

TOXOPLASMA GONDII PLACE IN A WILDLIFE FOOD CHAIN

TOXOPLASMA GONDII VIETA SAVVAĻAS BARĪBAS ĶĒDĒ

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INTRODUCTION: *Toxoplasma gondii* is a successful protozoan parasite of domestic animals, wildlife, and humans. Majority of infections are subclinical or asymptomatic and these latent, chronic infections are beneficial for the parasite: while the host is unaware of even ever acquiring the infection, the parasite stays dormant in the tissues of the host waiting for the host to be eaten by another host. Animal hosts clearly outnumber human hosts living on this planet and are more important for the spread and surviving of the parasite – Felids are shedding the oocyst reservoir, migrating animals are introducing the parasite to new areas, and prey animals are harboring the parasite in their tissues ready to infect the predators and scavengers. A food chain is the sequence of who eats whom in a biological community (an ecosystem) to obtain nutrition. Each food chain starts with primary consumer as herbivores. It continues with omnivores or animals which eats herbivores and ends with a top predator and animals with no natural enemies. The aim of the present study was to establish *T. gondii* place and its role in a wildlife food chain using data from previously studies.

MATERIAL AD METHODS: The seroprevalence data of *T. gondii* specific antibodies in different animals were used to establish *T. gondii* place in the wildlife food chain. Samples of cats, foxes, raccoon dogs, and wild boars were analyzed with a modified indirect ELISA. In the present ELISA, a protein extraction of *T. gondii* RH strain tachyzoites as the antigen, and whole molecule peroxidase-conjugated rabbit anti- specific species IgG as the secondary antibody were used. A positive cut-off was established from the mean OD values of negative reference samples. Plates were read at 450 nm using an ELISA reader.

RESULTS: Infection of the protozoan parasite *T. gondii* is widely prevalent in domestic and wild animals in Latvia which leads to idea that *T. gondii* is prevalent in all stages of food chain. Humans are usually nothing but a dead end host for *T. gondii* and it includes in the end stage of food chain as a predator with no natural enemies. Also in this top predator group from Latvian wild animals could be included red foxes. The *T. gondii* seroprevalence in red foxes was comparably high (29.7%). But the assumption that in the higher stages of food chain also the *T. gondii* seroprevalence should be higher is disproved. In wild boars, which is omnivores and can be included in the lower food chain stage, seroprevalence of *T. gondii* was similar as for red foxes (33.2%). However in raccoon dogs, from the same stage as wild boars, *T. gondii* seroprevalence was notably lower that for red foxes. Although domestic cats should be included in the latest stage, seroprevalence of *T. gondii* was significantly higher (51.6%) than in other of previously mentioned animals. There is a lack of *T. gondii* studies in rodents as animals from the very starting food chain stage.

CONCLUSION: *Toxoplasma gondii* is prevalent in all studied animals. However its seroprevalence doesn't depend from the level of food chain but the animal host diet.