

How people work... and the mystery of your fingerprints

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Why do we chew our food? Research has shown that it is not, as has long been presumed, to make chunks of food small enough to swallow without choking. Biomechanics, who have modelled the cohesive strength of food after a certain amount of chewing, have shown that we actually chew our food to ensure it is in a firm blob and, therefore, safe to swallow.

Writing in January's [Physics World](#), Dr Roland Ennos, a biomechanic in the Faculty of Life Sciences at University of Manchester, explains how we need to look beyond obvious answers if we are to understand how our own bodies work.

Explaining why we swing our arms, why we have notched teeth, why our [fingernails](#) always break in the same direction, and, still puzzling, why

we have fingerprints, Dr Ennos shows how rich the boundary between biology and physics is in, some counter-intuitive but, potentially significant discoveries.

On the fingerprint puzzle, we know that fingerprints are useful to identify people for security and crime detection, but no scientist has ever suggested that fingerprints evolved specifically for this purpose. It has been thought that fingerprints help us to grip more tightly to objects, but tests show that a rough surface does not actually increase the friction of soft materials such as skin.

Fingerprint friction is therefore a mystery that has left Dr Ennos's team testing a number of options - it could be that [fingerprints](#) act like the treads on tyres, removing water and so increasing [friction](#) under wet conditions. Another possibility is that prints also make the skin more flexible and stop it blistering.

As Dr Ennos writes, "The answers to these questions may appear obvious or even trivial, but further thought and experiment is revealing that our world is far more fascinating than we could have dreamed."

What's more, this sort of research, unlike many areas of physics, is not expensive or mathematically hard. "All you need is an enquiring mind, a bit of ingenuity and the courage to ask awkward questions," concludes Dr Ennos.

Provided by Institute of Physics

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