Parasitological study in dog recreation areas

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June 2025

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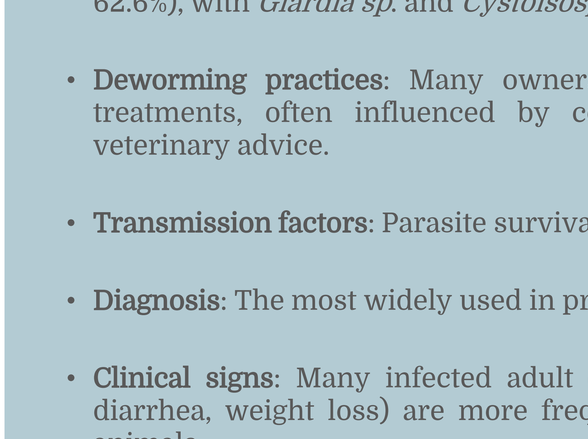
Introduction

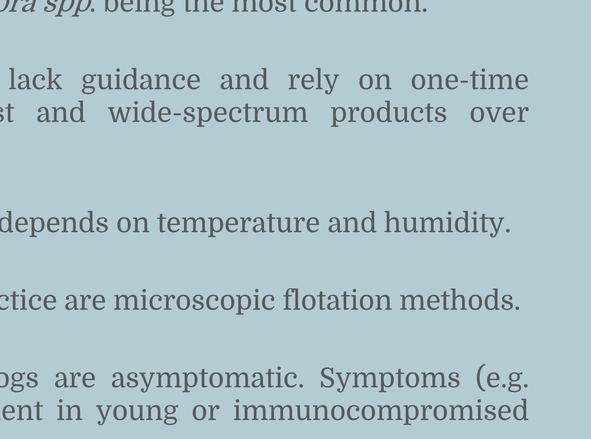
The prevalence of intestinal parasites in owned dogs remains high over the years. Parasites can pose a health risk not only to other dogs but also to humans. The hypothesis is that the current level of parasite prevalence, partly due to owners not picking up their dogs' feces, may still pose an infection risk

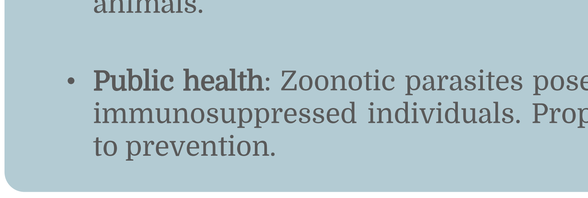
The **aim of this experimental study** is to determine the prevalence of parasites in dog parks in Barcelona, identify the parasites species and assess whether seasonal variations affect this prevalence.

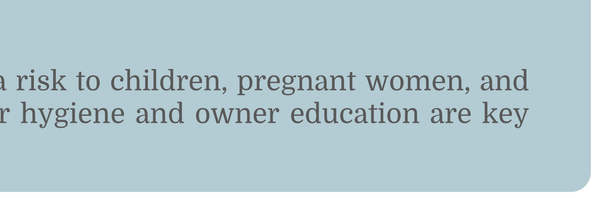
Bibliographical review Key points

- **Prevalence**: Intestinal parasites affect not only stray but also owned dogs. Previously reported studies showed prevalences that varies widely (7.1%–62.6%), with *Giardia sp.* and *Cystoisospora spp.* being the most common.
- **Deworming practices**: Many owners lack guidance and rely on one-time treatments, often influenced by cost and wide-spectrum products over veterinary advice.
- **Transmission factors**: Parasite survival depends on temperature and humidity.
- **Diagnosis**: The most widely used in practice are microscopic flotation methods.
- **Clinical signs**: Many infected adult dogs are asymptomatic. Symptoms (e.g. diarrhea, weight loss) are more frequent in young or immunocompromised animals.
- **Public health**: Zoonotic parasites pose a risk to children, pregnant women, and immunosuppressed individuals. Proper hygiene and owner education are key to prevention.









Methodology

Sample Sites: Three dog areas in L'Esquerra de l'Eixample of Barcelona were sampled:

1. Dog recreation area of Jardins del Doctor Duran i Reynals
2. Dog recreation area of Jardins de Montserrat
3. Dog recreation area of Plaça Doctor Letamendi

Sampling Period: November/January/March/April.

Sample Collection: fresh, uncollected feces left on the recreational areas.

Data collection: A Google Forms survey recorded the following parameters:

- Temperature and humidity (Meteocat)
- Disinfection data (Barcelona City Council webpage)
- Fecal consistency (Purina's fecal score: 1 = dry, 7 = liquid)

Coprological Analysis: Zinc sulfate flotation.

Statistical Analysis: Chi-square and point-biserial tests were applied with a 95% confidence level.

Results

Distribution of positive samples according to space and month

	Duran i Reynals n=28	Letamendi n=27	Montserrat n=30	TOTAL n=85
November	**n=6**	**n=7**	**n=7**	**n=20**
	Giardia sp. (16,6%, n=1)	*Giardia sp. (14%, n=1)* *Hookworms (14%, n=1)*	*Hookworms (14%, n=1)*	4/20 (20%, n=4)
January	**n=7**	**n=6**	**n=10**	**n=23**
	-	*Giardia sp. (16,6%, n=1)*	-	1/23 (4,3%, n=1)
March	**n=6**	**n=5**	**n=7**	**n=18**
	-	-	-	0/18 (0%, n=0)
April	**n=9**	**n=9**	**n=6**	**n=24**
	-	-	-	0/24 (0%, n=0)
TOTAL	1/28 (3,57%, n=1)	3/27 (11,1%, n=3)	1/30 (3,3%, n=1)	**5/85 (5,88%, n=5)**

Sampling and disinfection date, as well as the characteristics of the treatment used

	Date of sampling	Date of last desinfection	Product used	Type of treatment	Method	Schedule
November	17/11/24	26/10/24	ECOGREEN	Bactericide	Spray	Night
January	21/1/2025	17/11/24	ECOGREEN	Bactericide	Spray	Night
March	30/03/2025	25/03/25	ECOGREEN	Bactericide	Spray	Night
April	28/04/2025	23/04/25	ECOGREEN	Bactericide	Spray	Night

Temperature and relative humidity during each sampling session

	Temperature	Relative humidity
November	20ºC	51%
January	13ºC	75%
March	19ºC	30%
April	17ºC	63%

Positive samples according to the degree of fecal consistency

Fecal consistency	Total samples	Positive samples
1	n=9	0
2	n=15	1
3	n=34	1
4	n=19	2
5	n=7	1
6	n=1	0
7	n=0	0

Only the sampling month showed a significant association with parasite prevalence ($P<0.05$). Due to the small sample size, results should be interpreted with caution.

Discussion

This study **confirms the presence of intestinal parasites in all sampled dog parks** in Barcelona, with a **low overall prevalence** (5.88%).

→ ***Giardia sp.*** and **hookworms** were identified, with *Giardia sp.* having higher immediate risk due to its direct infectivity and environmental resistance while hookworms need to develop to become infective and therefore, they depend of enviromental conditions.

→ The **lack of symptoms** and **no link with fecal consistency** suggest **unnoticed transmission**. This highlights the need for regular parasite control, proper feces disposal, and routine hygiene to minimize public risk.

→ Only the sampling month showed a significant association with parasite presence, possibly due to recent disinfection (March and April) or the use of external antiparasitics during warmer months.

→ Temperature and humidity showed no significant correlation.

→ **Study limitations**: small sample size and use of a single diagnostic method. Further studies using broader sampling and more sensitive tests are recommended.

Conclusions

→ The **overall prevalence was** 5.88%.

→ Only **two species detected**: *Giardia sp.* and hookworms.

→ All public parks were positive at least at specific sampling period, at least one positive sample was found in every location, indicating limited but widespread contamination.

→ No significant associations were found between environmental factors, fecal consistency and parasite presence.

→ These results provide a foundation for broader future studies, to better understand parasite prevalence in owned dogs across Barcelona's city.