

Voiceover.

SCIENTIST. I want to shake your confidence that you know about love. That you know about the people you love. That you know about your heart, and how it loves.

I tell people I study love, and they say 'real love?' – by which they mean Cupid's arrows and *Casablanca*. And I say, 'No – the chemistry and neuroscience of love . . . not *real* love'.

The philosopher Alain de Botton feels 'the whole language of love has been corrupted by overuse'. From Cupid's arrows to Shakespeare's sonnets, we are left with a palimpsest of echoes: words and phrases blundering into the walls of our imagination: 'You complete me', 'You are my soul mate'. File your feelings under Hallmark and Love Hearts.

You've all seen the fish tank scene in *Romeo and Juliet*: their eyes lock through the sapphire haze, while Des'ree sings something sweetly in the background . . . 'Did my heart love till now?' asks Romeo.

What they are experiencing, in fact, is a quick release of chemicals: dopamine, oxytocin, adrenalin and vasopressin, which create a high that could be described as 'falling in love'. In total, twelve areas of the brain work together to release these chemicals, and they can induce the feeling of love within 0.2 seconds of visual contact.

So, there they are: each the other's true love. What were the odds? Around five billion-to-one. I'm sorry to all those couples who believe in one true love, because if you do, it's practically impossible that you're sitting next to them.

But when we're in love, the world is a better place. 'Why do birds suddenly appear?' asked Karen Carpenter. 'Every time you are near'.

Well, what is happening here is not a sympathetic swoon in nature, where bluebirds land on your arms and sing tiny songs to rabbits. Instead, a massive surge of dopamine is flooding the brain's pleasure centres, lowering the points at which they fire. This forces an optimistic view of the world in which everything is love, love, love. Which, by the way, is the same mechanism brought about by cocaine use and Prozac.

But what happens when you take the drug away?

The myth of love says you can die from a broken heart, and here's the bad news: it's *true*. It's called takotsubo cardiomyopathy, and it makes your heart balloon like an octopus trap.

But . . . here's the better news. While your heart is hurt and wants to die, something else, something wonderful, is happening inside you . . .

In every one of your hundred trillion cells, your DNA is making new proteins. Which makes new molecules. Which make new cells. Which make a new *you*.

Not a single atom in your body is the one you were born with, and few hearts that beat are the ones that were broken.

This is not poetry or fairy dust – this is molecular science, and it says we all have more than one heart, and all are free to love again.