Preventing adverse drug reactions in dogs

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If not identified before surgery, a rare genetic mutation could result in dogs being exposed to dangerously high levels of anaesthetic agents, US researchers have found.

Scientists at Washington State University's College of Veterinary Medicine initially discovered the mutation in greyhounds and more recently in other common dog breeds—and published their findings in *Scientific Reports*.

For years, veterinarians have known that some greyhounds struggle to break down certain drugs, which results in potentially life-threatening and prolonged recovery periods following anaesthesia.

The previously unknown genetic mutation that the WSU researchers uncovered in greyhounds causes less of CYP2B11, the enzyme that breaks down these drugs, to be made.

Not surprisingly, the mutation was also found in several other dog breeds that are closely related to the greyhound including borzoi, Italian greyhound, whippet, and Scottish deerhound.

However, when the research team extended their survey to more than 60 other breeds, using donated samples from the WSU Veterinary Teaching Hospital DNA Bank, they were surprised by what they found.

According to the study, some popular dog breeds, including golden retrievers and labrador retrievers, may also struggle to break down the commonly used anaesthetics, midazolam, ketamine, and propofol.

"We started with a condition we thought was specific to greyhounds and affected a relatively small number of dogs," Stephanie Martinez said.

“It now appears that there could be a lot more dogs affected by this mutation—dogs from breeds that we wouldn’t have expected.”