



## Creams and Butter

Cream is packed with potential.

- Apply some work and you have a rich whipped topping.
- Apply more work and you've got fresh butter.
- Add some acid-producing bacteria and you get crème fraîche



## Whipping Cream

The processes of transforming cream into butter or whipped cream are similar

- how hard and how long you whip it have a big effect on the outcome.
- length of whipping time is particularly important when making whipped cream,





## Whipping Cream



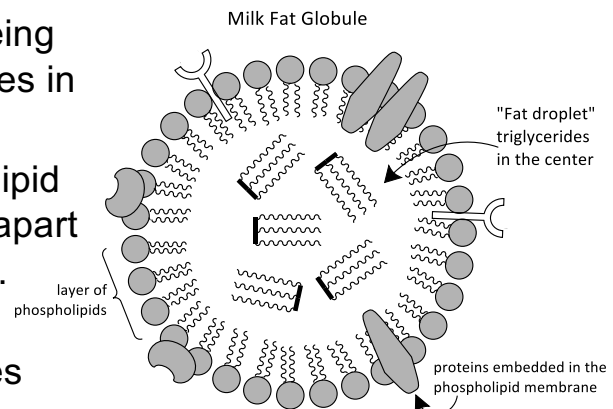
When you whip cream with a whisk, a couple of things happen:

1. Air is forcibly integrated into the cream
  - forming bubbles of gas that pop almost as quickly as they form;
  - the surface tension of the cream simply isn't strong enough to entrap them.



## Whipping Cream

2. After a few more minutes of being knocked around, the fat globules in the cream begin to destabilize
  - their protective phospholipid membranes are broken apart by the force of the whisk.
  - exposes portions of the water-fearing triglycerides
  - causing them seek each other out and stick together





## Whipping Cream

Some of the fat may not find another triglyceride to glom onto. As the fat would rather face anything but water molecules, they align themselves with fairly neutral pockets of air.

- a network of fat globule-surrounded air bubbles develops
  - stable, somewhat solid structure known as whipped cream is born.
- only works if there are a large amount of them in there
  - you can't really whip anything with lower than a 30% fat content.



## Whipping Cream

3. If you continue to whisk:
  - continue to wreck the phospholipid membrane, exposing even larger portions of fat.
  - newly exposed regions are now free to clump with their fatty friends.
  - The air—no longer surrounded and stabilized by the network of globules—escapes and your foam deflates,
    - leaving you with a greasy and granular product.
    - will appear stiff and slightly yellow, and you may even be able to see little clumps.





## Whipping Cream

Once you've gone past that firm-but-not-stiff whipped cream stage, and you begin to see evidence of dense globule gatherings,

- you're making [butter](#).

Butter can be made in a food processor, stand mixer, or even a jar.

- The key is agitation.

Once air leaves the network collapses, and the water that was being held in suddenly and dramatically separates from the solid mass of butterfat.



## Butter

What is butter?

- Churned cream resulting in a hardened fat with **most** of the water expelled
- 80% of mass must be milkfat (not other fat or solids)
- 21 lbs of fresh cow's milk are needed to make one pound of butter





## Kinds of Butter

### Salted Butter

- Add salt to final butter or soak in 2% salt water (brine)
- Salt reduces spoilage as the bacteria can not grow in high salt conditions



### Sweet Cream Butter

- No salt, butter formed after milk liquid is removed

