

The Role of Animals in COVID Times

Since the start of the COVID-19 pandemic, animals have been very present in the media. The reason is that animals play an essential role in our world, and while this often goes unnoticed, in tough times, the importance of animals becomes even more visible.

A few examples are outlined below. Animals have been related to the very origin of the disease, we have seen a huge increase in the demand for animal-sourced foods, and there are also articles highlighting the possibility of some of them being carriers of the virus. We have also read about the physical and psychological consequences that this lockdown may have on our pets.

First of all, let's start with the recent news that points out that some animals could carry the virus. You might have seen the news that a tiger tested positive in a zoo in New York.

A recent study released recently in China proves that dogs, pigs and poultry (chicken and ducks) are not infected by the virus. They can carry the pathogen as much as any inanimate object such as a door knob or an elevator button, but – and this is very important – the virus does NOT multiply in these species. Conversely, it seems that COVID-19 does multiply and infect cats and ferrets BUT, the doses used in this study are much higher than those to which animals would be exposed in natural conditions.

Another study, also recently released in China, describes the impact of the epidemics in 102 cats found in Wuhan – the very epicentre of the current pandemic – once the disease was over. Of all 102 cats, 15 tested positive and had antibodies against the virus. The cats' antibody response was quite feeble, except for three cats which had been living with people who had tested positive for COVID-19. This makes the experts think that they got the infection from their owners. The other cats were either stray animals or came from shelters. Although no information is available as to the source of their infection, experts believe that the people who fed them could have been the origin. Now, this point is really important; although the cats had antibodies, the swabs taken from their throat and rectum didn't show any presence of the virus.

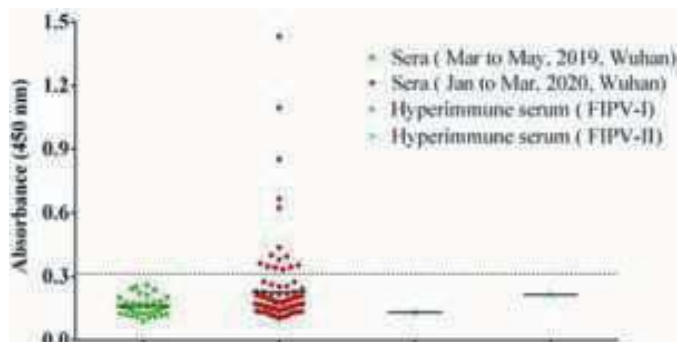


Fig 1: Level of antibodies in cats pre- and post-pandemic in Wuhan

This absence of viral genetic material can be explained by one of these factors:

- The virus does not replicate enough in cats so that the total amount of viral RNA is too small to be detected

- The time of virus shedding is extremely short
- Some factors in the cat's DNA don't allow the diagnostic test to perform properly

Again, no virus material was recovered from 102 cats from the very centre of the origin of the pandemic. So with this information, we can conclude that it is unlikely that cats transmit the disease to humans, although it has been proven that they can transmit the disease amongst themselves in certain conditions.

As for the infected tiger in New York, we know that she had mild symptoms and that her handler tested positive for COVID-19. Again, here the animals have been the victim of the infected human.

So, in summary, with the information we have available, all evidence points to cats being susceptible to the infection; they may develop mild symptoms but it seems unlikely that they could be a source of infection to their owners.

To reinforce the points above, this is the position of the OIE (World Organization for Animal Health):

The current spread of COVID-19 is a result of human-to-human transmission. To date, there is no evidence that companion animals have spread the disease. Therefore, there is no justification in taking measures against companion animals which may compromise their welfare.

Some examples of animal infections have been reported to the OIE. Further details on these events can be found in the 'more information' section. So far, these appear to be isolated cases, and there is no evidence that dogs or cats are playing a role in the spread of this human disease. Further studies are underway to understand if and how different animals could be affected by COVID-19 virus.

It is good news that animals cannot infect us, but it's also very important to note that we cannot infect farm animals. It may seem not relevant but it is essential because if we could infect farm animals, all the food chain would be at risk, as livestock is often in contact with handlers, vets, etc. This would make animal-sourced products less available. Fortunately, this is not the case and as this pandemic has proven, the need for eggs, milk and meat has increased significantly. This increase has proven how relevant animal products are in our nutrition and how, in difficult times, we resort to them and store significant amounts of what we consider really important.

But there are other aspects in which animals help us at these times during lockdown. Pets are with us, and their companionship is now probably more valuable than ever. But confinement is not easy for them. As we are at home all day long, our pets could become used to this situation. Once it changes, and we leave home for work, some of our friends may develop some anxiety. In order to avoid it, some experts advise leaving the dog alone in a room for some hours every day during the lockdown, so that they will get used to being on their own, especially once our lives go back to normal.

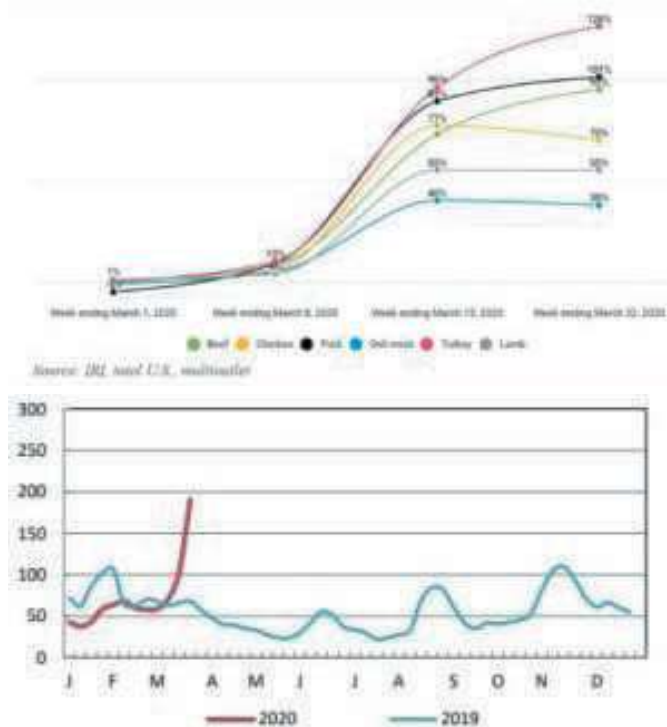


Fig 3 & 4: On the left, increase in demand for different types of meat in the US at the start of the pandemic. On the right, evolution of eggs price

It is also important to keep the times and routines of our friends as normal as possible, whether that be meals or walking times etc. This provides our dog or cat with some structure. They can very quickly adopt new habits – especially those they like (such as being with us for long periods of time) – but we must be aware that this is going to change and get ready for that moment.

Long hours at home, especially in small apartments, could be tough for pets too. A good practice would be to stimulate them mentally. As an example, you can hide a treat in a box and mix the box with many others. Games like this could be entertaining for everybody and keep your pet motivated and active.

Besides, it is important to keep our friend in good health, have his/her food available, medicines and be virtually connected with our vet.

Another important point, in case you live on your own with your pet, is to plan with whom you will leave your pet with if you fall sick. It is your responsibility to plan ahead.

There's been a lot of scientific reports published on the origin of the virus that causes COVID-19. Bats and pangolins have been considered by some as the most likely sources of the pandemic. However, as of today, this has not been proven. This is what the OIE says about this in particular:

The predominant route of transmission of COVID-19 is from human to human. Current evidence suggests that the COVID-19 virus emerged from an animal source. Investigations are underway to find that source (including species involved) and establish the potential role of an animal reservoir in this disease. However, to date, there is not enough scientific evidence to identify the source or to explain the original route of transmission from an animal source to humans. Genetic sequence data reveals that the COVID-19 virus is a close relative of other CoV found circulating in Rhinolophus bat (Horseshoe Bat) populations.

There is the possibility that transmission to humans involved an intermediate host.

So, it is likely that the virus comes from animal species, but this has not yet been 100% proven.

One more contribution of pets to control COVID-19 is brought by dogs who are trained to smell the disease. With the right training, dogs can detect metabolites in infected people that can be used as a diagnostic. In fact, the Medical Detection Dog, an organisation specialising in this type of training, does exactly this, by preparing dogs to detect positives in samples taken from people suffering from different conditions.

COVID-19 will pass and whatever the final solution is, either a vaccine or a drug, it will be brought to us thanks to trials conducted on animals. Our society depends on them in many, many aspects. I hope this article has been useful to make their contribution a little better known.

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passion for animals and the importance that they have in our society. Often this relevance is not well understood by people who are not in close contact with them and that's why Juan writes articles to make animals better known and understood. Currently, Juan is based in France. Mr. Pascual is married, has four children and he enjoys reading, traveling, writing on science blogs and Twitter.