

# The prevalence of gastrointestinal and cardio-respiratory parasites in stray dogs and cats in Ireland



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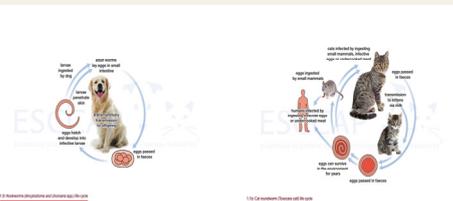
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## Introduction

Stray cats and dogs can carry a variety of parasites that can pose a zoonotic risk to the general human population and our pets. Previous studies carried out in Queretaro, Mexico identified a prevalence of 72.8% for one or more helminth infections in stray dogs<sup>1</sup> while similar studies in Nigeria identified the prevalence of canine intestinal helminthic infection to be 52.6%<sup>2</sup>. No recent data exists for Dublin, the last major study being done in 1994 by O'Lorcain<sup>3</sup> which identified an 82.6% prevalence of *Toxocara canis* in stray dogs and a 42% prevalence of *Toxocara cati* in stray cats in Dublin.

Many parasitic infections of small animals can be controlled in pets with a regular worming routine. However, for animals that may not have been recently wormed, contact with infected stray animals may result in transmission of infection. Transmission of parasites can then occur between pets and owners or even people coming into contact with stray animals. Therefore, it is important to have recent, accurate data which reflects the degree of parasitic infection in stray animals.



## Materials & Methods

- Dublin Society for the Prevention of Cruelty to Animals (DSPCA), Dublin Dogs Trust and Monaghan Society for the Prevention of Cruelty to Animals (MoSPCA) were recruited to provide faecal samples.
- Samples were collected from the DSPCA twice weekly and when available from Dogs Trust. Faecal samples were posted to the parasitology laboratory from MoSPCA and Limerick Feral Cats when available.
- Upon arrival at the laboratory, each sample was assigned a unique identification number.
- Approximately 1.5 mL of each sample was frozen in a labelled Eppendorf tube for use in a later coproantigen ELISA for *Cryptosporidium* and *Giardia*.
- The remainder of the sample was subjected to a Modified Baermann test for lungworm, a Kinyoun's acid fast stain for *Cryptosporidium* and two faecal flotations – one with a zinc sulphate flotation solution (SG of 1.18) for *Giardia*, the other with a saturated sugar flotation solution (SG of 1.3) for all other intestinal helminths.
- A microscope slide was prepared for each of these tests and examined under the microscope (x40 magnification for ZnSO<sub>4</sub>, x4 for all other test slides).
- Identification of various parasitic stages were made using Taylor et al.<sup>4</sup>
- Specific ELISA kits for *Cryptosporidium* and *Giardia* (IVD Research Inc.) were used and the tests were carried out as per the manufacturers directions.

- A) Modified Baermann tests  
B) Preparing faecal flotation tests



## Results

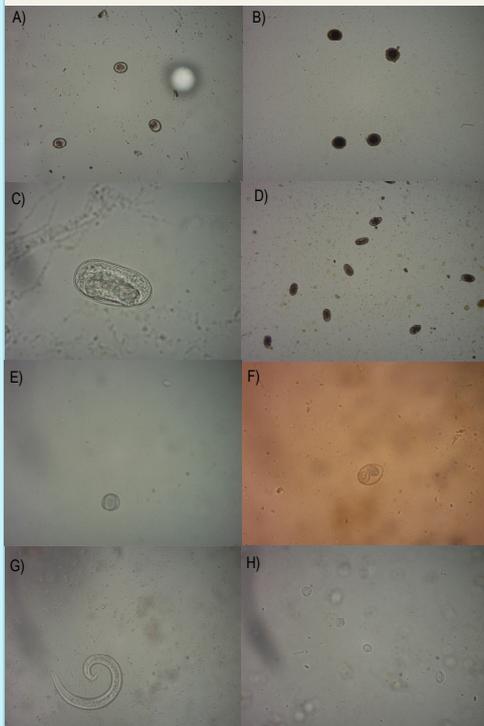
Cats (n=56)

Parasite	No. identified	Prevalence
<i>Toxocara</i> sp.	18	32.1%
<i>Toxascaris</i> sp.	0	0
<i>Uncinaria</i> sp.	0	0
<i>Trichuris</i> sp.	0	0
<i>Aelurostrongylus</i> sp.	2	3.6%
<i>Isospora</i> sp.	5	8.9%
<i>Giardia</i> sp.	1	1.8%
<i>Cryptosporidium</i> sp.	0	0
Total	26	46.4%

Dogs (n=66)

Parasite	No. identified	Prevalence
<i>Toxocara</i> sp.	4	6%
<i>Toxascaris</i> sp.	1	1.5%
<i>Uncinaria</i> sp.	7	10.6%
<i>Trichuris</i> sp.	0	0
<i>Angiostrongylus</i> sp.	0	0
<i>Isospora</i> sp.	1	1.5%
<i>Giardia</i> sp.	1	1.5%
<i>Cryptosporidium</i> sp.	0	0
Total	13	19.7%

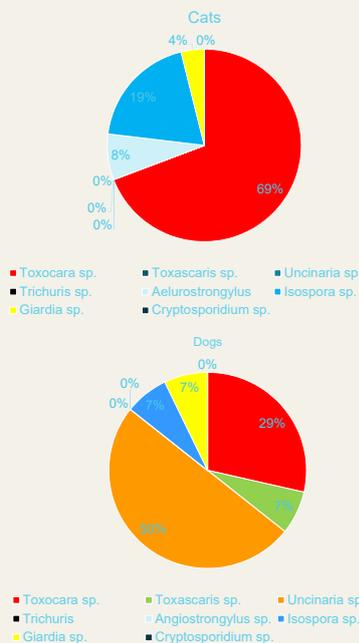
- Toxocara* spp. is the most common parasite in cats and overall in both cats and dogs.
- Uncinaria stenocephala* is the most common parasite in dogs.
- Parasites are considerably more common in stray cats than dogs.
- None of the animals were positive for *Cryptosporidium* infection.
- Aelurostrongylus* and *Angiostrongylus* infections were rare.



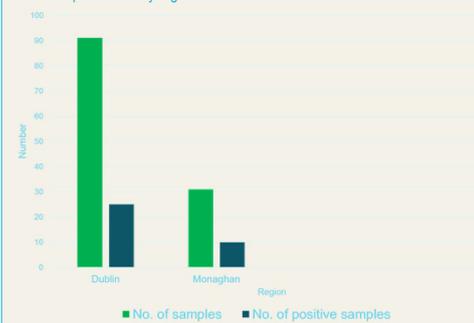
(x10 magnification unless otherwise stated)

- A) *Toxascaris leonina*  
B) *Toxocara canis*  
C) Larvated *Uncinaria stenocephala* (x40 magnification)  
D) *Uncinaria stenocephala*  
E) *Isospora ohioensis*  
F) *Isospora felis*  
G) *Aelurostrongylus abstrusus*  
H) *Giardia* (x40 magnification)

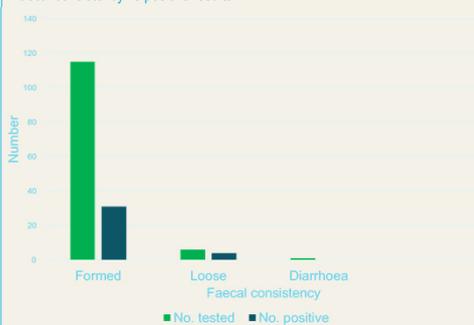
Prevalence of Parasites



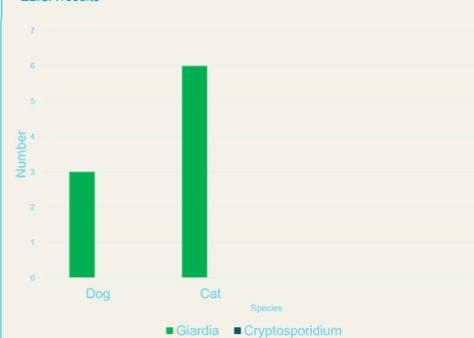
Parasite prevalence by region



Faecal consistency vs positive results



ELISA results



- None of the animals had previous exposure to *Cryptosporidium* of 94 tested by ELISA.
- None of the animals were positive for *Cryptosporidium* at the time of faecal smear examination.
- Of the 60 animals tested in the ELISA, 9 were positive for *Giardia* (3 dogs & 6 cats). One cat was also positive on faecal flotation.
- One dog was also positive for *Giardia* at the time of flotation.

## Conclusions

- Stray cats are much more likely to be infected with parasites than stray dogs.
- There was no correlation between faecal consistency and parasite infection.
- Cryptosporidium* does not appear to pose an infection risk to stray animals.
- All animals entering shelters should be treated with a suitable anthelmintic.
- Young animals should not be mixed with older animals due to transmission risk.

## Acknowledgements

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## References

- Cant6, G.J. et al. "The Prevalence And Abundance Of Helminth Parasites In Stray Dogs From The City Of Queretaro In Central Mexico". *Journal of Helminthology* 85.03 (2010): 263-269. Web. 24 May 2017.
- Okoye, I.C. et al. "Epidemiology Of Intestinal Helminth Parasites In Stray Dogs From Markets In South-Eastern Nigeria". *Journal of Helminthology* 85.04 (2010): 415-420. Web. 24 May 2017.
- O'Lorcain, P. (1994). Epidemiology of *Toxocara* spp. in stray dogs and cats in Dublin, Ireland. *Journal of Helminthology* 68(4): 331-336. Web. 30 May 2017.
- Taylor, Mike A., R. L. Coop, and Richard L Walli. *Veterinary Parasitology*. Chichester, West Sussex [u.a.]: Wiley Blackwell, 2016. Print.