The clock is ticking: New method reveals exact time of death after 10 days

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A new method for calculating the exact time of death, even after as much as 10 days, has been developed by a group of researchers at the University of Salzburg.

Currently, there are no reliable ways to determine the time since death after approximately 36 hours. Initial results suggest that this method can be applied in forensics to estimate the time elapsed since death in humans.

By observing how muscle proteins and enzymes degrade in pigs, scientists at the University of Salzburg have developed a new way of estimating time since death that functions up to at least 240 hours after death.

During the course of the study, they found that some of the proteins analysed (e.g. tropomyosin and actinin) showed no form of degradation until after 240 hours. "It is highly likely that all muscle proteins undergo detectable changes at a certain point in time, and this would extend the currently analysed timeframe even further," says Dr Peter Steinbacher, who is leading the research. .

Specific degradation products of proteins appear at a specific time after death. By studying the timing of their appearance, the researchers were able to calculate time since death.

The researchers have already started running experiments on human

samples and initial results are promising: "We were able to detect similar changes and exactly the same degradation products in human muscle tissue as we had in our pig study", says Steinbacher.

The use of muscle tissue in post-mortem studies is a novel approach which presents several advantages: first, muscle tissue is the most abundant tissue of the human body and can therefore be sampled easily. Secondly, proteins in muscle tissue are well known. Thirdly, this method is simple and can deliver results within a day.

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