

## Fun with Fats

### The scientific explanation

Fat's first role in baking is to add richness, flavor, and moisture. Pastries containing a large amount of fat are tastier and create a more luxurious mouthfeel. This is because fat slows down the development of the gluten network in the dough.

The gluten protein network consists of two groups of proteins found in wheat flour (and in other grains). When the dough is processed and kneaded, these proteins bind together and form very long chains - creating the gluten network. This network traps the gas bubbles that form during the leavening, giving the dough its flexibility. As it is baked, the gluten network hardens and stabilizes the pastry.

A thick, stable network is crucial for bread making. By contrast, in cakes, the network should not be as dense, so that it provides stability - but also lift. This demonstrates the role of fat, which acts as a barrier between the proteins and water, creating a less dense gluten network.

Fat is also important for leavening the pastry: Whisking fat with sugar creates a structure that traps and retains the air bubbles, helping the pastry to leaven while baking.