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Are your eyelashes making you ILL? Scientists calculate the optimal lash length to prevent dry and dusty eyes - and the same research could help Mars rovers

- Scientists at the Georgia Institute of Technology studied eyelash length
- They found that they should not be longer than a third of your eye width
- In the study the scientists looked at 22 different species of mammal
- They found that eyelashes played an important role in keeping eyes moist and preventing dust from accumulating
- But when they were too long they allowed too much air over the eyes
- This made them dry and also brought too much dust
- The research could also help keep solar panels on Mars rovers clean

By JONATHAN O'CALLAGHAN FOR MAILONLINE

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In the search for ultimate beauty, many women - and some men - choose to lengthen their eyelashes. But a study has claimed that doing so can have detrimental effects and prevent them doing what they were supposed to do.

The scientists say that eyelashes should not be longer than a third the width of your eye, otherwise they are less effective at keeping eyes moist and clean.

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Scientists at the Georgia Institute of Technology studied eyelash length (stock image shown). They say they should not be longer than a third of your eye width. In the study they looked at 22 different species of mammal. They found that eyelashes played an important role in keeping eyes moist and dust-free

The **research**, to be published in the Journal of the Royal Society Interface, was carried out by scientists from the Georgia Institute of Technology.

They reported that, while some of the benefits of eyelashes were already known, there were lesser known effects that would be hindered by making them longer.

'We essentially found that there filtering aspect of eyelashes could help reduce the amount of airborne particulate [dust] deposited onto the eye,' PhD student and author of the study Guillermo Amador told MailOnline.

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In their study they looked at 22 diverse species of mammals, 'from hedgehogs to giraffes,' and found that optimal eyelash length was typically one third an eye's width.

Any more, and they were less effective. Mr Amador added there was no optimal minimal length, but positive effects started to be noticed 'above a length of zero.'

Using synthetic meshes to simulate eyelashes, they then tested their aerodynamic capabilities in wind tunnel experiments.

When the eyelashes were the appropriate length, one third the eye width, they reduced evaporation and dust accumulation by 50 per cent.

The ability was due to the reduced air flow over the eye from the eyelashes.

Lengthening the eyelashes, however, stopped this ability from working.

When they were too long, they no longer trapped air, and instead funneled air onto the eye - increasing evaporation and dust accumulation.

In other words, they made them drier and dustier.

'Beyond a certain length, which was about a third of the eye, the evaporation rate would increase,' said Mr Amador.

'To get any sort of length they need to be bigger than no lashes, but beyond the optimal length they attract more air flow.'

ARE YOUR LASHES TOO SHORT? A DRUG COULD MAKE THEM LONGER

Eye experts have discovered a drug used to treat glaucoma can also boost the growth and prominence of eyelashes.

In a year-long trial, researchers at Southampton General Hospital and St Louis University in the US analysed the effects of a daily application of bimatoprost to the upper eyelid of patients with poor eyelash growth, known as idiopathic hypotrichosis, or eyelash loss as a result of recent chemotherapy.

Conventionally, under the brand name Lumigan, the drug has been used in eye drop form to decrease the amount of fluid in the eye and reduce eye pressure, treating both glaucoma and ocular hypertension.

A total of 368 patients - four men and 364 women - of an average age of 50-years-old took part in the study, which found length in those with idiopathic hypotrichosis increased from 5.69mm to 7.12mm after six months and thickness from 0.79mm² to 1.30mm².



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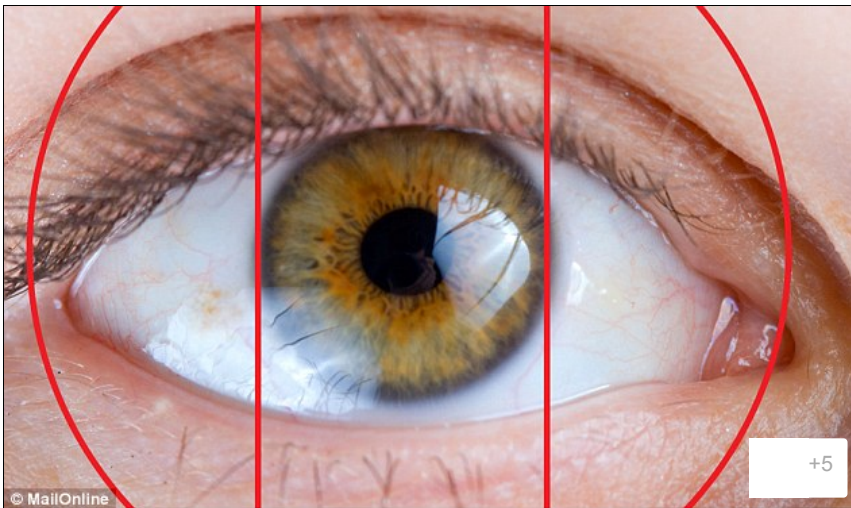


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Celebrities like Katy Perry are known for their long eyelashes, but are they making their eyes dry and dusty in the process? 'We essentially found that there filtering aspect of eyelashes could help reduce the amount of [dust],' PhD student and author of the study Guillermo Amador told MailOnline



In their study they looked at 22 diverse species of mammals, 'from hedgehogs to giraffes,' and found that optimal eyelash length was typically one third an eye's width, as shown in this diagram. The researchers came to the conclusion by testing synthetic eyelashes in wind tunnel experiments

While there is an aesthetic aspect to the research, there is also a less obvious conclusion to come out of it: space exploration.

The researchers say that their studies could help develop cleaning devices for optical sensors and even rovers on other planets.

Specifically, Mr Amador says the research could help clean solar panels on rovers on Mars.

Nasa's Spirit and Opportunity rovers, only the latter of which is still active, were both powered by solar panels.

However, when the Martian winter came along, it brought with it intense dust storms for a few months.

In order to survive these for a few months, the rovers needed to angle themselves towards the sun, to ensure they got as much sunlight as possible and stayed alive if their panels were covered in dust.

If the rover survived, the panels were often cleaned at a later date by the Martian wind.

This is ultimately what led to the demise of the Spirit rover in 2010; when it became stuck in soft soil, it was unable to orientate itself towards the sun and survive the Martian winter.

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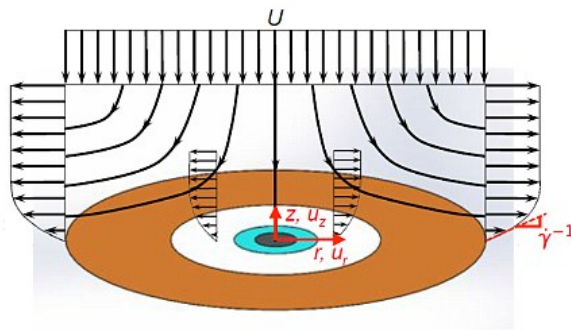


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Incoming flow is normal to eye surface

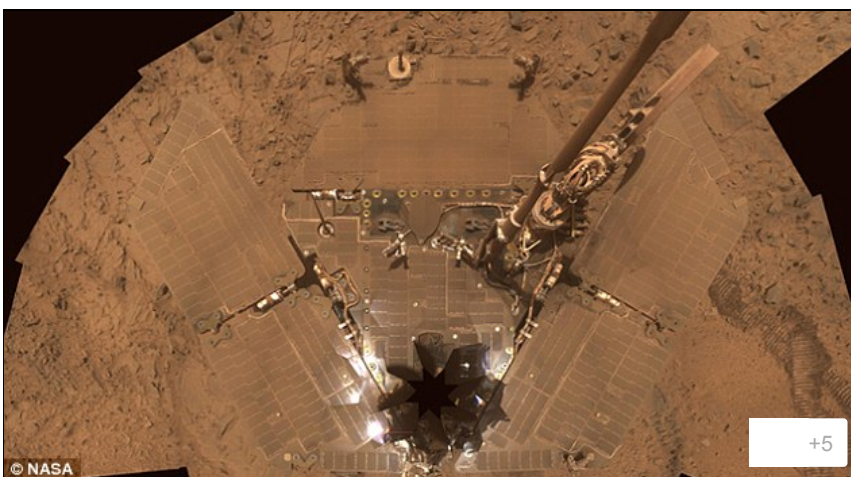


- Air flows with velocity U

© Amador The slope of the velocity gradient is equal to the inverse of the shear rate

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The researchers found that the longer the eyelashes, the more air was directed towards the eye (shown in image). This brought more dust with it, and prevented the eye from staying moist. 'Beyond a certain length, which was about a third of the eye, the evaporation rate would increase,' said Mr Amador



© NASA

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Pictured is the Spirit rover, which in early 2010 succumbed to the Martian weather and ultimately ceased contact with Earth after it became stuck in soil and its solar panels were covered in dust. This new research, however, could apparently help develop cleaning devices for panels on future rovers

Mr Amador and his team, therefore, suggest that their technique could be used to create small meshes on the rover that protect future solar panels from dust.

'Trying to prevent the accumulation of dust on the surface [of the solar panels] would help it function autonomously without it powering down and waiting for Martian winds to remove particles,' he said.

The current Curiosity rover, however, has a plutonium power source, as solar panels were deemed insufficient to power the large car-sized machine on Mars.

But maybe on future smaller rovers, Nasa will consider employing these synthetic eyelashes to keep them operational.

For now, the research is more applicable here on Earth.

Beauty experts take note: don't make your eyelashes longer than a third of your eye width, or it could spell trouble for your sight.

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the GazettE, London, United Kingdom, about a minute ago

That's actually quite interesting, it's common knowledge that eyelashes protect the eye but I was unaware that beyond a certain length the protective effect becomes less efficient - now I feel happier about my less than impressive eyelash length!

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Shirtless Andy Murray



Emma, Somerset, United States, 13 minutes ago

We aging ladies will have dry, dusty eyes as my eyelashes slowly started shrinking in length and number around the age of sixty. I wonder how much money it took for the scientists to figure out what we already knew: lashes protect your eyes from debris.

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