

Naked Eggs

Science of Cocktails version



A naked egg is an egg without a shell. Using alcohol, you can dissolve the eggshell—without breaking the membrane that contains the egg.

Things You Will Need:

- A few eggs
- One large container big enough to hold the eggs and a cover for the container
- Three small containers big enough to hold one egg and a cover for the containers
- A big spoon
- Crème de menthe
- Blue Curacao
- Everclear

To Do and Notice

1. Place your eggs in the container so that they are not touching.
2. Add enough vinegar to cover the eggs. Notice that bubbles form on the eggs. Cover the container, put it in the refrigerator, and let the eggs sit in the vinegar for 24 hours.
3. Use your big spoon to scoop the eggs out of the vinegar. Be careful—since the eggshell has been dissolving, the egg membrane may be the only thing holding the egg together. The membrane is not as durable as the shell.
4. Carefully dump out the vinegar. Put the eggs back in the container and cover them with fresh vinegar. Leave the eggs in the refrigerator for another 24 hours.
5. Scoop the eggs out again and rinse them carefully. If any of the membranes have broken, letting the egg ooze out, throw those eggs away.
6. When you're done, you'll have an egg without a shell. It looks like an egg, but it's translucent—and the membrane flexes when you squeeze it.
7. Now, place one of the deshelled eggs in each container.
8. Add enough Crème de menthe to cover one of the eggs, and do the same for the other two with the Blue Curacao and Everclear respectively. Cover the containers, put it in the refrigerator, and let the eggs sit in the spirits for 2-3 days.
9. Use your big spoon to scoop the eggs out of the spirits. Be careful—since the egg membrane is not as durable as the shell was.

10. In a container, cut open the egg soaked in crème de menthe first, then do the same to the one soaked in blue curacao. What do you notice? Now, cut open the egg that soaked in everclear. Do you notice a difference?

What's Going On?

When you submerge an egg in vinegar, the shell dissolves. Vinegar contains acetic acid, which breaks apart the solid calcium carbonate crystals that make up the eggshell into their calcium and carbonate parts. The calcium ions float free (calcium ions are atoms that are missing electrons), while the carbonate goes to make carbon dioxide—the bubbles that you see.

The effect of Everclear (75.5% ethanol) is quite striking: the high ethanol content of the everclear denatures (unravels) the structure of the egg white proteins, turning them from translucent to opaque and rubbery, much the way that heat denatures the same egg proteins when you cook an egg.