

# How the cookie crumbles: X-ray tech used to reveal the secrets of baking the perfect biscuit

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WMG at the University of Warwick and Cadbury have used powerful X-ray scanning equipment to uncover the secrets of how the structure of

biscuits, which is essential for the perfect "crunch," forms.

Biscuits are the UK's favorite sweet treat, with the average person in the UK eating around six a week. WMG researchers scanned biscuits in a bespoke oven as they baked, imaging the inside of the biscuit to reveal how the porous structure, essential for the perfect "crunch," forms during the [baking](#) process.

Associate Professor at WMG's Centre for Imaging, Metrology and Additive Technologies, Jay Warnett, said that this was just the beginning for the technology, "Joining forces with Cadbury, we're cracking the code to the perfect biscuit. Through our X-rays, we're helping uncover the ideal baking time, thickness, and recipe for the ultimate eating experience."

"But our research doesn't stop there; we're diving deeper into the world of biscuits and baked food and hope to continue working with Cadbury for a long time to come."

Researchers at WMG, who were approached by Cadbury, constructed an oven from scratch inside an X-ray CT scanner—a similar machine to what you might find in a hospital.

Using the latest algorithms, the imaging process was sped up to scan the biscuit every 20 seconds throughout the baking process. When put together, the WMG and Cadbury teams could observe the biscuit baking over time.

Principal Scientist at Cadbury, Thomas Curwen, is excited for the future of biscuit development, "The latest algorithms have allowed us to watch and quantify the baking process inside the biscuit in greater detail than ever before.

"This capability will help us determine the function of different ingredients in more detail and how the structure that forms controls the eating experience. I am excited by what we can learn and how this will help us deliver the great tasting biscuits of the future."

The [research process](#), which was led by Dr. Warnett and Research Fellow Dr. Evelien Zwanenburg, has proved the concept possible, and is therefore likely to be the first step before a larger project later this year.

This future work aims to extend the work across other biscuit varieties and baked goods.

Provided by University of Warwick

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