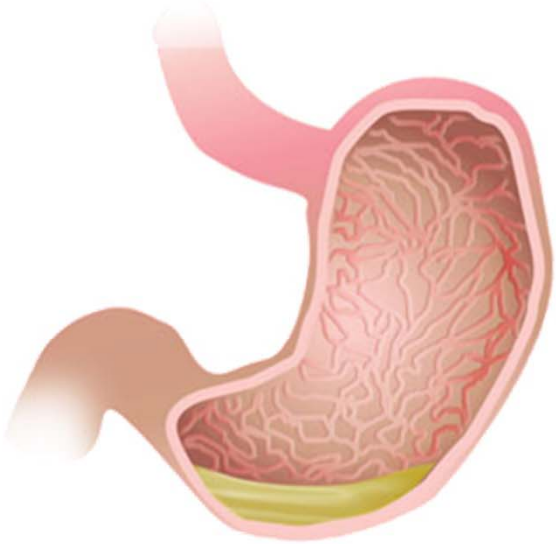
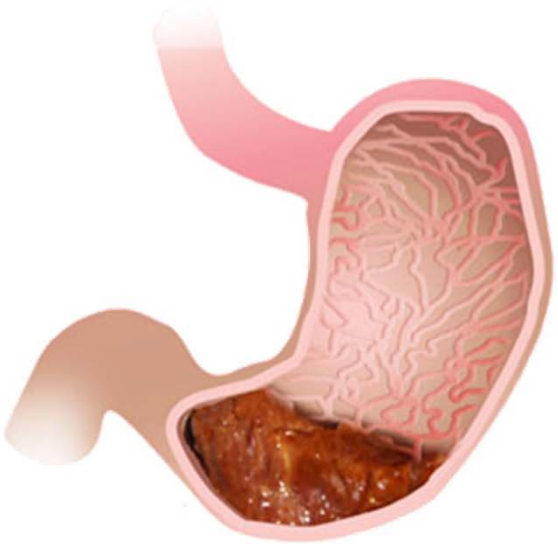
Caloric Density



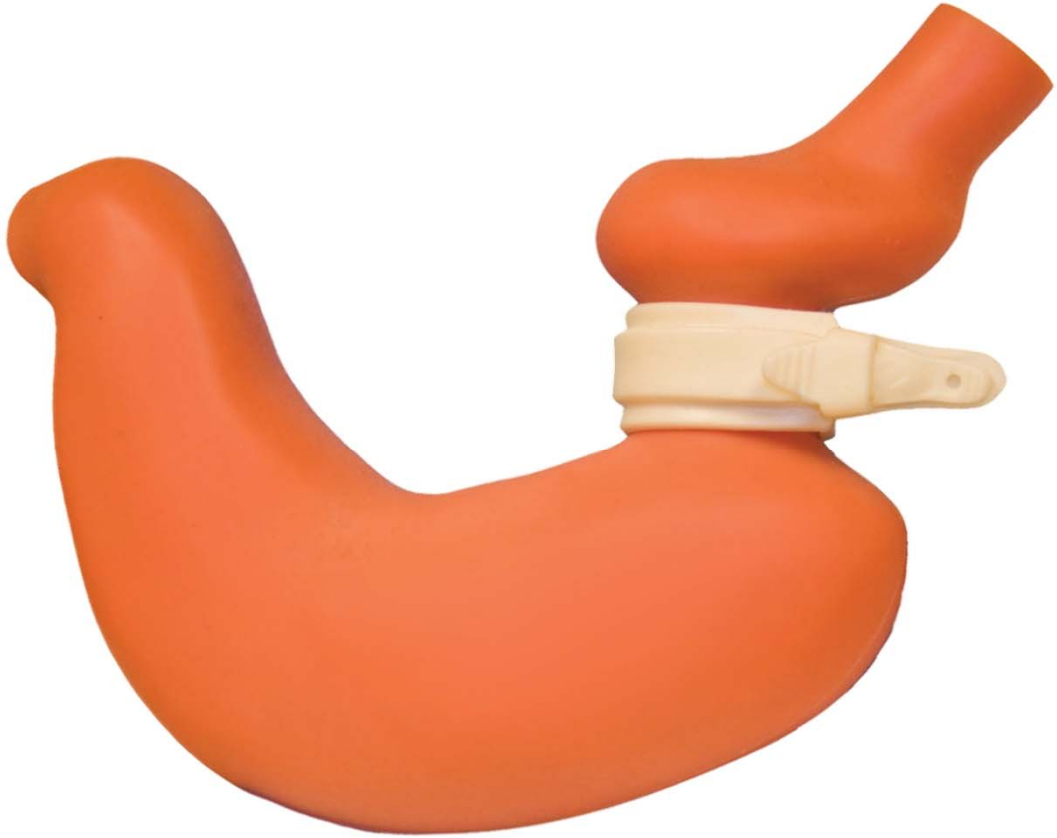
400 Calories of Oil



400 Calories of Beef

400 Calories of Vegetables

Surgically Created Density



Studies Link Meat to DM 2

- Health Professionals Study, Nurses' Health Study, Nurses' Health Study II
  - ½ extra serving of meat/day ↑ risk DM2 in 4 yrs
- EPIC-NL Study
  - Every 5% kcal from animal protein concurrent 30% increase in DM2 risk
- NHANES III
  - High protein intake group had 5 times the incidence of diabetes mortality across all ages

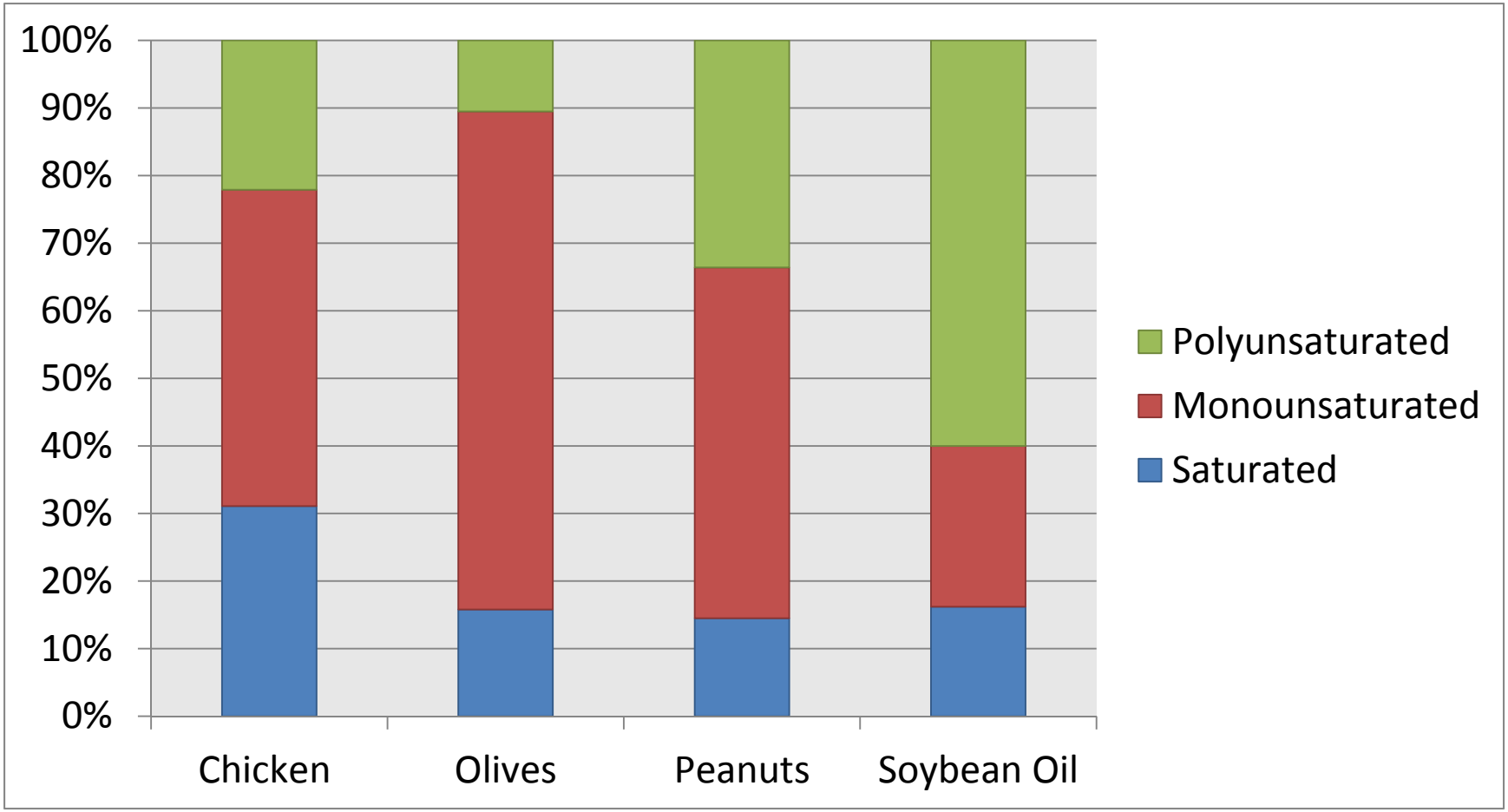
Pan A, et al. JAMA Intern Med. 2013;173(14):1328-1335
Suijs I, et al. Diabetes Care. 2010;33:43-48.
Levine ME, et al. Cell Metab. 2014; 19:407-417

Possible Mechanisms

- Heme-iron
- Nitrates from processed meats
- Advanced glycation end (AGE) products
- Higher consumption of calories
- Altered gut microbiota:
  - Obesity and diabetes
  - Increased risk of CVD

Koning et al. Diabetes Care. 2011;34:1150-1156
Thomas et al. Br J Nutr 2014;112(S1):S1-S18.

Fat Distribution



GF Whole Grains & Starches

- Quinoa
- Potatoes
- Beans & Peas
- Cassava
- Corn
- Flax
- Amaranth
- Millet
- Rice
- Buckwheat
- Job's Tears (Hato Mugi)
- Montina (Indian rice grass)
- Sorghum
- Teff
- Wild rice
- Oats*

**Oats are inherently gluten-free, but are frequently contaminated with wheat during growing or processing. Several companies (Bob's Red Mill, Cream Hill Estates, GF Harvest and Avena Foods) are currently among those that offer pure, uncontaminated oats.*

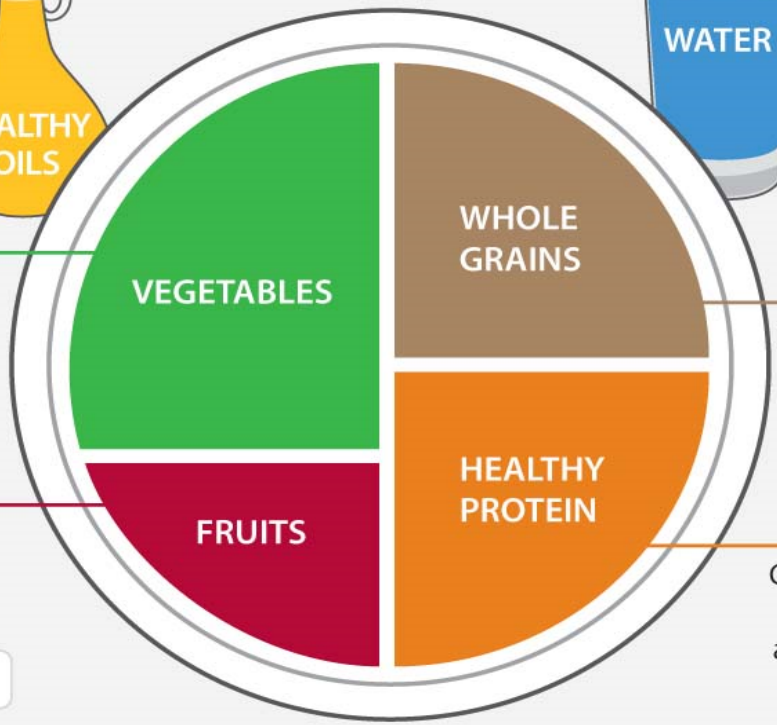
HEALTHY EATING PLATE

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.

The more veggies—and the greater the variety—the better. Potatoes and french fries don't count.

Eat plenty of fruits of all colors.

STAY ACTIVE!



Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.

Eat whole grains (like brown rice, whole-wheat bread, and whole-grain pasta). Limit refined grains (like white rice and white bread).

Choose fish, poultry, beans, and nuts; limit red meat; avoid bacon, cold cuts, and other processed meats.

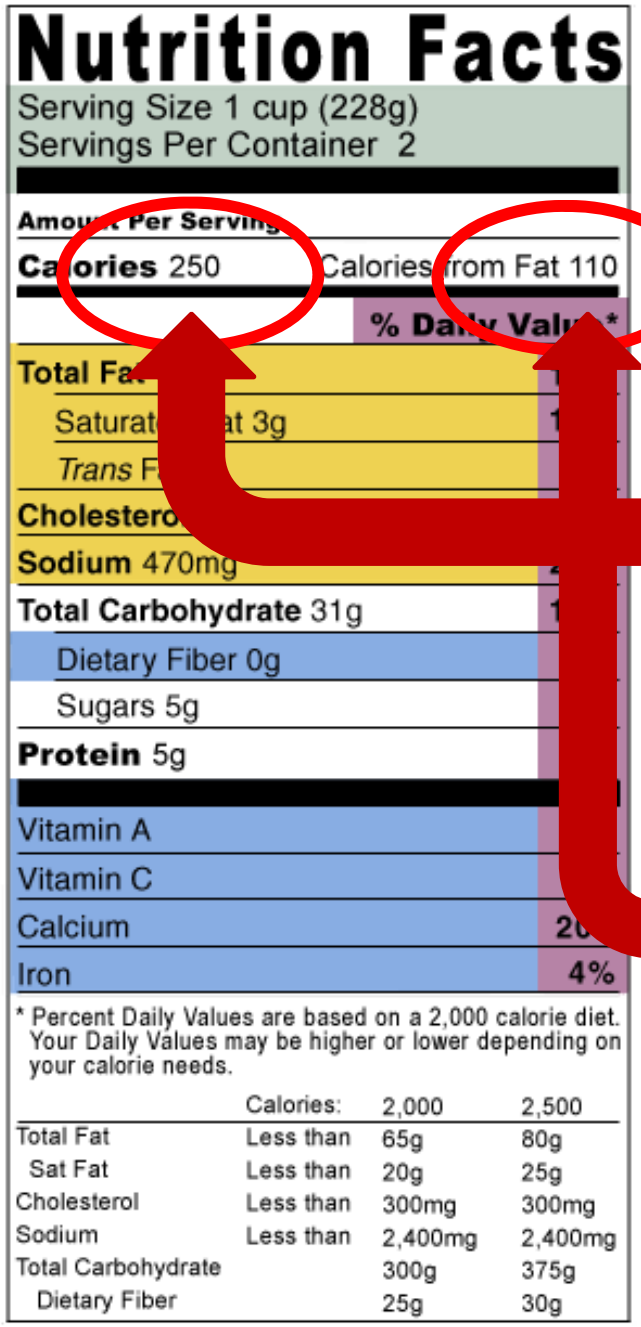
Harvard School of Public Health
The Nutrition Source
www.hsph.harvard.edu/nutritionsource

Harvard Medical School
Harvard Health Publications
www.health.harvard.edu

Teaching Label Reading

- Rule #1:
  NEVER, EVER, EVER believe anything on the front of the box!
- Rule #2:
  ALWAYS read the nutrition information for the product

Evaluate the Product

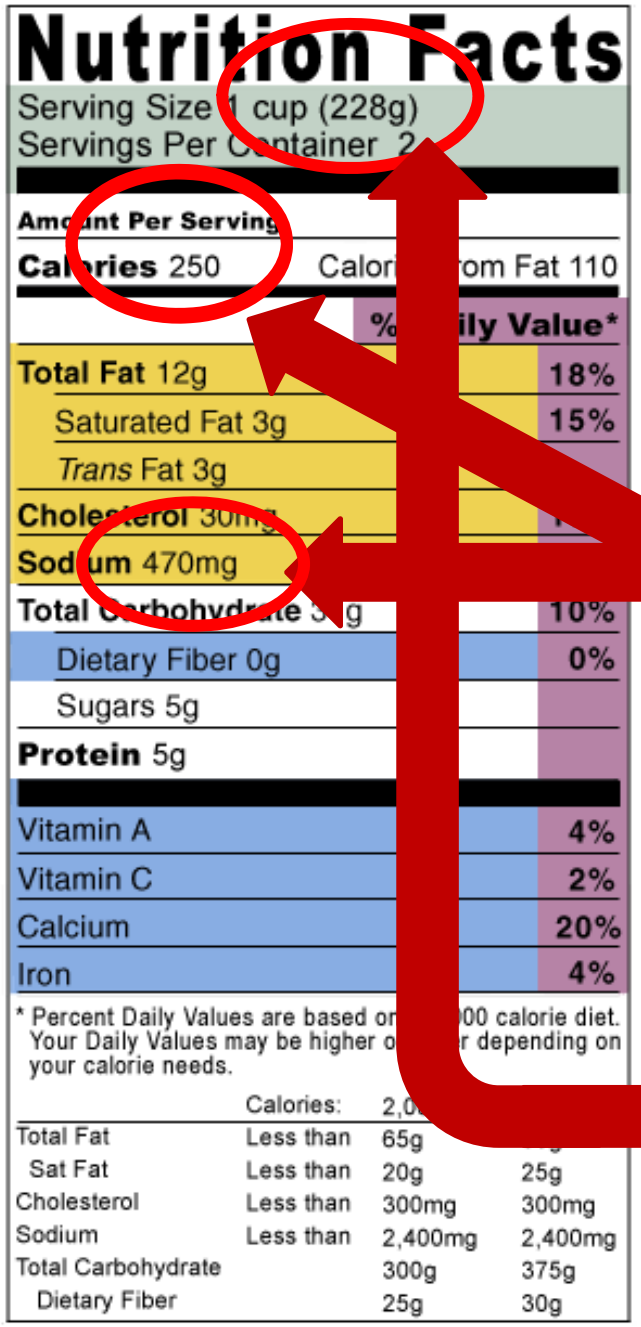


1. **Less than 20% of the calories are from fat**

Take the calories and drop off the last number: 25~~0~~

Add this number to itself:
→ 25 + 25 = 50

If the **Calories from Fat** are LESS than the number calculated, you have a low fat food
→ Is 110 less than 50?

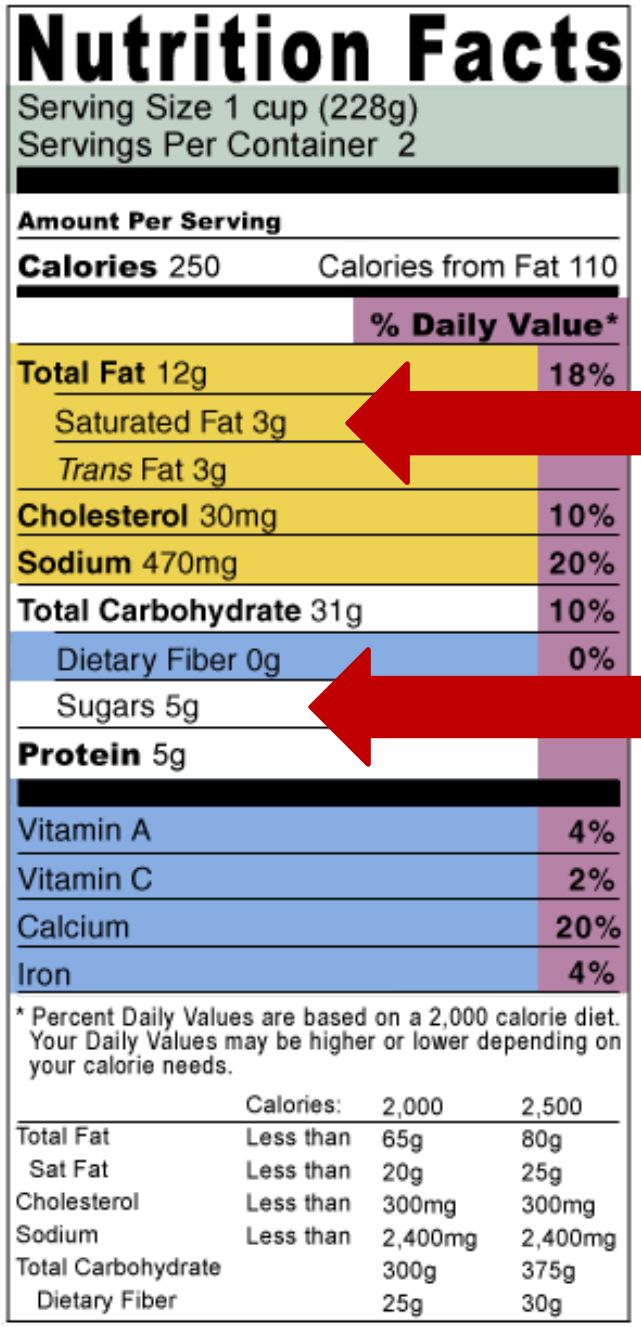


Evaluate the Product

2. Amount of **Sodium** is LESS than the **Calories**. (low sodium item)

3. The **Calories** in one serving are LESS than the **Weight** in one serving

Evaluate the Product



Nutrition Facts

Serving Size 1 cup (228g)
Servings Per Container 2

Amount Per Serving

Calories 250	Calories from Fat 110
	% Daily Value*
Total Fat 12g	18%
Saturated Fat 3g	
Trans Fat 3g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%

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

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

4. No "bad" fats
   – trans fats & saturated fats

5. Check the sugars
   (4 grams = 1 teaspoon)

6. Check the fiber
   (goal = 40 grams/day)

~ *Ayurvedic Proverb* ~

When diet is poor,
medicine is of no use.
When diet is pure,
medicine is of no use.

Diabetes&Nutrition
Support Services