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Nutritional status of parasitised individuals with *Toxocara canis* in the State of Mexico

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Toxocarosis is enteroparasitosis frequently present in dogs and cats which is maintained in the environment by the infestation and re-infestation of the hosts, by the ingestion of food and soil contaminated with larvated eggs, ingestion of larvae in tissue of paratenic larvae (rats and birds), by transplacental migration of a female dog to their fetus, transmammmary passage in milk, or ingestion of larvae or faeces from puppets infested⁽¹⁾. Human subjects, mainly children, are infested by the accidental ingestion of embryonated eggs from the soil contaminated by the dogs, and even when most of the seropositive patients may be asymptomatic, the parasite may cause fever, hepatomegaly, esplenomegaly, hypergammaglobulinaemia, eosinophilia, adenopathies and disorders of central nervous system, myocardium, eyes, skin, respiratory symptoms and even as a fatal disease^(2,3).

The aim of the present study was to analyse the relationship of nutritional status in *Toxocara canis* infested children and adolescents in the State of Mexico. A study comprising 108 patients between 2 and 16 years of age, both male and female (56 men and 52 women) from the State of Mexico was carried out. Their *T. canis* antibodies' levels were measured by means of an ELISA test. The BMI was evaluated in order to assess nutritional status. We used a chi-square and risk test (OR) in order to compare the difference between groups and the relationship between nutritional status and parasitosis. A regression analysis was also conducted between antibody presence and BMI.

Nutritional status of patients and its relationship with *T. canis* serology

Nutritional status	Positives (n 25)	Negatives (n 83)	Chi-square	OR	P
Normal	12	41	0.01	0.94	0.90
Low weight/malnutrition	9	23	0.63	1.43	0.42
Overweight/obesity	4	19	0.54	0.64	0.46

According to standards established by the World Health Organization (2004), 49% of the participants had a normal BMI; 30% showed low weight, first- and second-degree malnutrition; and the remaining 21% showed overweight and first-degree obesity. Twenty-five individuals (fourteen males and eleven females) between 2 and 14 years of age presented antibodies for *T. canis* larva migrans. From these parasitised children and teenagers 48% showed a normal BMI; 36% showed underweight and first- and second-degree malnutrition; and 16% showed overweight and first-degree obesity.

Nutritional status of patients and nutritional status of *T. canis* positives

Nutritional status	%	BMI (average)	Men	Women	<i>Toxocara canis</i> positives	
					Men	Women
Low weight/malnutrition	30	17.7823	16	16	4	5
Normal	49	22.24	27	26	8	4
Overweight/obesity	21	27.8	13	10	2	2

Nutritional status was not associated with toxocarosis serology; risk factors (RF) are low, indicating that other factors may be more important in the presence of the disease. The lack of a relation between BMI and parasitosis was confirmed by the null correlation between seropositivity and BMI ($r = 0.08$). It can be concluded that nutritional status is not associated with seropositivity for *Toxocara*. Parasitic infections are highly prevalent in populations of developing countries, affecting mostly those groups with higher nutritional deficit; therefore it is intended to extend the current study with the purpose of relating toxocarosis pathophysiology with the nutritional status of patients.

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3. Rubinsky-Elefant G, Hirata CE, Yamamoto JH *et al.* (2010) *Ann Trop Med Parasitol* **104**, 3–23.