Target (DCT)**

* Start with baseline daily energy requirement (from your existing TEE/BMR logic).
* **Add** exercise calories for the day to the Daily Calories Target.
* Apply **weight-loss commitment**: e.g., **−500 kcal/day** for −1 lb/week (3,500 ÷ 7).
  + Enforce **minimum safe thresholds**:
    - **Men: ≥ 1,500 kcal/day**
    - **Women: ≥ 1,200 kcal/day**
  + Trigger a **visible warning** when users approach these minimums.

**3.2 Meal Plan Types (selectable daily; defaults to PPA choice)**

* **3 Meals**: each = **33.33%** of DCT
* **3 Meals + 1 Snack**: **Snack = 10%**, meals = **30%** each (remaining 90%)
* **3 Meals + 2 Snacks**: **Snacks = 10% + 10%**, meals = **26.67%** each (remaining 80%)

**3.3 Metabolic Profile → Macro Targets**

* Pull **macro ratio targets** (C/P/F %) from the user’s **metabolic profile** (set in PPA).
* For each meal (per meal plan type), convert that meal’s calories → **macro grams**:
  + Carbs grams = (meal kcal × carb%) ÷ **4**
  + Protein grams = (meal kcal × protein%) ÷ **4**
  + Fat grams = (meal kcal × fat%) ÷ **9**

**3.4 Food Selection & Auto-Quantity Logic (category-first)**

Each **meal** requires at least one selection from:  
**Carbohydrate source • Protein source • Fat source**

**Workflow on “Enter”** (calculator executes; not the user):

1. **Carbs first**
   * Determine **carb grams** target for the meal.
   * From the chosen **carb food item(s)**, compute how many **ounces** are needed to supply the **carb grams** target.
2. **Then protein**
   * Subtract **protein grams already present** in the carb item(s).
   * From the chosen **protein item(s)**, compute the ounces needed to supply the **remaining protein grams**.
3. **Then fat**
   * Subtract **fat grams already present** in both carb and protein items.
   * From the chosen **fat item(s)**, compute the ounces needed to supply the **remaining fat grams**.

**Display** the **final allowed ounces** for each selected item and the **meal’s updated macros/kcal**. (All conversions: ounces ⇄ grams; final displays rounded to **1 decimal**.)

Note: CNF provides nutrient values used for the grams/ounce calculations; your system converts to calories to ensure DCT compliance. [Government of Canada+1](https://www.canada.ca/en/health-canada/services/food-nutrition/healthy-eating/nutrient-data/canadian-nutrient-file-about-us.html?utm_source=chatgpt.com)

**4) Real-Time Tracking & Guidance**

* **Live running totals** per meal and day:
  + Calories and macro balances (**oz remaining**, **g remaining**).
  + **Progress bars** or compact pie charts to show macro balance vs. target.
* **Smart suggestions** when a meal is imbalanced:
  + Recommend **specific items** from the **missing/deficient** macro category.
  + Suggest **portion adjustments** to hit targets.
* **Daily remaining** calories/macros update after every “Enter”.

**5) Water Tracking**

* Track water intake up to **20 glasses/day** with a simple **counter or chips**.
* Show a small **goal indicator**.

**6) Favorites, Menus & Recipes**

* **Favorites**: save complete meal combinations (name + ingredients + macro/kcal totals); quick-add; edit/delete.
* **Menu planning**: save **weekly plans**, duplicate meals across days, **drag-and-drop** scheduling, and generate **shopping lists**.
* **Recipes**: store multi-ingredient recipes, auto-sum macros/kcal, set **serving sizes**, and show **per-serving** nutrition.

Comparable feature patterns (remembered meals, quick logging) are common in leading trackers.

**7) Custom Foods**

If a food isn’t found:

* **Add Custom Food** (user’s private DB):
  + Required fields: **Food name**, **Protein per serving (oz)**, **Carbohydrate per serving (oz)**, **Fat per serving (oz)**.
* Use these entries in the same auto-quantity pipeline.

**8) Persistence & History**

* **Save meals for one week**; enable **calendar** browsing and **search by month/day**.
* Support **export** (CSV/JSON) for trends over time.

**9) User Interface Essentials**

* Clear meal tabs/buttons: **Breakfast • Lunch • Dinner • Snack**.
* **Search with autocomplete** against CNF; show concise nutrient previews.
* **Food pickers** per macro category (carb / protein / fat) with an **Enter** action that triggers the calculator.
* **Editable portion sizes** (advanced users) with instant recompute.
* **Daily summary dashboard** with macro progress bars, calories remaining, and water counter.
* **Weekly calendar** view for planned meals.

**10) Technical Specs**

* Support **fractional ounces/grams**; round **final UI** to **1 decimal**.
* **Metric & imperial** toggles.
* Store a **comprehensive food table** with CNF references (food codes where applicable).
* Handle **edge cases**:
  + When combined food choices oversupply a macro, re-optimize downstream categories **without violating DCT**.
  + If minimum calorie safety limits would be breached, **block** confirm & show guidance.
* **Availability & accuracy**: CNF is the Canadian reference database used across health contexts (a solid backbone for nutrient values). [Government of Canada+2Government of Canada+2](https://www.canada.ca/en/health-canada/services/food-nutrition/healthy-eating/nutrient-data/canadian-nutrient-file-about-us.html?utm_source=chatgpt.com)

**11) Parity Notes (for UX inspiration only)**

* “Your Food Diary” patterns (logging by meal, quick add, remembered meals) inform usability standards; adopt the **clarity and speed** users expect from mainstream trackers. [blog.myfitnesspal.com+1](https://blog.myfitnesspal.com/essential-guide-to-food-logging/?utm_source=chatgpt.com)

**Acceptance Criteria (summary)**

* ✅ DCT incorporates workouts and weekly loss targets (with min-calorie safeties).
* ✅ PPA-selected metabolic profile & meal frequency **auto-populate**.
* ✅ Users **select foods only**; calculator sets ounces/grams and keeps the day on-target.
* ✅ 3 meal plan modes with exact % splits as specified.
* ✅ Real-time macros/kcal, suggestions, water tracking, favorites, menus, recipes.
* ✅ Meals saved for **1 week**; searchable by date; export available.
* ✅ CNF API integrated for Canadian nutrient data. [produits-sante.canada.ca](https://produits-sante.canada.ca/api/documentation/cnf-documentation-en.html?utm_source=chatgpt.com)