

How science influences on cooking

[Food & Diet](#), [Cooking](#)



Cooking, Science, and Technology; 2016

Harvard University has been brought together professors and cooking experts to explain the science of cooking. This has gotten the attention of many chefs around the world, and has sparked a new interest amongst different groups such as; scientist, future chefs, foodies, and others alike. Cooking has been around for centuries; however, recently there has been a major change on how we perceive the way we cook. In the following essay, it will discuss what is cooking, how science can explain the process of cooking, and how new innovative technologies have inspired chefs, to move away from traditional techniques, to newer ones.

Cooking has been around for centuries; thus, humans have always excelled in being innovative in the kitchen. Now, the real question not many people ask themselves is, what is cooking? Cooking is “ The art or practice of preparing edible food by applying heat and/or combining select measured ingredients in an ordered process.” (Culinary Foundations, by Wayne Gisslen) It is more than just tossing different ingredients into a heat source, it is about predicting what the end result will be. By adding pepper to a recipe, it is already determined that the dish will turn out spicy. By adding salt it can be predicted that the food will indeed have more flavor and will be saltier. However, what if another approach was taken besides adding ingredients. What if that approach was taken from a scientific standpoint?

For example, consider the atmospheric pressure of the earth: this is a more scientific approach on the subject of cooking. Imagine preparing food in the Andes of Peru vs. Southern California. A higher pressure in the Andes of Peru

equals to higher boiling point, just as, cooking at sea level in Southern California is equal to a lower boiling point. Therefore, when boiling pasta, the pressure significantly affects the preparation process. Pasta cannot be overcooked with a higher boiling point, otherwise the texture and the flavor is altered in the process. When overcooked, it turns into a mush and releases more the flavors found in pasta, thus not balancing with the paired flavors of the sauce. This is a very good example of Gastrophysics; the “ emerging new scientific and molecular-based (sub) discipline that borderlines between soft-matter physics and chemistry, culinary sciences, and food chemistry.”

(Culinary Science in Denmark: Molecular Gastronomy and Beyond, 2013)

Pressure alteration is just one of the few factors that affects cooking, but how to manipulate cooking with technology. Consider the pressure pot, which is used to cook beans a lot quicker. What would normally take two hours to cook can now be reduced to forty-five minutes.

This leads us to our next subject, technology in the modern era of cooking.

Other technologies other than the pressure cooker are used; take into consideration the use of Sous-Vide, and the rotary evaporator. One well-known chef, who takes advantage of these technological devices, is Joan Roca from Gerona, Spain (Science and Technology for New Culinary Techniques, 2013). When Sous-Vide is cooking, it

requires placing raw meats in a vacuum pouch, and submerging it under a controlled water bath. The heat source originates from the technology, which heats up the water, and then transferred to the vacuumed meat pouch. This technique allows meats to be cooked evenly, and it also allows the

preservation of what makes up its substance. The other technological device used by Roca, is the rotary evaporator. This technology distils and extracts the essence of various herbs and substances. Chef Joan Roca uses this in a very innovative way. He creates a dish in which flavor is extracted from earth itself. He creates an earthy dish that invokes the Spanish landscape. As crazy as it may sound, it is something we are able to do now with high tech devices, compared to a few centuries ago.

Cooking is simple, but it is defined with its all complexity when physics and chemistry takes it toll. Molecular gastronomy is becoming an ever more popular technique. Being aware of the science that goes behind food production, allows cooking experts to become more efficient in the various forms of creating complex foods. Fire has always been primal, and is the base heat source in which food is cooked. However, science has allowed cooking to be more of a playful and experimental subject. The question now is, what other things can humans accomplish with this knowledge, in order to help humans develop an efficient way to feed a hungry ever-increasing population.