

Why thick skin develops on palms and soles, and its links to cancer

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Scientists from Queen Mary University of London have discovered that foot callouses/keratoderma (thickened skin) can be linked to cancer of the oesophagus (gullet), a disease which affects more than 8000 people in the UK each year.

An inherited form of [oesophageal cancer](#), called 'Tylosis', causes thickening of the palms and soles that is so severe that patients sometimes have to shave off piles of hard skin with a razor.

The gene causing the disease, iRHOM2, was found to play an important role in the thickness of the skin of the palms and soles by controlling Keratin, the most abundant component of the skin.

The researchers found that mice with iRHOM2 genes that were knocked out had abnormally thin paw skin, while humans with increased iRHOM2 had thickened palms and soles with callouses, and intriguingly these patients also develop oesophageal cancer.

The research, published in *Nature Communications*, could lead to a new target in the treatment of oesophageal cancer and insights into skin conditions such as psoriasis and skin cancer. It also at last explains why the skin on our [palms](#) and soles is much thicker than the [skin](#) on other parts of our bodies and so uniquely adapted to withstand [high pressure](#) and physical stress.

More information: Thiviyani Maruthappu et al. Rhomboid family member 2 regulates cytoskeletal stress-associated Keratin 16, *Nature Communications* (2017). DOI: [10.1038/ncomms14174](https://doi.org/10.1038/ncomms14174)

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