DETECTION OF WATERBORNE PROTOZOA IN RAW OR TREATED RECREATIONAL WATERS AND HELMINTHS IN SANDY ENVIRONMENTS, DURING PROFESSIONAL OR AMATEUR SPORT COMPETITIONS IN DIFFERENT STATES OF SOUTHERN BRAZIL

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A wide variety of sport modalities are practiced in water or sandy environments. The assessment of the sanitary quality of these places is not routinely performed outside the summer season. Indeed, the investigation of waterborne or soilborne parasites has never been carried out at the exact time of official sport competitions. The main goal of this study was to perform the detection of protozoa and helminths during professional and amateur water and land sport competitions in the states of Paraná and Santa Catarina, Brazil. Between November 2023 and December 2024, water (10L) and sand (1kg) samples were collected for parasitological analysis from different matrices: seawater - triathlon, crossing, surfing (harvested 10 minutes after the start of competition), dam (stand up paddle, swimming), water park (triathlon, pool volleyball) (n=29), and sand courts, from beach tennis championship or from beach soccer, at intervals (n=95). Water samples were concentrated by the membrane filtration technique. The sediments were purified by immunomagnetic separation (IMS) and visualization performed by direct immunofluorescence assay to search for *Cryptosporidium* and *Giardia*. The supernatant discarded from IMS was used for the detection of *Toxoplasma gondii*. DNA amplification by nested-PCR or qPCR was used for detecting protozoa, using specific molecular markers: *bg* (*Giardia*), *18S* (*Cryptosporidium*) and *REP-529* (*T. gondii*). Sand was homogenized with glycine or Triton 100 X, followed by sequential flotations in sucrose to isolate helminth eggs. *Giardia* and *Cryptosporidium* were detected in 41.3% of seawater or pools. *T. gondii* was isolated for the first time directly from seawater in 6.9% samples during water crossing and Surfing competitions. Sand samples (13.6%) harbored nematode larvae, *Ascaris* sp. and hookworms eggs. The results indicate the need to monitor robust stages of parasites in outdoor areas used for sport competitions to ensure the safety and health of athletes.

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