Assignment four: The helminthes 50 pts. Please hand in questions in red to be graded.

This is a very long study guide. Much of test 2 will focus on this guide. Do not just do the homework questions, but spend the time filling out all the tables in this guide. You will be most thankful come test time that you completed this guide in a timely fashion. Keep those species cards up to date. Surveys involve knowing the names, life cycles, etc. of a number of species. It’s a lot of memorization. Go over your tables and cards every few days and you will do well on the second exam.

1. How does the Who map indicate that helminthic diseases are associated with poverty?
2. **On nematodes.**
3. How common are nematodes?
4. What is meant by a tube within a tube structure for these organisms?
5. How does the: mouth” of a parasitic plant nematode differ from that of a predaceous nematodes?
6. a. Compare common soil parasites of humans. **It is most important to understand how these diseases are transmitted to enable prevention methods. You will need to record what stage of the life cycle infects the human host, and how the parasite makes contact with the host. Completing this table will help you study for any exam-matching question concerning these species.**

|  |  |  |  |
| --- | --- | --- | --- |
| Parasite | Disease and/or symptoms | **How transmitted.** | Type of individual most infected and how prevented. |
|  |  |  |  |
| *Ascaris lumbricoides*  Or Ascaris suum  Human Roundworms |  |  |  |
| Hookworms  Ancylostoma duodenale, or ceylanicum, and Necator americanus |  |  |  |
| Whipworm  Trichuris trichiura |  |  |  |
| Pinworm  Enterobius vermicularis. |  |  |  |
| *Strongyloides* ***stercoralis*** round worm |  |  |  |

b. What is unusual with respect to the *Strongyloides* life cycle when it is compared to that of other nematodes in the table? (Hint: free living stages) 6 points.

c. Why can’t dogs transmit pinworms, Enterobius vermicularis, to you? 4 points

4. Search the website for the following information. Use pull down menus and click on map to see statistics for United States.

a. How likely is it for a pet dog or cat to get Toxacara canis (roundworms), *Ancylostoma caninum* (hookworms) or Trichuris *vulpis* (whipworms*)* in the United Sates? How do you know? (Tell us about the map.) b. Please prepare for study a table with percentages and the accessed risk for each species. **For the exam, you will be expected to know the scientific names of these parasites.**

c. Can your dog transmit hookworms or roundworms to you or other members of your family? 5 points

# 5. Fill in the table below. Numbers infected can be found under Epidemiology & Risk Factors.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Disease | Parasite | Major symptoms | **How transmitted to humans. Be sure to note any vectors involved in transmission** | Number of individuals affected. Use global or US estimates as appropriate.  (Numbers are not available for Anisakiasis.) |
| Anisakiasis |  |  |  |  |
| Dracunculiasis |  |  |  |  |
| Lymphatic filiariasis |  |  |  |  |
| Onchocerciasis |  |  |  |  |
| Trichinellosis |  |  |  |  |
|  |  |  |  |  |

5b. Do you agree with the judge that individuals who contact Trichinellosis have no one to blame but themselves? Defend your answer.

5c**. Dracuncliasis and Onchocerciasis have been the target of a worldwide eradication efforts. a. Describe these efforts**. b. Which effort to date has been more successful and why? c. It will be helpful in studying for an exam to make a table to compare these two diseases.

6. a. What species of nematode causes dog heartworm? b. What are the chances (on a relative scale of high to low) of your dog developing heartworm in North Carolina? c. How is dog heartworm commonly transmitted from dog to dog? 10 points

7. On flatworms.

a. Of the flatworm parasites, which group, Cestodes or Trematodes, are most modified structurally when compared to a free-living flatworm? Defend your answer.

b. How does the life cycle of a fluke demonstrate a parasite’s capabilities for increasing its reproductive potential?

c. Note the flexibility in a fluke’s life cycle. What stages in a flukes life cycle can give rise to more copies of that stage or the next stage?

15 points

8.

a. Compare and contrast the life cycles of *Echinococcus granulosus* and Dipylidium caninum.

b. The CDC website and your textbook makes the statement “Cysticercosis is **not** acquired by eating undercooked pork.” Do you agree? Defend your answer. (This is a review of material from Guide one)

c. Can your dog transmit tapeworms to you? Which risk is greater, the transmission of hookworms or tapeworms, from dogs to humans? (**Answer in general for the US.)**

9a. Fill in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| Parasite | Disease (major symptoms) | How transmitted to humans. | Intermediate hosts. |
| Paragonimus spp. |  |  |  |
| Opisthorchis spp. |  |  |  |
| *Fasciola hepatica* |  |  |  |

10.

a. What causes the symptoms of Schistosomiasis? (CDC website and film)

b. Compare the morphology of males and females of *Schistosoma mansoni*. (Film) 10 points

c. Compare the three species that commonly cause Schistosomiasis with regard to site of infection. Do all three migrate initially to the lungs? (CDC website and film)

d. How does the parasite avoid the host’s immune responses? (Film)