



LESSON 3: RESEARCH PROJECT

You learned about the JAX Mighty Mice, watched as they launched into space, and analyzed some of the data from the experiment. Now it's your turn to investigate human muscle and bone disorders, and think about how the Mighty Mice in Space project can help develop therapies to treat these diseases.

In a small group of 3-4 students, pick one topic below to investigate further. Do your research following the guidelines outlined below, and create a poster with your findings.

TOPICS

Choose one of the following human muscle or bone disorders to investigate:

Muscle disorders

Duchenne Muscular Dystrophy (DMD)
Multiple Sclerosis (MS)
Myasthenia Gravis (MG)
Amyotrophic Lateral Sclerosis (ALS)
Charcot-Marie-Tooth Disease (CMT)
Spinal Muscular Atrophy (SMA)

Bone Disorders

Osteoporosis
Paget's disease of the bone
Fibrous Dysplasia
Scoliosis
Osteogenesis imperfecta
Rickets

RESOURCES

Use these online sites, as well as your local library, to research your human disease:

<https://www.jax.org/search>

<https://medlineplus.gov/>

<https://www.cdc.gov/DiseasesConditions/>

<https://rarediseases.info.nih.gov/>

<https://www.mayoclinic.org/diseases-conditions>

<https://scholar.google.com/>

Disease foundations or associations (such as the Muscular Dystrophy Association or the Osteogenesis Imperfecta Foundation), and other organizations with ".org" websites

Government ".gov" websites.



POSTER OUTLINE

Use these guiding questions to help you fill out each section of your poster:

Introduction

Briefly summarize the disease you chose to investigate. Is it a muscle or bone disorder? What is the prevalence of this condition? Is this a rare or common disease? How many people have this disease? Are both men and women affected equally?

Symptoms

What are characteristic phenotypes of this condition?
When do symptoms typically first appear?
Are other body systems affected in addition to muscle or bone (such as the immune system, the nervous system, the circulatory system, etc.)?

Cause

Is there a genetic component to this disease?
Are there environmental risk factors that contribute to the disease phenotype?

Diagnosis

What types of tests are done to diagnose this condition?

Prognosis

What are the long-term effects of this disorder?
What is the life expectancy of someone with this condition?

Ongoing research

Are there any animal models of this disorder?

Treatments

Are there any medications commonly prescribed for this disease?
Can this condition be cured?
What types therapies can improve symptoms?
Can people take preventative measures to reduce their risk of developing the disease?



POSTER OUTLINE, continued

How can Mighty Mice help?

Think about how the Mighty Mice experimental findings could help treatments for this disorder.

Bibliography

List the sources you used to gather information for your research project.

OTHER TIPS

Don't just copy-and-paste what you find online- this is considered plagiarism! Carefully read the information from your sources, combine information from multiple sources, and use your own words to state what you learned.

Cite your sources. Create a bibliography to keep track of all the information used.

Take steps to ensure that your poster is visually appealing and easy to read!

- Try to include images where possible. After you insert an image, zoom in to 100% to make sure that all elements of the image are clear and any text is legible. For best resolution, insert an image as a JPG or PNG.
- Make sure your text is large enough to read. Do not go any smaller than 24 pt for the descriptive text in your sections. Pick and choose the most relevant information to include in each section. Don't overfill the poster with a lot of words!