

Why do we cry. 1

- **Crying** is the shedding of tears (or welling of tears in the eyes) in response to an emotional state.
- This includes anger, happiness or sadness.



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- There are three types of tears: basal tears, reflexive tears and psychic tears.
- Basal tears are produced at a rate of about 1 to 2 microlitres a minute, and are made in order to keep the eye lubricated and to smooth out irregularities in the cornea.



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- Reflexive tears are tears that are made in response to irritants to the eye, such as when chopping onions or getting poked in the eye.



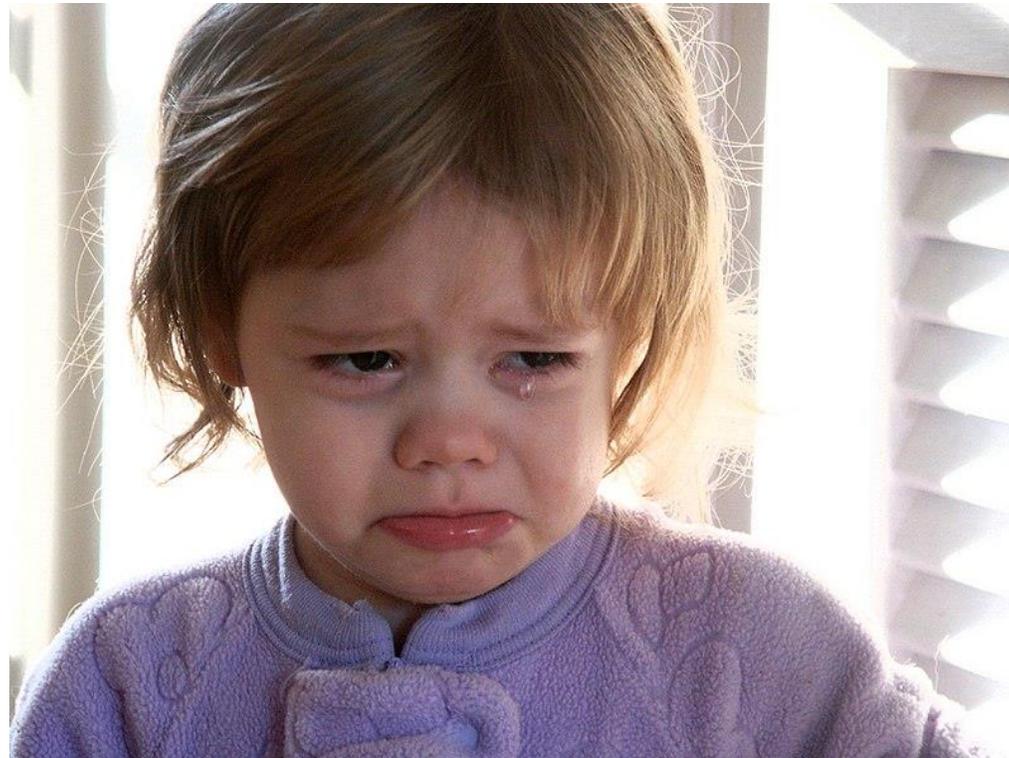
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- Psychic tears are produced by the lacrimal system and are the tears expelled during emotional states.



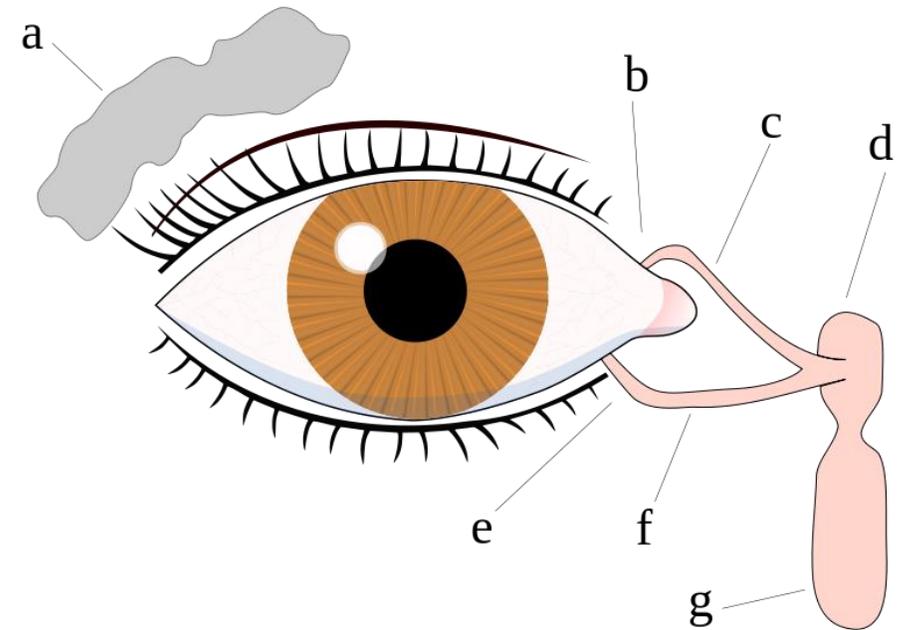
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- Various forms of crying are known as weeping, wailing, whimpering, bawling and blubbering.



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- A neuronal connection between the lacrimal gland (tear duct) and the areas of the human brain involved with emotion has been established.
- Anatomy of lacrimation, showing:
 - a) Lacrimal gland
 - b) Superior lacrimal punctum
 - c) Superior lacrimal canal
 - d) Lacrimal sac
 - e) Inferior lacrimal punctum
 - f) Inferior lacrimal canal
 - g) Nasolacrimal canal



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- Scientists debate whether humans are the only animals that produce tears in response to emotional states.
- Charles Darwin wrote in, *The Expression of the Emotions in Man and Animals*, that the keepers of Indian elephants in the London Zoo told him that their charges shed tears in sorrow.



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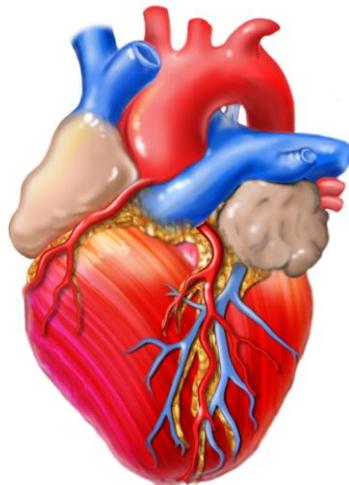
- Tears produced during emotional crying have a chemical composition which differs from other types of tears.
- They contain significantly greater quantities of the hormones prolactin, adrenocorticotrophic hormone and Leu-enkephalin, plus the elements potassium and manganese.

Flame-test for potassium:



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- It can be very difficult to observe biological effects of crying, especially considering many psychologists believe the environment in which a person cries can alter the experience of the crier.
- However, crying studies in laboratories have shown several physical effects of crying, such as increased heart rate, sweating, and slowed breathing.



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- Although it appears that the type of effects an individual experiences depends largely on the individual. For many, it seems that the calming effects of crying, such as slowed breathing, outlast the negative effects. This could explain why people remember crying as being helpful and beneficial.



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- The question of the function or origin of emotional tears remains open.
- Theories range from the simple, such as response to inflicted pain, to the more complex, including nonverbal communication in order to elicit sympathetic behaviour from others.



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- Recent psychological theories of crying emphasise the relationship of crying to the experience of perceived helplessness.
- From this perspective, an underlying experience of helplessness can usually explain why people cry.
- For example, a person may cry after receiving surprisingly happy news, ostensibly because the person feels powerless or unable to influence what is happening.

Here's to the Cubs for being the only thing in 2016 that made me cry out of happiness.



someecards

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- Crying can sometimes change other people's opinions of individuals.
- Early in his career, Andy Murray was unpopular because of his aloofness and volatility on court, giving many people the impression that he was petulant, spoilt, and even unpatriotic.



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- That all changed after the 2012 Wimbledon final which he lost to Roger Federer.
- When he took the microphone his voice quavered and he wiped away tears as he tried to speak.
- “It took me (sic) crying at Wimbledon”, he said, referring to his surge in popularity; he twice became BBC Sports Personality of the Year.



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- “If you compare tearfully crying with other emotional expressions, very little is known,” says psychologist Asmir Gracanin at the University of Rijeka, Croatia.



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- Gracianin has expressed the opinion that people say that crying made them feel better when they had the 'miseries' is simply because misery doesn't last forever and by the time we have finished crying their moods have had that time to improve.
- Deposit when teardrops have evaporated:



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- There is some evidence that crying relaxes the body by activating the parasympathetic nervous system, or by pumping up levels of oxytocin, the 'cuddle' hormone.

- And another:



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- Gracinin is investigating these possibilities but says that, even if the effects are genuine, the reason that we feel better may be something other than tears.
- “We simply don’t know,” he says.



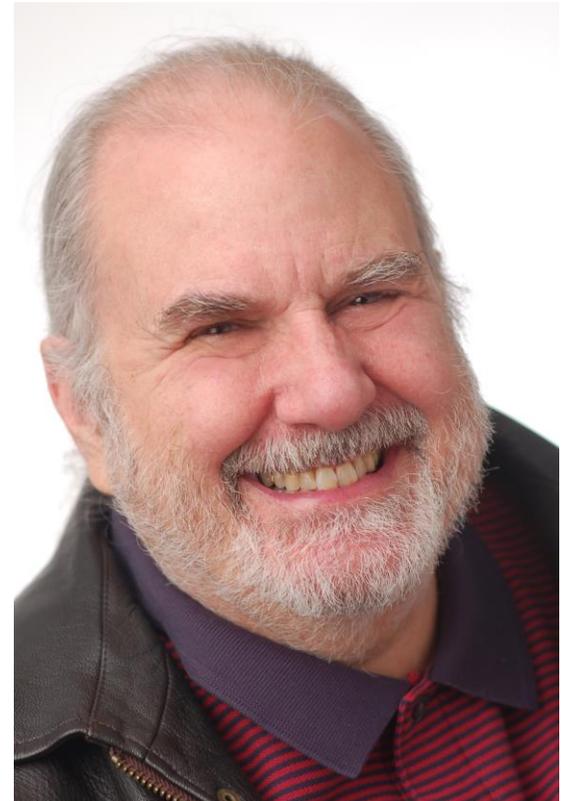
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Most researchers believe the of crying function is social rather than physiological.

Some have felt that it can be explained in terms of evolution, perhaps not convincingly for the rest of us.

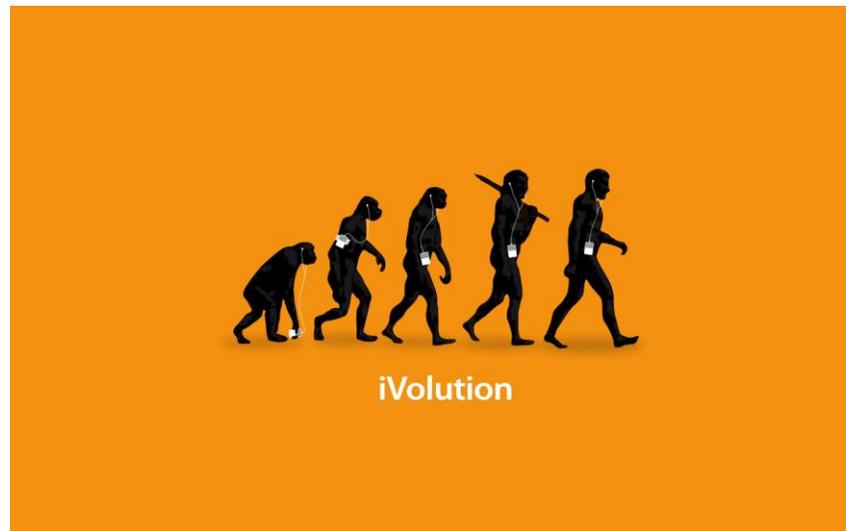
Robert Provine at the University of Maryland, Baltimore is one such person.

He says: “If someone has injured an eye or is suffering from disease others might assist them, and after that, the presence of tears emerged as a cue for caregiving.”



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- In other words, once crying started to elicit help from others, it became worth our while to shed tears over any hurt, physical or mental.
- (This seems a stretch to me: it links tears with survival, when wailing would be more effective. However see later slide.)



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- It raises the question of why tears in the eyes as a sign of distress rather than sweaty palms, or an ashen face, or even pale lips?
- We usually look at peoples' eyes because they are immediately visible, and can convey messages about what people are thinking.
- “They are a quite nice place to display a signal,” says Gracanin.



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- According to Martijn Balsters of Tilburg University, the presence of tears on the faces that volunteers saw for just 50millisec boosted feelings of sympathy, supportiveness and friendship towards the individuals pictured.



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- Dennis Küster at Jacobs University in Bremen, Germany showed people pictures of injured faces with and without tears, during which he measured the action of the levator labii, a facial muscle closely associated with expressions of disgust.
- According to him, faces with tears provoked less revulsion than ones without them



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- “Tears really show that someone is in need of support, of empathy, of help, and that you should approach that person, even if there are some signs of injury.”
- One reason crying affects us so strongly is that, as many actors know, it’s hard to fake.
- “It’s considered an honest signal,” says Ad Vingerhoets of Tilberg University.



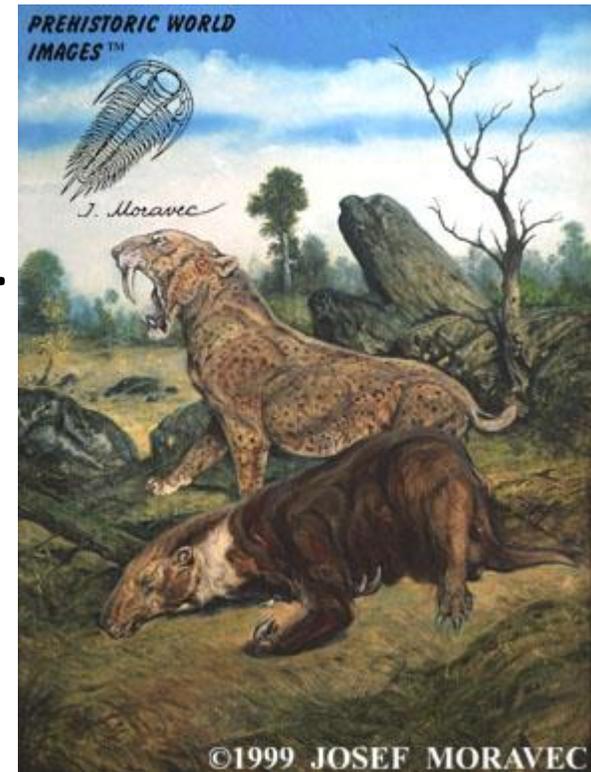
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Ad Vingerhoets suggests another evolutionary link with tears and crying.

For the first few weeks, babies don't shed tears, because their tear glands are still developing.

As they grow, crying becomes less vocal and more tearful.

Wailing advertises vulnerability to everyone around, including predators, so once a child can move around it is much wiser to use the more covert signal of tears.



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- Research psychologists, Heather MacArthur and Stephanie Shields of Pennsylvania University, found that participants in a study rated men who showed intense, yet controlled, emotion in sad situations as more competent than those who showed no emotion at all.
- “Such displays convey the message that men are human, feeling beings,” they concluded.

- Professor Stephanie Shields:



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- Vingerhoets says that showing your vulnerability can sometimes be very positive.
- “How positively your tears are viewed depends upon what you’re crying about – it has to be perceived as something important, and not your fault,” he adds.

- Professor Ad Vingerhoets:

