

Video transcript: What's the weirdest way to cook a steak?

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The medium rare steak. Succulent meat, pink in the middle with a seared coating on the outside.

Raw steak is made of muscle fibre bundles – each packed with tightly coiled proteins called myosin and actin. And it's these proteins that hold the key to producing a juicy steak.

To cook my steak to medium rare, I start by vacuum sealing, then placing it in a warm water bath until it reaches the same temperature as the water – precisely fifty five degrees centigrade.

At this temperature, the myosin proteins start to uncoil. So the muscle fibres become looser, making the meat tender all the way through.

But a few degrees higher in a frying pan, and we'd notice the actin proteins uncoiling as well. As these muscle fibres collapse, the meat shrinks, squeezing out moisture that was trapped within the proteins.

The result – a dry and tough piece of meat. No thank you!

So now I have a lovely medium rare steak on the inside, but what about that all-important flavoursome crust?

That's where some super-cold liquid nitrogen comes in. A quick dip – 30 seconds for my steak – seriously chills the outer few millimetres, without freezing the middle – protecting that delicate pink interior.

Now I can sear the meat knowing it will still be medium rare inside. But I'm not using a conventional pan or grill. I want something that will brown my steak from all directions at once. A deep fat fryer!

As the heat from the oil – I use duck fat – transfers to the surface of the steak, an amazing, chemical reaction takes place.

Chains of proteins break apart and join up with chains of sugars present in the meat. This starts a sequence of chemical reactions, creating thousands of new compounds.

Some of these give the steak its delicious flavours and aromas. Others provide the characteristic rich brown colour.

This process is called the Maillard reaction and it normally happens best at a hundred and forty degrees or more. So I make sure the oil is pretty hot before I start.

The result – a lusciously seared steak, medium rare all the way through. And not a pan in sight!