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News Release

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Emu eggs may hold clues to causes of birth defects, scientists say

Eggs from emus and chickens are helping scientists to understand how genes can go wrong and cause birth defects.

Researchers at the University of Edinburgh's Roslin Institute are using the eggs to investigate how genes control the way our bodies grow and develop. Their findings could even hold clues about the causes of cancer.

The team will be showcasing their research at the Easter Bush Campus Open Day as part of the Midlothian Science Festival.

The researchers have found that the genetic mutations responsible for causing extra fingers to form in chickens are similar to those found in people. Having extra digits is called polydactyly and it is the most common defect that babies are born with.

They have discovered that one gene, called Sonic Hedgehog, is key to ensuring that our fingers and toes develop in the right place. The mechanism works the same way in all animals with fingers and toes, including birds.

By looking at naturally occurring chicken mutants that have too many fingers and toes, scientists can work out how the gene is controlled and what happens when it goes wrong.

The team also use emus, which have just one finger. They have found that this is because they have very little of the Sonic Hedgehog gene switched on during development.

Sonic Hedgehog has also been linked to some types of cancer. Understanding how it is controlled could hold clues to new treatments.

Dr Megan Davey, of The Roslin Institute, said: "Chicken eggs have been used for years to investigate how embryos grow because they develop outside of the mother so it is easy to see what is going on. Rather than putting all our eggs in one basket, studying different types of birds gives us a deeper understanding of how our genes build bodies."

The Easter Bush Campus Open Day is on Saturday 4 October.

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