

Picking the pig with the perfect pins

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Move over Elle Macpherson – the search is now on for the pig with the best legs as part of a new research project to improve the health and welfare of pigs on farms across the UK.

The study, being led by Newcastle University, UK, was set up to see if we can predict from an early age whether a pig is at risk of becoming lame, simply by analysing the way it walks.

Using video motion capture – a technique similar to that used in animation for Hollywood blockbusters such as Avatar and Lord of the Rings – the team measured changes in the pigs' gait, focussing on the angle of the joints and length of stride.

By assessing what constitutes 'normal' gait in pigs, the team reveals how the system could be used to reduce lameness, improving health and welfare on farms, reducing costs and improving sustainability.

Presenting the findings at the 22nd International Pig Veterinary Society Congress in Korea, Sophia Stavrakakis, who carried out the research as part of her PhD, said that for a pig, a great set of legs isn't just about looking good.

"Lameness among livestock is a major problem for farmers," says Sophia, whose project brings together experts in pig science and bioengineering at Newcastle University.

"Female breeding pigs are particularly prone to leg problems and this

makes it costly for farmers when an animal becomes lame because of the time and money invested in the breeding stock.

"Using biomechanical motion capture we are able to measure the animals' gait – tracking a number of animals to find the right angulation and locomotion. Through this we hope to be able to develop a farmer-friendly system that will allow them to identify those pigs with better legs, a trait that can be passed on to subsequent generations."

Lameness is a key welfare indicator in all livestock and the second most common reason for sows having to leave the breeding herd.

Unfortunately, if the animal fails to respond to treatment, the problem results in the animal having to be euthanised.

As part of the study, the pigs were trained to walk along a runway by Mark Brett, Animal Technician at the University and former zoo keeper now based at the University's Cockle Park Farm.

Once the pigs had learned to walk at the right speed, the team attached reflective markers at key points on their legs and used motion capture cameras to track their movement and identify those parameters which can indicate a good pig. The results provide an initial benchmark against which other pigs can be assessed.

"Making sure the [pigs](#) all walked at the same pace was crucial because otherwise you can't accurately compare leg movement and angles," explains Dr Jonathan Guy, a Lecturer in Animal Science and project supervisor.

Newcastle University is the UK's leading research centre in pig welfare and husbandry.

Although the current work uses sophisticated equipment and capture techniques, Sophia, 27, said the aim will be to adapt the system so it could be used on farms to improve pig welfare.

"The work is still in its early stages but the aim is to use our research to make a real difference to both pig farmers and their animals," explains Sophia, who carried out her first degree in Veterinary Medicine at the University of Thessaly in Greece.

"Using CCTV style cameras placed strategically on the farm so that every pig walks past and is captured on camera would be a simple, non-invasive way of collating key data about each pig and identifying those animals which are least likely to suffer problems in the future."

Provided by Newcastle University

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