

Why do jelly sweets go hard?

From the sweeties.net wiki

Jelly sweets are soft because they hold water. Gummy sweets are made mostly of sugar syrups and a gelling agent, such as gelatine, starch or pectin, with water. Take away some of that water, and the sweet turns firm and tough. That is the main reason jelly sweets go hard.

They dry out

Water always moves from moister places to drier ones. Food scientists describe this with a measure called water activity: water migrates from something with a higher water activity to something with a lower one. Honey left in humid air absorbs water from it, and a salami hung in dry air dries out.

A jelly sweet is like the salami. When its water activity is higher than that of the air around it, and the bag is left open, water slowly leaves the sweet and it firms up. The longer it is left, the harder it gets.

In the factory this drying is useful. Many jelly sweets are set in trays of starch, and the starch soaks up some of the extra water to help them firm up. At home, the same drying is what spoils an open bag.

Starch jellies change inside

Jellies set with starch have a second way of hardening. When starch is cooked in water, its molecules unravel and form a thick gel. As the gel cools and sits, the molecules slowly line up again and recrystallise, a process called retrogradation, which makes the gel harder and can squeeze water out of it. It is the same process that makes bread go stale.

Retrogradation happens much faster between minus 8 and 8 degrees Celsius, which is why starch based sweets are better kept in a cool cupboard than in the fridge: see [what is modified starch in sweets?](#)

Hard sweets have the opposite problem

The same rule works the other way for hard sweets. Boiled sweets and rock hold almost no water, so they pull moisture in from the air and go sticky. Put jellies and boiled sweets in the same bag for a long time and they drift towards each other: the jellies dry and the boiled sweets soften: see [why does seaside rock go soft?](#)

How to keep jellies soft

- Keep them in an airtight container or a well sealed bag.
- Store them somewhere cool and dry, but not in the fridge.
- Keep them apart from hard sweets if you are storing them for a while.

- Close the bag between handfuls.

For more on keeping a mixed bag at its best, see [how should you store pick and mix?](#)

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