

Taking Carrots with a Pinch of Salt

The scientific explanation

We know that salt penetrates food slowly when the food is cold; the process is accelerated during cooking. It has been found that the rate of diffusion (penetration) of salt doubles with every 10-degree increase, up to the boiling point. Salt penetrates vegetables more slowly than it does meat. In order for the salt to fully penetrate into the vegetable, it must cross two barriers - the membranes and cell walls surrounding each plant cell. In meat, however, there is only one barrier (the cell membrane). Moreover, the membrane enveloping animal cells is thinner.

When added at the beginning of the cooking process, salt has more time to migrate into the cooked foods and season them throughout. When it is added at the end of the cooking process, however, the seasoning remains on the exterior surfaces, causing a more concentrated salty taste. In addition, up to a certain concentration, salt improves cell durability. Therefore, food salted at the beginning of the cooking process retains its shape longer than food salted at the end.