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When looking for love, male tungara frogs call loudly at night to attract a mate and so risk being eaten alive by a hungry bat alerted by the call. For humans, love can also be a dangerous game, but a delicious one too.

What does love feel like?

Since 1908, Mills and Boon have been putting into words those heady first feelings of love, writing of the “heartbeat speeding up and beginning to rocket in the chest,” those “heart-stopping seconds when you literally can’t breathe,” or the mere sight of a suitor being a “full-on assault on all the senses”.

Passion aside, companionship also counts: “When he took her hand in his, it was there again, the feeling that all was right with their world”.

What causes these feelings? Some psychologists and even neuroscientists suggest it’s all down to a cocktail of brain chemicals.

A lesson in love from the vole

Prairie voles are like humans in that they form long-lasting monogamous relationships. The aptly-named Dr Tiffany Love [4] from the University of Michigan describes how one brain chemical named oxytocin seems to be important in helping them pair up: female prairie voles with more oxytocin pair up more quickly.

Oxytocin is made in the part of the brain called the hypothalamus and is known to be important in human females for uterine contractions when giving birth and in breastfeeding.

Whether it is important in bonding human couples together is still in question, though in one Dutch study [5], a nasal spray of oxytocin helped participants to view some photographed faces as more attractive!

Anyone willing to try an oxytocin-based perfume on a first date?

One way in which oxytocin might help people to fall in love is by causing the release of dopamine in the brain. Dopamine is central to our feelings of pleasure and addiction: it's the same chemical released when we consume junk food or illicit drugs [6], and it keeps us coming back for more.

We are not voles

Falling in love [7] is a lot more complicated for humans: other hormones such as testosterone, cortisol, vasopressin, adrenaline and serotonin are being studied. Beyond chemicals, what of conscience, character, calibre, candour, capability, care, conviction, charm, chivalry and commitment to ensure compatibility?

What becomes of the broken-hearted?

When love is all-consuming, it can be lethal: Josephine Bonaparte, ex-wife of Napolean died of a broken heart; [8] some suggest that Captain Robert Scott, the Antarctic explorer, died not of exposure or starvation, but of a broken heart, having lost the race to the pole. The media is full of stories of elderly married couples dying days apart.

'Broken heart syndrome [9]' is a real condition, known in the medical world as 'Takotsubo cardiomyopathy'—so-named because the heart swells and takes on the shape of a Japanese pot used to catch octopus [10].

After emotional stress such as the loss of a loved one [11], it can feel as if you are having a heart attack, but there's no blocked artery or heart damage. Instead, a strange swelling of the heart occurs meaning that it can't pump so well. In most cases, the heart recovers, but it can be fatal.

Even so, don't let this put you off love. In the words of Alfred Lord Tennyson, remember "'tis better to have loved and lost, than never to have loved at all".

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