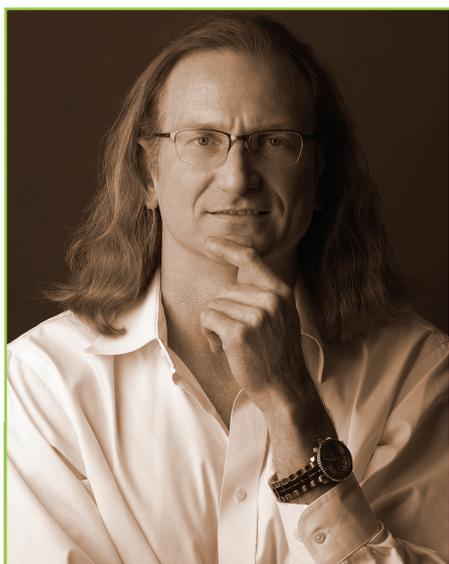


# THE SCI-FILES



## DOUG SCHOON

Doug Schoon is an internationally recognised scientist, author and educator with over 30 years' experience in the cosmetic, beauty and personal care industry. He is a leading industry authority known for his technical and regulatory work and is co-chair of the *Nail Manufacturers Council (NMC)*.

Doug was CND™'s chief scientist and head of the R&D laboratory, QA, and field testing/evaluation departments for almost 20 years and has authored several books, video and audio training programmes, as well as magazine articles about salon products, safety, and practices for salon professionals.

In 1986, Schoon founded *Chemical Awareness Training Service (CATS)* – the beauty industry's first safety training company. This was followed by his book, *Nail Structure & Product Chemistry*, 1st and 2nd edition, which has become essential reading for nail professionals, with a new edition out soon. He runs *Face-to-Face with Doug Schoon*, an internet learning series that focuses on nails, nail products and services, and has taken this format to paper with the release of two books.

[www.schoonscientific.com](http://www.schoonscientific.com)

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Watch Doug's internet series on nails, nail products and services at [www.faceoffacewithdougshoon.com](http://www.faceoffacewithdougshoon.com)

Globally renowned scientist and nail expert, **DOUG SCHOON**, explores the ideas and concerns surrounding nails, techniques and products

## TACKLING TERMINOLOGY

**N**ail anatomy terminology is very confused, and some doctors and scientists aren't even sure which terms apply to the various parts of the natural nail. There is a lot of misinformation, so it can be very difficult to know the facts, but the facts are what we need.

Many of us have been working behind-the-scenes to address this issue. I've been consulting with many of the top nail educators in the world, as well as with world-class scientists, dermatologists, podiatrists and pathologists. To get the ball rolling, I created the original version of the below drawing and based it on a strict interpretation of the medical definitions. I shared this version with many people and listened to many different opinions, but I was looking for hard facts and would accept nothing less. Eventually, I was directed to conclusive evidence that finally settles a long-standing debate about the eponychium, cuticle and proximal nail fold.

### The latest facts

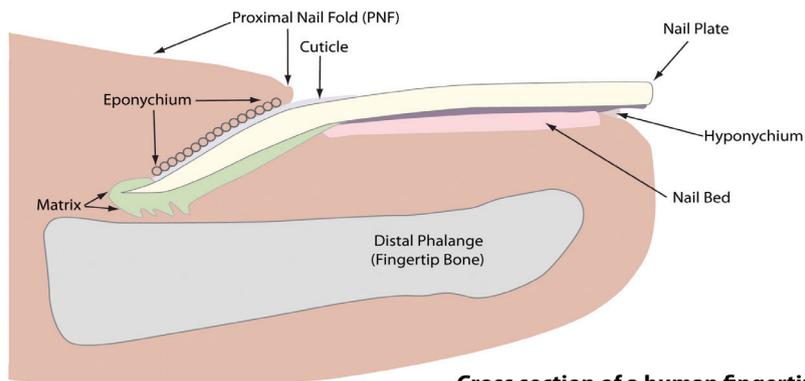
The eponychium is defined in medical literature as the skin that covers the nail matrix and is responsible for development of the cuticle tissue that adheres to the top of the nail plate. The proximal nail fold is defined as the fold of skin at the base of the nail plate. That much is clear, but disagreement arose over the question, "Where does one end and the other begin?"

Researchers have definitively answered this question by isolating and identifying the cuticle forming area – and what they discovered is surprising.

They found that the eponychium is a much thinner layer of tissue than suspected, at approximately 0.1-0.15 mm thick or about 0.004-0.006 inches thick! It's amazing that all of the nail's cuticle tissue comes from this thin layer of cells. How does it accomplish this difficult feat? The prevailing thought is that the eponychium must be comprised of specialist cells called 'adult stem cells'. These are the same type of stem cells thought to form the nail matrix and produce nail plate cells. Research is underway to conclusively verify that both the eponychium and nail matrix are composed of adult stem cells. These types of cells behave like factories to produce nail plates and cuticles.

One insightful description I heard was that the proximal nail fold shouldn't be viewed as 'fold', but instead as a 'flap' of skin that covers the matrix area with its underside thinly covered by the eponychium, which paints a very good picture.

So, to recap, the eponychium creates and releases the cuticle, which is the thin layer of dead tissue that will ride the nail plate and form a seal that prevents pathogens from entering and infecting the matrix area. Don't confuse the cuticle tissue with the eponychium or the proximal nail fold. Each is quite different, and that difference is important to recognise and understand.



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**Cross section of a human fingertip**  
(Rev. 2)