UV light absorbtion drove benefit of light skin mutations in human evolution

The popular idea that Northern Europeans developed light skin to absorb more UV light so they could make more vitamin D – vital for healthy bones and immune function – is questioned by UC San Francisco researchers in a new study published online in the journal Evolutionary Biology.

Ramping up the skin's capacity to capture UV light to make vitamin D is indeed important, according to a team led by Peter Elias, MD, a UCSF professor of dermatology.

Elias' team concluded that genetic mutations compromising the skin's ability to serve as a barrier allowed fair-skinned Northern Europeans to populate latitudes where too little ultraviolet B (UVB) light for vitamin D production penetrates the atmosphere.

Among scientists studying human evolution, it has been almost universally assumed that the need to make more vitamin D at Northern latitudes drove genetic mutations that reduce production of the pigment melanin, the main determinant of skin tone, according to Elias.

In their new study, the researchers identified a strikingly higher prevalence of inborn mutations in the filaggrin gene among Northern European populations. Up to 10 percent of normal individuals carried mutations in the filaggrin gene in these northern nations, in contrast to much lower mutation rates in southern European, Asian and African populations.

Read the full, original story: In human evolution, changes in skin's barrier set northern Europeans apart