Just five sunburns increase your cancer risk

Behind the Headlines

Tuesday June 3 2014

"Five serious sunburns increase the risk of deadly skin cancer by 80%," The Daily Telegraph reports. A US study has found that sun overexposure during the teenage years significantly increases the risk of developing skin cancer in later life.

Sunburn can cause premature ageing of the skin

The study followed over 110,000 nurses over 20 years, using questionnaires.

It found that women who had five or more blistering sunburns between the ages of 15 and 20, compared to those that had none, were 80% more likely to develop melanoma (the most aggressive form of skin cancer).

Other risk factors included red hair colour, high sunburn reaction as a child/adolescent and sun bed use – all of which were found to be associated with an increased risk of all three types of skin cancer.

An unexpected result was that increased exposure to ultraviolet rays (radiation produced by the sun, as well as sunbeds and lamps) in adulthood was associated with an increased risk of non-melanoma forms of skin cancer (squamous cell carcinoma and basal cell carcinoma), but not melanoma.

However, this does not mean it is relatively safe to have high levels of UV exposure as an adult, as the UV exposure was not accurately measured in this study. Additional factors, such as how much time the women actually spent outside and if they exposed their skin to the sun, were not taken into account.

Skin cancer is one of the most common cancers in the UK, and this study confirms the necessity for taking precautionary measures to stay safe in the sun.

Where did the story come from?

The study was carried out by researchers from Brigham and Women's Hospital and Harvard Medical School, and was funded by the Brigham and Women's Hospital and grants from the National Institutes of Health.

The study was published in the peer-reviewed medical journal Cancer Epidemiology, Biomarkers and Prevention.

In general, the Mail Online covered the story accurately, but one of their headlines was misleading and potentially dangerous. They reported that "UV radiation exposure in later life does not affect melanoma risk". Although the estimated UV exposure as an adult was not associated with melanoma in this study, there were major limitations in how the estimate was made, which was not addressed in the coverage.

Prolonged exposure to UV radiation, at any age, is not recommended. At best, it can cause premature ageing of the skin. At worst, it can increase the risk of developing skin cancer. Though this study only found an association with other non-melanoma types of skin cancer, UV exposure is also a well-established risk factor for melanoma.

The ABCDE of moles

The first sign of a melanoma is often the appearance of a new mole or a change in the appearance of an existing mole.

A good way to tell the difference between a normal mole and a melanoma is to use the ABCDE checklist:

- A stands for asymmetrical – melanomas have two very different halves and are an irregular shape
- B stands for border – unlike a normal mole, melanomas have a notched or ragged border
- C stands for colours – melanomas are a mix of two or more colours
- D stands for diameter – unlike most moles, melanomas are larger than 6mm (1/4 inch) in diameter
- E stands for enlargement or evolution – a mole that changes characteristics and size over time is more likely to be a melanoma

If you are concerned about

Related articles

Teen vapers 'more likely to take up smoking' (November 10 2016)

Common food additives 'linked' to bowel cancer (November 8 2016)

Smoking causes hundreds of genetic mutations (November 7 2016)

Are high-speed cyclists at risk from air pollution? (October 31 2016)

Women now drinking 'almost as much alcohol as men' (October 25 2016)

Useful links

Skin cancer (melanoma)

'I never thought I'd be at risk'

Skin disease forum

Healthy Evidence forum

26 years old man
Hi, I am looking for my healthy 100
1 reply

9efty9 says Hi!
I am a 70 year old male and don't have any particular health issues, like a lot…
5 replies

Toothache - Infection. What remedies work for you?
Hi Everybody, I have been prescribed anti-biotics while I wait for a decision…
3 replies

More from the community

Content provided by HealthUnlocked

How to apply sunscreen

An expert explains why it is important to protect your skin from sunburn to help avoid skin cancer. She also gives advice on how to apply sunscreen correctly and what to look out for when buying sun cream.

Media last reviewed: 03/05/2016
Next review due: 03/05/2018

What kind of research was this?

GP as soon as possible. Read more about the symptoms of melanoma.

This was a cohort study of US nurses over 20 years. The researchers wanted to investigate the relationship between a number of potential risk factors and the likelihood of developing skin cancer.

An observational cohort study is appropriate for looking at the strength of a relationship between exposure and risk of developing a disease, but it cannot prove that the exposure causes the disease.

However, there is a wide body of evidence that suggests prolonged exposure to sunlight increases the risk of skin cancer.

What did the research involve?

The study followed 116,430 US nurses from 1989 to 2009. The researchers used health-related questionnaires every two years to look for associations between factors such as sun exposure, hair colour, lifestyle and development of skin cancer.

The nurses were aged between 25 and 42 at the beginning of the study. The amount of sun exposure they had over the course of the study was measured by "UV [ultraviolet] flux".

There are two main types of UV: ultraviolet A (UVA) and ultraviolet B (UVB).

UV flux is an estimate of the amount of UVB and part of UVA waves that hit the earth's surface, which takes cloud cover into account.

It is calculated for each state in the US using Robertson-Berger meters, which are electronic devices that measure UV radiation. The researchers estimated the amount of UV flux acquired by each woman over the length of the study using their address and accounting for changes of address. At the beginning of the study, the nurses lived in 14 different states; the researchers hoped this would capture different levels of exposure. They were then categorised into low, medium and high exposure.

The questionnaires included other potential risk factors, such as:

- number of moles on the legs
- sunburn reaction as a child/adolescent
- number of blistering sunburns between the ages of 15 and 20
- natural hair colour
- use of sunbeds
- family history of melanoma
- smoking and alcohol intake
- body mass index (BMI) and physical activity levels
- amount of night shifts
- menopausal status

If the women reported that they had squamous cell carcinoma (SCC) or melanoma, their medical records were reviewed to confirm the diagnosis. It was not deemed necessary to validate any report of basal cell carcinoma.

Women were excluded from the statistical analysis if they:

- were not Caucasian
- had any cancer at the beginning of the study
- had missing residence information
- did not report the type of skin cancer

What were the basic results?

Out of the 108,916 women:

- 6,955 developed basal cell carcinoma (BCC)
- 880 developed squamous cell carcinoma (SCC)
- 779 developed melanoma (445 had invasive melanoma, where the cancer has spread below the top outer layer of skin [epidermis]).

Women with a history of five or more blistering sunburns between the ages of 15 and 20, compared to those who had none, had:

- an 80% increased risk of melanoma (Relative Risk [RR] 1.80, 95% Confidence Interval [CI] 1.42 to 2.28)
- a 68% increased risk of SCC (RR 1.68, 95% CI 1.34 to 2.11)
- a 68% increased risk of BCC (RR 1.68, 95% CI 1.55 to 1.82)

Cumulative exposure to UV rays, adjusting for all of the other factors, found:

- no association with exposure to and risk of melanoma
- women in the highest fifth of exposure were more than twice as likely to develop SCC than those in the lowest fifth (RR 2.53, 95% CI 1.11 to 5.77)
- women in the highest fifth of exposure were more than twice as likely to develop BCC than those in the lowest fifth (RR 2.35, 95% CI 1.79 to 3.07)

Other factors that increased the risk of all types of skin cancer were red hair colour and high sunburn reaction as a child/adolescent, as well as sunbed usage. The risk of two or more types of skin cancer was increased by a family history of melanoma, the number of moles on a person's legs and greater alcohol intake.

How did the researchers interpret the results?

They conclude that the "risks of BCC and SCC were associated with sun exposures in both adulthood and early life, whereas melanoma risk was predominantly associated [with] sun exposure in early life. Host factors, including red hair, sun reaction as a child/adolescent and number of blistering sunburns between ages 15 and 20 years of age, were strong predictors of all 3 types of skin cancer".

Conclusion

This study has provided further evidence of the link between skin damage from sun exposure and the increased risk of all types of skin cancer.

Strengths of the study include the large size of the cohort and the fact that over 90% of the women were followed up for the whole 20-year duration of the research.

However, there were several limitations. The accuracy of using UV flux to determine exposure is debatable, as it only captures the level of UV rays that a woman living in that state could be exposed to. It does not measure how much skin exposure a woman has actually had. For example, it did not assess basic factors, such as the amount of time spent outdoors, whether the woman wears clothing or a hat to cover the skin while in the sun, the use of sun cream or the type and frequency of holidays in the sun.

The study only included Caucasian women, so it is unclear how applicable the results are to men and people of other ethnicities.

It was also reliant on accurate self-reporting and recall. Some of the women were 42 when the study started, and they may not have remembered how many times they had blistering of the skin from sunburn 27 years earlier.

Overall, the risk factors that are already known were associated with an increased risk of all three types of skin cancer.

The study also highlights the importance of young people being careful to avoid sunburn as, aside from being highly unpleasant, it could increase the risk of developing skin cancer, both in the short term and in later life.

It should be noted that this study does not change the existing advice for reducing the risk of skin cancer.

Analysis by Bazian. Edited by NHS Choices. Follow Behind the Headlines on Twitter. Join the Healthy Evidence forum.

Analysis by Bazian
Edited by ***NHS Choices***

REVEALED Just FIVE sunburns as a child increases your risk of deadly skin cancer by 80 per cent

It only takes a handful of slip-ups to leave kids more likely to suffer in later life

REVEALED BY ALISON MALONEY | 19th July 2016, 2:57 pm

COMMENT 0W

SUNBURN is painful and uncomfortable and we all know it can cause lasting skin damage.

With the UK basking in glorious sunshine and many of us heading off for summer holidays, the dangers of getting frazzled are at their height.

How many sunburns lead to a bigger risk of cancer?

But just how many times do you have to be sunburnt before your risk of getting skin cancer is significantly increased?

Could one holiday slip-up be condemning kids to a high risk of the deadly disease, or is it more?

Actually, the answer is just FIVE.

A study published recently in The Journal of Cancer Research, in the US, found that five "blistering sunburns" in childhood can increase your risk of developing melanoma, the deadliest form of skin cancer, by 80 PER CENT.

RELATED STORIES

THE SUN | HOME | FOOTBALL | SPORT | TV & SHOWBIZ | LIVING | NEWS | VIDEOS | SUN BINGO | SUN BETS

Dr Natalie Azar told Today: "Sun exposure is dangerous for everybody but people with the highest risk are redheads and those with moles and skin that freckles or burns easily.

"For parents that means they have to be extra careful and protect their kids from sunburn to reduce the risk of melanoma as they grow up."

To keep your kids safe this summer, experts advise avoiding too much sun exposure, always wearing sunscreen and staying in the shade whenever possible, especially when the sun is at its hottest.

Kids should be regularly smothered in sunscreen and kept out of the sun at the hottest times

TOPICS CANCER > HEALTH > HOLIDAYS > SKIN CANCER >

COMMENT

MOST READ IN LIVING

FAST FOOD GETS FASTER McDonald's is going to let you use your phone to pay and order in advance

CHRISTMAS NUMBER ONE People are saying Marks & Spencer's Christmas advert is BETTER than John Lewis'

BETTER CHANCE OF BUYING A DODO Hatchimals SELL OUT as parents flock to buy this year's £60 must-have Christmas toy

TRUMP TRUMPET Terrifying 'apocalypse sound' heard [illegible] is being blamed on Trump's election win

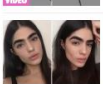
OH BROTHER! Remember Big Brother's Orlaith McAllister? Well she looks even hotter now

'THE BEST SO FAR' Waitrose joins the battle of the Christmas ads and people think it beats John Lewis AND Marks & Spencer

DEAR DEIDRE I left my job but I can't quit sex with my boss... and my boyfriend is talking about marriage

'EVERY GIRL HAS FAKED AN ORGASM' Perrie Edwards and the Little Mix girls talk boyfriends, body image and saucy selfies

ET INVASION FEARS Alien hunters in a frenzy after 'burning UFO' is caught on camera flying over Peruvian capital



EYEBR-WOW Teenager, 17, who was targeted by bullies for her big eyebrows has now landed massive modelling jobs

been having sex with three amazing women but now I can't choose whether to leave lovers or my wife

EYE-CATCHING Do you have superior colour vision? Take this quiz to find out how good your eyesight actually is

THE GREATEST GIFT? Sainsbury's Christmas advert 2016 will pull on your heart strings and it's got a VERY unexpected singer

A WHITE HOUSE CHRISTMAS John Lewis Christmas ad gets a hilarious makeover with Obama and Hillary... and you can probably...

SPONSORED CONTENT by Outbrain

MOST POPULAR

HOT TUB TIME MACHINE Remember Big Brother's Makosi Musambasi? This is what she looks like now...

'WHY ARE YOU EVEN ON THE SHOW?' Xtra