

Could Biting Nails Cause Skin Cancer? Yes, Possibly



By Alex Berezow — September 7, 2018



Credit: Storyblocks [1]

The British tabloids are running wild with the story of a 20-year-old woman who had her thumb amputated because of a rare form of cancer. The cause, we are told, was her incessant nail-biting. Believe it or not, this story very well could be true.

The woman wasn't any run-of-the-mill nail-biter. On the contrary, she had an especially problematic habit. In 2014, after developing anxiety from bullying, [she says](#) [2] she bit off her entire thumb nail. Then, her thumb turned black. A few years later, she developed subungual (under the nail bed) acral lentiginous melanoma (ALM), an extremely rare cancer. Despite attempts to save the thumb, doctors ultimately decided to amputate it in 2018.

Skin cancer isn't usually due to trauma. Typically, skin cancer -- be it basal cell carcinoma, squamous cell carcinoma, or the dreaded melanoma -- is caused by exposure to UV light. However, ALM is [not related to sun exposure](#) [3]. Instead, while the true etiology remains unknown, some research suggests that trauma could play a role.

According to a 2009 [paper](#) [4] in *JAMA*, ALM is more common on the soles of the feet rather than the palms of the hands. This led to the hypothesis that trauma -- such as scrapes, punctures, or bruises -- may trigger ALM. Arguably, however, the hands are exposed to much more trauma than the feet. Additionally, when members of African tribes began to wear shoes, there was no decrease in ALM. So, the trauma hypothesis is interesting and biologically plausible but unproven.

If I Bite My Nails, Will I Get Skin Cancer?

Almost certainly not. Most people who bite their nails gnaw away at the tip of the nail, which is a specialized version of the outermost layer of our skin (called the stratum corneum). This skin layer consists entirely of dead cells (stuffed full with a protein called keratin). Dead cells are dead and

cannot become cancerous, so anxious people can chew away.

Unfortunately, the woman in this story chewed off her entire nail. That means she damaged the nail matrix -- the region at the bottom of the nail -- which contains stem cells that generate the nail cells. As it so happens, [ALM arises from the nail matrix](#) [5].

So, while most nail-biters need not worry, this woman's rare cancer may very well be due to her extensive nail destruction. The British tabloids got one right, for a change.

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[1] https://www.storyblocks.com/stock-image/filing-fingernails-to-keep-beautiful-bd_wjfsmuwj6gnlhx6

[2] <http://www.dailymail.co.uk/health/article-6137965/Student-thumb-AMPUTATED-developing-form-skin-cancer-biting-nails.html>

[3] <https://www.medicalnewstoday.com/articles/320223.php>

[4] <https://jamanetwork.com/journals/jamadermatology/fullarticle/712002>

[5] <https://www.medicalnewstoday.com/articles/319100.php>