

Stickers and wristbands aren't a reliable way to prevent mosquito bites

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Credit: Jimmy Chan from Pexels

Protecting yourself and family from mosquito bites can be challenging, especially in this hot and humid weather. Protests from young children and fears about topical insect repellents drive some to try alternatives

such as wristbands, patches and stickers.

These [products](#) are sold online as well as in supermarkets, pharmacies and camping stores. They're often marketed as providing "natural" protection from mosquitoes.

But unfortunately, they aren't a reliable way to prevent mosquito bites. Here's why—and what you can try instead.

Why is preventing mosquito bites important?

Mosquitoes can spread pathogens that make us sick. Japanese encephalitis and Murray Valley encephalitis viruses can have potentially fatal outcomes. While [Ross River](#) virus won't kill you, it can cause potentially debilitating illnesses.

Health authorities [recommend](#) preventing mosquito bites by: avoiding areas and times of the day when mosquitoes are most active; covering up with long sleeved shirts, long pants, and covered shoes; and applying a topical insect [repellent](#) (a cream, lotion, or spray).

I don't want to put sticky and smelly repellents on my skin!

While for many people, the "sting" of a [biting mosquitoes is enough to prompt a dose of repellent](#), others are [reluctant](#). Some [are deterred](#) by the unpleasant feel or smell of insect repellents. Others believe topical repellents contain chemicals that are dangerous to our health.

However, many studies have shown that, when used as recommended, these products [are safe to use](#). All products marketed as mosquito repellents in Australia must be registered by the [Australian Pesticides](#)

[and Veterinary Medicines Authority](#); a process that provides recommendations for [safe use](#).

How do topical repellents work?

While there remains some uncertainty about how the [chemicals in topical insect repellents actually work](#), they appear to either block the sensory organs of mosquitoes that drive them to bite, or overpower the smells of our skin that helps mosquitoes find us.

Diethyltoluamide (DEET) is a [widely recommended ingredient](#) in topical repellents. Picaridin and oil of lemon eucalyptus [are also used](#) and have been shown to be effective and safe.

How do other products work?

"Physical" insect-repelling products, such as wristbands, coils and candles, often contain a botanically derived chemical and are often marketed as being an alternative to DEET.

However, studies have shown that devices such as candles [containing citronella oil](#) provide lower mosquito-bite prevention than topical repellents.

A [laboratory study in 2011](#) found wristbands infused with peppermint oil failed to provide full protection from mosquito bites.

Even as topical repellent formulations applied to the skin, these botanically derived products have [lower mosquito bite protection](#) than recommended products such as those containing [DEET, picaridin and oil of lemon eucalyptus](#).

Wristbands infused with DEET have shown mixed results but may provide some [bite protection](#) or [bite reduction](#). DEET-based wristbands or patches are not currently available in Australia.

There is also a range of mosquito repellent coils, sticks, and other devices that release insecticides (for example, pyrethroids). These chemicals are primarily designed to kill or "knock down" mosquitoes rather than to simply keep them from biting us.

What about stickers and patches?

Although insect repellent patches and stickers have been available for many years, there has been a sudden surge in their marketing through social media. But there are very few scientific studies testing their efficacy.

Our current understanding of the way insect repellents work would suggest these small stickers and patches offer little protection from mosquito bites.

At best, they may [reduce some bites](#) in the way mosquito coils containing botanical products work. However, the passive release of chemicals from the patches and stickers is likely to be substantially lower than those from mosquito coils and [other devices actively releasing chemicals](#).

One [study in 2013](#) found a sticker infused with oil of lemon eucalyptus "did not provide significant protection to volunteers".

Clothing impregnated with insecticides, such as permethrin, will assist in reducing mosquito bites but topical insect repellents are still recommended for exposed areas of skin.

Take care when using these products

The idea you can apply a sticker or patch to your clothing to protect you from [mosquito bites](#) may sound appealing, but these devices provide a false sense of security. There is no evidence they are an equally effective alternative to the topical repellents recommended by [health authorities](#) around the world. It only takes one bite from a mosquito to transmit the pathogens that result in serious disease.

It is also worth noting that there are some health warnings and recommendations for their use [required by Australian Pesticides and Veterinary Medicines Authority](#). Some of these products warn against application to the skin (recommending application to clothing only) and to keep products "out of reach of children". This is a challenge if attached to [young children's](#) clothing.

Similar warnings are associated with most other topical and non-topical mosquito repellents. Always check the labels of these products for safe use recommendations.

Are there any other practical alternatives?

Topical insect repellents are safe and effective. Most can be used on children from 12 months of age and pose no health risks. Make sure you apply the repellent as a thin even coat on all exposed areas of skin.

But you don't need "tropical strength" repellents for short periods of time outdoors; a range of formulations with lower concentrations of repellent will work well for shorter trips outdoors. There are some repellents that don't smell as strong (for example, children's formulations, odorless formulations) or formulations that may be more pleasant to use (for example, pump pack sprays).

Finally, you can always cover up. Loose-fitting long-sleeved shirts, long pants, and covered shoes will provide a [physical barrier](#) between you and [mosquitoes](#) on the hunt for your or your family's blood this summer.

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