



Winter Newsletter



“The color of springtime is flowers; the color of winter is in our imagination.” *Terri Guillemets*

There is something magical about wintertime. Out of the four seasons winter is the most mesmerizing one. It is a time to relish in the beauty and tranquility of this time of the year. Winter is caused by the axis of the Earth in that hemisphere being oriented away from the Sun. When it is winter in the Northern Hemisphere, it is summer in the Southern Hemisphere, and vice versa. The moment of winter solstice is when the Sun's elevation with respect to the North or South Pole is at its most negative value (meaning, the Sun is at its farthest below the horizon as measured from the pole). The day winter solstice occurs has the shortest day and the longest night, with day length increasing and night length decreasing as the season progresses after the solstice. Winter is the coldest season of the year in polar and temperate zones and different cultures define different dates as the start of winter, some simply use a definition based on weather.

In this newsletter, EndFIP® provides an overview of Feline Infectious Peritonitis as well as tips for protecting your cat this winter season.

Feline Infectious Peritonitis

American veterinarian Jean Holzworth at Cornell University in 1963 first described a peritonitis in cats which caused the abdominal cavity to fill up with fluid. The condition appeared to be infectious, hence the name Feline Infectious Peritonitis (FIP). In 1970, J.M Ward identified a virus similar to known coronaviruses as the pathogen causing the disease.

Feline Infectious Peritonitis (FIP) is an almost always fatal infectious inflammatory disease of cats. As the name suggest, an infectious agent, feline coronavirus (FCoV), is involved in the disease. To be clear, **FIP** is a progressive **disease** which is caused by **FCoV (virus)**. The disease (FIP) is **NOT** contagious whilst FCoV infection is widespread in the feline population.

The majority of FCoV infections cause only mild-enteritis, the infected cat suffers no long-term disease and eventually eliminates the virus. In a very small number of cases, the infected cat continues to shed FCoV in feces for a prolonged period, becoming a virus carrier. FIP occurs in 5% - 10% of the FCoV infected cat population and exists mainly in two forms, a “**wet**” form where effusion is observed (ascitic, thoracic or pericardial) and a “**dry**” form where there is no effusion present but acute vasculitis is observed and granulomatous lesions may occur on various organs, leading to additional clinical signs.

Since first being discovered, FIP has been one of the most studied feline diseases and yet, it remains one of the most enigmatic viral diseases of the cat. In addition, its underlying cause, the vile feline coronavirus (FCoV), is undoubtedly one of the most poorly understood feline viruses.



A word about Feline Coronavirus (FCoV)



Feline coronavirus was discovered by J.M Ward in 1970. The virus is enveloped and contains a single-strand positive-sense RNA. The name coronavirus comes from the shape of the structure which resembles a crown (corona in Latin) when viewed under an electron microscope. The virus (crown) spikes are what attach it to the cell when it infects a cat.

FCoV belongs to the Coronaviridae family, sub-family Coronavirinae, genus Alphacoronavirus, species alphacoronavirus 1. FCoV contains the largest known viral non-segmented RNA genome. It has an enveloped virion which is composed of four major viral proteins: spike, envelope, membrane and nucleocapsid

The virus may be genetically classified into two genotypes of FCoV (**FCoV I and FCoV II**) both genotypes have the ability to cause FIP. **FCoV I** genotype has been estimated to be responsible for approximately 80% to 95% of FCoV infections in the field.

Coronaviruses in general are ubiquitous in the environment. You may recognize the names SARS (Severe Acute


Respiratory Syndrome) and MERS (Middle Eastern Respiratory Syndrome), both diseases are caused by coronaviruses. Both are believed to have originated from bat coronavirus reservoirs and are thought to have jumped species to humans, possibly via the Asian Palm Civet (*Paradoxurus Hermaphroditus*) a mammal that resides in the Southeast Asian tropical rainforest, as an intermediate host.

Very important to keep in mind: **FCoV does NOT infect humans.** Commonly coronaviruses are host specific, only infecting closely related species. FCoV is genetically similar to the canine coronavirus and it has been postulated that **FCoV II** originated from a double recombination event involving FCoV I and canine coronavirus I.

In lay terms, FCoV is a virus of the gastrointestinal tract. Most infections are either asymptomatic, or cause diarrhea/mild intestinal upset, especially in kittens as maternally derived antibodies wanes at between 5 and 7 weeks of age. Feline coronavirus (FCoV) is endemic globally and perhaps you are wondering why some cats developed FIP whilst the vast majority of FCoV infected cats thankfully don't.

The pathogenesis (development of a disease) of FIP is complicated: the reductionist view is that it is entirely due to mutation of the virus. Whilst this internal mutation theory is the most widely accepted, no consistent mutation has been identified. The holistic approach is that FIP occurs as a result of a number of factors, including viral load, the immune status and general health of the cat.

Most cats infected with FCoV – DO NOT develop FIP!

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- 🐾 The presence of FCoV antibodies indicates **ONLY** that the cat has been infected with FCoV.
 - 🐾 The presence of FCoV antibodies does **NOT** mean that the cat has FIP **nor** that for certain the cat will develop FIP
 - 🐾 About 70% of FCoV infection is transient
 - 🐾 About 13% of FCoV infection is persistent, meaning these cats are chronically infected
 - 🐾 Unfortunately, an estimated **5% - 10%** of infected cats at one point in their lives will develop FIP
 - 🐾 About 1% - 3% of cats are resistant to feline coronavirus

Protecting Your Cat This Winter

In the winter months, cold and wet weather can have adverse and potentially serious effects in cats. It is of utmost importance for cats to stay dry. If they become wet, they will need a shelter to dry off to prevent hypothermia or freezing.



It is worth to note that domestic cats suffer more from cold weather conditions than feral cats, because most don't live strictly outdoors where they can develop a winter coat in the fall. In general, feral cats are able to tolerate cold temperatures and do just as well as any other wild animal. They will find any and all nearby food sources. Feral cats will search out warm dry shelter and will also huddle together in a small place, their combined body heat easily raises the temperature inside the shelter. If you are in a position to do so, providing shelter, along with feeding feral cats, will greatly reduce any winter hardships and help to keep these homeless cats healthy.

If your cat is allowed outdoors, or if you are caring for a colony of feral cats in the winter months, providing shelter is even more important than providing food. Some people believe that if a cat was raised outdoors, he/she will form a resilience to the cold. Sadly, this is not true, these cats can still freeze in extreme cold temperatures.

Below are a few tips for caring for cats during the winter season.

Adjust the cat's diet

Indoor cats who are allowed outdoors should be given more lean proteins to account for their increased activity in the cold. Feral cats will need a boost in calories during the winter months. If your cat suffers from dry skin (flaky and itchy) you can add a small amount of olive oil to the food as long as it does not upset his/her stomach.

Keep an eye on outdoor water bowls

It is important to continually check outdoor water bowls as they will often freeze in the winter. Cats not able to drink from a water bowl, might drink from gutters and puddles, where they risk the chance of coming into contact with antifreeze, oil, and other harmful chemicals. It is recommended to use thick, plastic containers to hold the water to slow the freezing process and if feasible, you can also use electric water bowls to prevent freezing.

It is worth to note that eating snow is not sufficient to protects cats from dehydration and can lower the internal temperature of a cat's body leading to hypothermia.



Keep an eye on your cat

If you live in a rural area, predators (such as hawks, eagles, foxes, coyotes, etc.) have less prey to hunt during the winter months so cats are especially vulnerable to predation.

Towel dry and provide a warm sleeping area

If your cat has access to the outdoors, please make sure to pat your cat dry and pay close attention to their feet and toes. In some cats, the change in temperature from the cold of the outdoors to the warm of a house can cause itchy skin. Even inside a home, sleeping on the floor in the winter can be very cold. With this in mind, please provide your cat with a sleeping area with blankets, pillows or a pet bed that is elevated from the floor.



Be careful with antifreeze and commercial ice melts

Antifreeze is highly toxic to cats. Be extremely careful when using antifreeze and clean up any spills or leaks immediately. Antifreeze is sweet tasting to animals so they may be attracted to it if it is not cleaned up. You also need to be very careful with ice melts. Most commonly used commercial ice melts contain chemicals and salts that can cause burning and irritation on your cat's paws. Ingestion of these chemicals and salts can also lead to vomiting, diarrhea, dehydration and worse, depending on the amount consumed. Please consider a pet-safe ice melt. This option is often urea-based, whereas ice melts using calcium salts are known to be the most irritating to pets.

Look out for frostbite and hypothermia

Cats are susceptible to frostbite on their nose, ears, tail and toes because these areas do not have a lot of fur. Parts of the body affected by frostbite will become pale or bluish white in color, and it will feel cooler than the rest of your cat. If your cat has frostbite and/or if you suspect your cat is suffering from hypothermia, take your cat to the veterinarian immediately. Please make sure your cat is wrapped in blankets and use a hot water bottle to keep him/her warm on the way to the vet clinic.




Hypothermia in Cats

Hypothermia occurs when the body loses heat faster than it can produce it, causing a dangerously low body temperature. Cats normally maintain a body temperature between 100.5 and 102.5 degrees Fahrenheit. Hypothermia in cats is defined as a body temperature below 100F. As the body temperature drops, the cat will become increasingly lethargic, the heart rate, respiratory (breathing) rate and other body activities slow down and, if not treated quickly, can stop.




When it comes to cats and the cold, the most effective way to take care of your cat is to keep them indoors. Despite your best efforts, sometimes cats can escape the house without you knowing, and their exposure to the elements can have severe consequences.

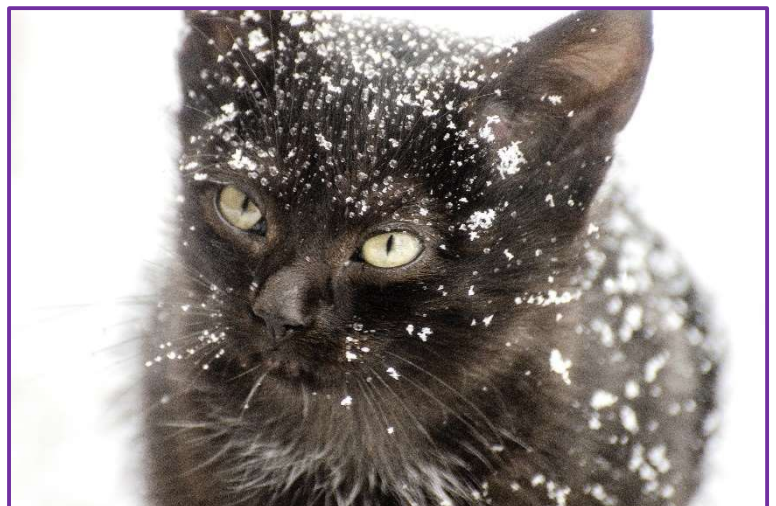
Hypothermia presents as follows:

Mild hypothermia:

-  Shivering
-  Weakness
-  Lack of mental awareness

Moderate hypothermia:

-  Muscle stiffness
-  Low blood pressure
-  Short and shallow breathing



Severe hypothermia:

- 🐾 Difficult breathing
- 🐾 Coma-like signs



If you suspect your cat of having hypothermia, time is of the essence. Immediate care is needed by moving him/her to a warm environment. If your cat is wet, dry and wrap him/her in warm towels or blankets. You can use hot water bottles to help warm your cat, but make sure it is not too hot.

Most importantly, **please take your cat to a veterinarian as soon as possible.**

The veterinarian should be able to judge the severity of the case and ensure your cat is properly treated.

EndFIP® has a vision: every cat a healthy cat. This vision expands beyond the boundaries of FIP. While the focus of our global initiative is to educate, inform and inspire people to create lasting solutions to prevent cats from becoming infected with feline coronavirus, thus preventing FIP altogether. We also like to provide information about other issues affecting cats worldwide.

We hope that by sharing this non-FIP related information, we can help pet guardians to be aware of important tips and things to look out for in terms of winter cat care to make sure your cat is safe during the winter months.

“Kindness is like snow – it beautifies everything it covers.”

Kahlil Gibran



“When snow falls, nature listens.”

Antoinette Van Kleeef

Feline Infectious Peritonitis is a global problem. We know that you are reading this newsletter because you care about cats. The alarming truth is that in the time it takes to read these few pages hundreds of cats worldwide are losing their respective battles to this insidious disease. We can't bring back those we've lost. But together we can use every loss to FIP as a wake-up call, a sign that something must be done!



Valentine's Day is just around the corner. Love is a four-letter word that comes in all shapes and sizes, for all of us blessed with pets, the purest form of love comes in four paws.

This Valentine's Day, EndFIP® is sharing a message of love by informing and continuing to impart worldwide awareness and understanding of feline coronavirus and respect for the seriousness of FCoV infection. Do not invite pain and heartache into your life. FIP doesn't discriminate and it is merciless. On Valentine's Day and always show your purrrfect kitties how much you love them by preventing them from becoming infected with feline coronavirus.



EndFIP®: A vision and a mission

- Bring awareness
- Raise funds for research
- Eradicate FCoV and end FIP

Help us accomplish our goals. Your donation is both needed and appreciated. The Luca Fund for FIP Research is committed to exclusively support research that does not use laboratory cats and does not conduct experimental infection of healthy cats with a deadly virus. Help us end FIP, so that one day, no one will have to go through the pain of losing their cherished cat to a disease that has claimed so many for so long.

The Luca Fund for FIP Research is part of the global vision of the EndFIP® project. Your donation to the Luca Fund will be applied to studies conducted at the University of Glasgow School of Veterinary Medicine. The Luca Fund for FIP research is a special fund of the American Alumni of the University of Glasgow established in 2018 to accept tax-deductible donations for Feline Infectious Peritonitis research. AAGU has been recognized by the IRS as a section 501(c) (3) charitable organization. All donations to AAGU are deductible as charitable contributions to the full extent permitted by law.



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This Valentine's Day, thanks to the generosity of our leadership donors, ALL donations received by the Luca Fund for FIP Research will be matched  per !

