

# ***Joule V1-22 Instructions -- Carnot Diet Plan***

## **Jan 27, 2014 - DV 1-2**

Joule is a Google Spreadsheet for Carnot Diet Plan and these are brief instructions. We will have a video and more detailed instructions in few weeks. This Document will be updated. A few links follow:

- The Template Spreadsheet [\*Joule\*](#) - on Google Drive. We suggest you copy this to your own Google Drive, down line load it as a spreadsheet, or if you like we will give you a folder in our Google Drive - we will create your own private copy of Joule (send an email to [carnot.cook@gmail.com](mailto:carnot.cook@gmail.com))
- The Excel Spreadsheet - [\*Joule-CarnotLog\*](#)
- The [\*Carnot Diet Plan Web\*](#) site - It is draft site, many things like recipes and detailed data mining of USDA database are added week-by-week.
- The [\*USDA DataBase\*](#) - This lists the ***Cal-Index*** and nutrients for all 7,906 foods in USDA database. It is sortable and searchable.

Joule has several important jobs:

1. Help you lose weight or manage your weight, by making sure you follow the four Carnot Rules. Key is to be sure your eating less than you burn, and that you maintain an average Cal-Index for the day under 1.0.



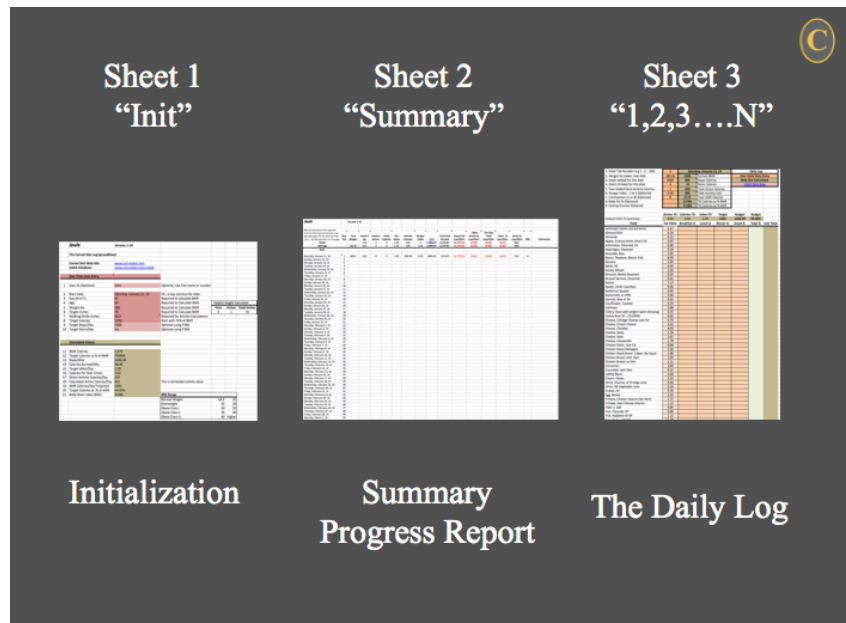
2. By maintaining the Daily Log and Menu, you will get know the foods you eat. The Cal-Index will will help you become Calorically Aware, and eventually Calorically Calibrated.

3. Joule will help you plan meals, learn how to Portion Control, and become a food detective - an expert on all the foods you eat. Joule learn about fresh ingredients used in cooked meals.

4. I use Chrome and have Joule pinned with my email, so anytime I want to enter in an item it's just a click away. Google Spreadsheets saves what you do as you do it.

## **Joule The Nuts and Bolts:**

Joule has two fixed Tabs with sheets (**Init, Summary**) and a third sheet that you duplicate each day that is the day number (**1,2,3..... N**).



**Init Tab** - Start By Initializing All Items on **Init** Tab (Weight Age Height etc..) .. These entries are required for the Carnot Heat Engine Model to calculate what you should lose each day, week etc.. Enter in your Stride in inches. Mark off 25 feet and count steps. Divide that number into 300 inches (25\*12) and thats your Stride. We use this to calculate Activity estimates. About 100 Calories per mile, but likely on any day you expend about 2.5 times that measured activity in total Non-Exercise Activity Thermogenesis (NEST) calories. We provide summary outputs on this page in

**Summary Tab** is a report an has no user entry cells. You can place comments in column S. Not many columns are hidden on this sheet to keep it simple. The Carnot Model is contained in those hidden cells.

**Day Number Tab (1,2... N)** is the daily Carnot Log and your Daily Menu.

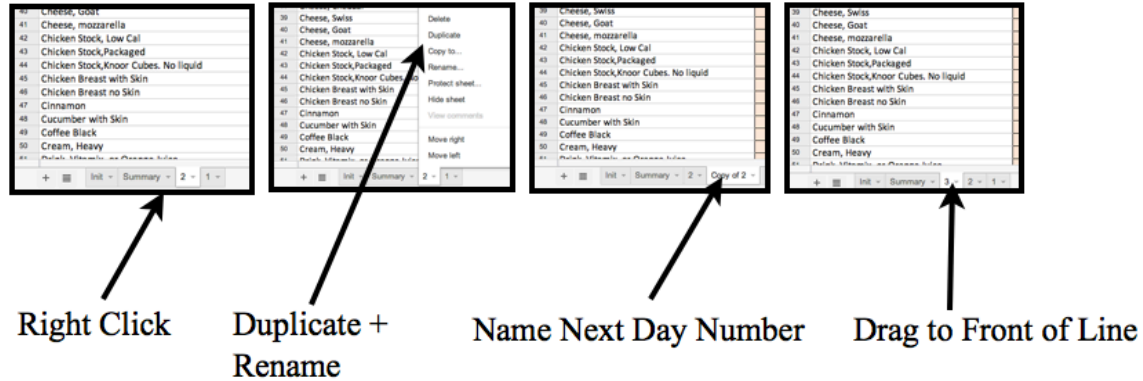
## Entering Daily Log and Menu Data - The Daily Audit

I do this every morning in about 2 minutes with coffee no matter where I am in the world, If my laptop is online I often enter in food weights as trial balloon just to see what day total might be - it is my worksheet for what I am eating and a record of what I have eaten.

- A. You start by making sure cell B2 has the same number as the the Tab number. That sets dates and is used in the summary. Unfortunately no simple way in Google Spreadsheets to read the name of a sheet independent of its location so to be safe it has to be done manually. We will add an error cell that warns you not correct.
- B. Enter in weight for the day (taken next morning when you wake up). I use a WiFi Withings scale so have record of all weights.
- C. Enter in number of steps you took that day (I use a FitBit) and number of stairs climbed. We calculate likely NEAT calories (see above) from that information.
- D. If you exercise without any record can enter that into item 5. "Your Added Extra Activity Calories".
- E. I track how long I am hungry during the day, not used just interesting how that matches with weight loss.
- F. Can enter in Body Fat estimate - again not essential
- G. I enter in if I had a bowel movement with a B or if constipated C - not critical but constipation can be problem when losing weight rapidly, and is also responsible for some of the day-to-day weight fluctuation.
- H. Finally, I take my fasting glucose levels in AM and track that each day - I use the [Bayer Next USB](#) glucose meter (cost about \$15.00) - works reliably and can purchase sticks for about 36 cents at Amazon. I use [Roche Accu-Check Multiclix](#) lancet. Totally painless and convenient system to get small drop of blood. Current thinking is that is that elevated glucose leads to elevated Insulin; High Insulin drives glucose to fat, and of-course elevated glucose and insulin is also what leads to Diabetes and host of other diseases. Interesting to see that low glucose in morning after fasting is correlated with hunger at least for me. I often do science experiments - I use my body a calorimeter for new foods and take glucose samples every 10-15 minutes for few hours after eating something I want to check (e.g. Quest bars, Carnot Chips, Vitamix Drink, Vitamix Soup etc...). This goes onto yesterdays sheet since it usually reflects what you ate for dinner, and how much weight you may have lost.
- I. The Menu Audit: Finally, I review yesterdays menu and calories, make sure I did not forget anything and not cheating. The entire Audit take maybe 1-2 minutes, but want that number to be as accurate as I can possibly make it.

## Create Today's Day Number Tab

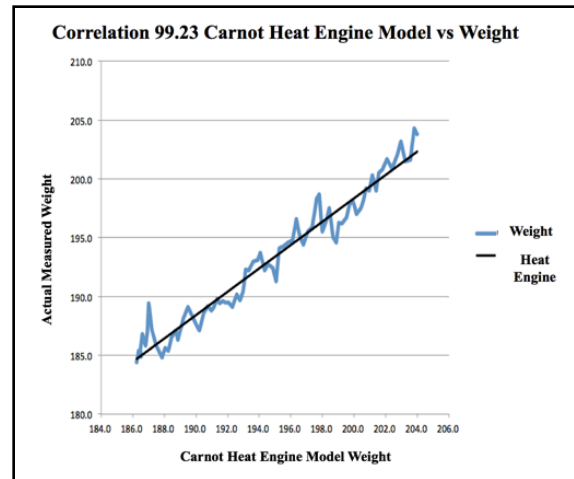
After the morning statistics weight entry and log audit, create a new Day Number Tab for Today



Finally, enter the day number in cell B2 - this sets date on Daily Menu Log. The Menu gets transferred so as it changes next day gets benefit of new foods, and removed foods.

## How to Add and Remove Food on Daily Menu.

An important part of the Carnot Diet Plan is learning about the foods you eat - we call that Caloric Awareness. The more you do that the better you get at looking at a meal, dish or ingredient and guessing how many calories your about to eat. When you do that well you become a Carnot Black Belt Ninja. We will show you how you can see if your doing well or not after a few weeks following the plan. The Graph on the right shows the Carnot Model predicted weigh loss vs actual weight loss. On average it was over 99% accurate. That means my food weight estimates and Cal-Index estimates are accurate as well as the activity estimates in the Model. That graph shows that Calories In and Calories Out were measured accurately and that my body is a great scientific instrument. We take many things into account not discussed here to make the model work.



Key is when you do your Daily Menu you have to become a nutritional detective so you will become Calorically Calibrated. After adding and removing many foods on a Daily Menu, you become an expert on each one. You also get a sense what the Cal-Index is going to be for any other similar food.

Let's assume you want to add Turnips to your Daily Menu and they will be cooked Sous Vide at 185F 1 hour in a Bag in a bag. First, go to USDA Database ([USDA Database](#))

NDB	Short Description	Cal-Index
11566	TURNIPS;FROZEN;UNPREPARED	0.16
11576	TURNIP GRNS&TURNIPS;FRZ;UNPREP	0.21
11890	TURNIPS;FRZ;CKD;BLD;DRND;W/SALT	0.21
11565	TURNIPS;CKD;BLD;DRND;WO/SALT	0.22
11889	TURNIPS;CKD;BLD;DRND;W/SALT	0.22
11567	TURNIPS;FRZ;CKD;BLD;DRND;WO/SALT	0.23
11564	TURNIPS;RAW	0.28
11893	TURNIP GRNS&TURNIPS;FRZ;CKD;BLD;DRND;W/SALT	0.34
11577	TURNIP GRNS&TURNIPS;FRZ;CKD;BLD;DRND;WO/SALT	0.35
35201	PRAIRIE TURNIPS;BLD (NORTHERN PLAINS INDIANS)	1.29
35200	PRAIRIE TURNIPS;RAW (NORTHERN PLAINS INDIANS)	1.56

You may see many Turnip entires with a Cal-Index from 0.16 to 1.56. Next go online and type in Google Search "Turnip Calories". It comes up with several all about 34 Calories, for a 122g Turnip. The Cal-Index is  $34/122 = 0.27g$ . Can see the Turnip; Raw, Item 11564 and has a 0.28. Since we are cooking Sous Vide can use a Cal-Index of 0.27.

**34 calories**

Type: Turnip Quantity: 1 medium (122 g)

Sources include: USDA Feedback / More info

[Calories in Turnips, Raw | Nutrition and Health Facts](#)  
caloriecount.about.com › ... › Root Vegetables › Turnips › About.com › Curious about how many calories are in Turnips, Raw? Get nutrition information and sign up for a free online diet program at CalorieCount.

[Turnip Carbs - Calories Health Benefits and Carbs in Turnips](#)  
lowcarbdiets.about.com/od/.../a/turnips-carbs.htm › About.com › by Laura Dolson - in 199 Google+ circles Turnip carbohydrate information, including carb and fiber counts, calories, nutritional information and glycemic index and load.

[Calories in Turnips, Cooked, Boiled, Drained, Without Salt | Nutrition ...](#)  
caloriecount.about.com › ... › Root Vegetables › Turnips › About.com › Curious about how many calories are in Turnips, Cooked, Boiled, Drained, Without Salt? Get nutrition information and sign up for a free online diet program at ...

[Calories in 1 large Turnip and Nutrition Facts - FatSecret](#)  
www.fatsecret.com/calories-nutrition/usda/turnips?portionid=34656... There are 51 calories in 1 large Turnip. Get full nutrition facts and other common serving sizes of Turnips including 1 slice and 1 oz.


[Turnips, cooked, boiled, drained, without salt - NutritionData.com](#)  
nutritiondata.self.com/facts/vegetables-and-vegetable-products/.../2 Self - The bad: A large portion of the calories in this food come from sugars. Calorie Ratio ... Calorie Ratio Pyramid for Turnips, cooked, boiled, drained, without salt.

[Nutrition Facts and Analysis for Turnips, raw](#)  
nutritiondata.self.com/facts/vegetables-and-vegetable-products/.../2 Self - Nutritional Target Map for Turnips, raw ... The bad: A large portion of the calories in this food come from sugars. Calorie ... Calorie Ratio Pyramid for Turnips, raw.

[How many calories are in Turnip, raw - FitDay](#)  
www.fitday.com/webfit/nutrition/All\_Foods/.../Turnip\_raw.html - FitDay - Food Nutrition Information for Turnip, raw, How many calories in Turnip, raw, How many carbs in Turnip, raw.

**Turnip**  
Food

The turnip or white turnip is a root vegetable commonly grown in temperate climates worldwide for its white, bulbous taproot. Small, tender varieties are grown for human consumption, while larger varieties are grown as feed for livestock. Wikipedia



**Nutrition Facts**  
Turnip

Amount Per 1 medium (122 g)

Calories 34

	% Daily Value*
<b>Total Fat</b> 0.1 g	0%
Saturated fat 0 g	0%
Polyunsaturated fat 0.1 g	
Monounsaturated fat 0 g	
<b>Cholesterol</b> 0 mg	0%
<b>Sodium</b> 82 mg	3%
<b>Potassium</b> 233 mg	6%
<b>Total Carbohydrate</b> 8 g	2%
Dietary fiber 2.2 g	8%
Sugar 4.6 g	
<b>Protein</b> 1.1 g	2%
Vitamin A 0%	Vitamin C 42%
Calcium 3%	Iron 2%
Vitamin D 0%	Vitamin B-6 5%
Vitamin B-12 0%	Magnesium 3%

\*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Sources include: USDA

Go to your Daily Menu, right click on line number that is just below where you want to insert Turnips. Make sure you have selected the entire line, and pick "Insert 1 above" on the right click menu. Click on same number again and select copy. That will copy the entire line including all formulas and data, and hidden cells. Again make sure you have selected the entire line. Now move up to the new empty line and right click on the line number so entire new empty

line is selected. Select Paste, from the right click menu, and correct name to read “Turnip, Raw SV”. Set Cal-Index to 0.26 and your good to go. Can do Copy and Paste with Cmd C and Cmd V on MAC as alternative if easier.

Delete an unwanted item by clicking on row number again, right click and select “Delete”.

Many other issues tied to getting an Menu food entry correct are covered on the Carnot web site. However, you will quickly see this takes your judgement and is not as simple as might be led to believe by many of the on-line calorie counting programs.

### Essential Carnot Gadgets

**Bathroom Scales:** You need bathroom scales to weigh your self each day first thing in the morning. I have several scales; one in my office (WiFi Withings), a second in the bathroom (same) and one smaller scale I take with me when I travel - I use [NewLine](#) as a travel scale; it seems consistent and accurate once calibrated against Withings bathroom scale.

Each morning when I wake up (about 5:00 AM), I make sure all possible waste that can be emptied is out. I do the official weight on the bathroom scales. That gets entered in the Day Number tab from the day before. So if its Tuesday morning the weight goes into the Monday Sheet, because that weight reflects calories In from the day before.

**Essential Carnot Gear**

The advertisement features three columns of products and their associated data:

- Wi-Fi Scales:** Shows a blue square scale and a screenshot of the Withings Health Mate app interface displaying weight and body fat percentage.
- FitBit or Other Steps + Stairs:** Shows a silver Fitbit tracker and a screenshot of a mobile app dashboard with various health metrics like steps, distance, and calories.
- Kitchen Scales:** Shows a white kitchen scale with a red pepper on it and a screenshot of a spreadsheet with columns for food items and their weights.

Below each product image is a list of associated data:

- Wi-Fi Scales:** Withings or Other, The BMR
- FitBit or Other Steps + Stairs:** The AMR
- Kitchen Scales:** 1 gram – 5Kg, Food Calories

**Activity Monitor:** Many devices on market, and I have tried most. I like the FitBit because it is simple, \$85 and is most accurate pedometer (step counter), I have tested. I Ignore the FitBit web site, because it does not provide any correct caloric information, but the steps and stairs are good. We use steps and number of stairs climbed as a general indicator of activity based on steps and stairs climbed.

**Kitchen Scales:** Essential for any diet. Many scales available, and have several favorites, and will review on web site. Set scales to grams. This gram number serves as input for menu to calculate calories burned. I have about four scales scattered around my kitchen. Now that I am Carnot Black Belt Ninja I can look at things and guess weight, but that's only because I have weighed thousands of food items - I still weigh most things - takes seconds and really no good reason to skip weighing all food because it is just so easy.