

# Muscular System Case Study

## Jack's Case: "Is This Normal?"

### OVERVIEW:

Jack Jones, a 4-year old male, was brought into the clinic by his parents because of his shortness of breath and weakness in his arms and legs. What could be wrong with Jack?

### GOALS:

1. Evaluate subjective and objective information to determine a precise & accurate diagnosis.
2. Develop an aligned, evidence-based, and thorough plan/solution.

### ROLE:

You are the staff of a pediatrics group practice which covers both primary and specialty care for children and adolescents from infancy through age 21. You will each decide upon a role, but no roles should be duplicated.

### OBJECTIVE:

**Obj. 14.3:** Identify the structures, functions, and pathophysiology of the muscular system.

### DELIVERABLES:

- 1) SOAP Note
- 2) Pre-Assessment Guiding Questions

### ASSESSMENT CRITERIA:

**Assessment Sections:** 1) clearly summarized S & O information; 2) 2+ differential diagnoses aligned with evidence of case; 3) accurate final diagnosis & reasoning

**Plan Sections:** 1) comprehensive (includes physical, social & mental health); 2) aligned to facts of the case; 3) evidence-based; 4) addresses short- & long-term; 5) provides detail & specificity (e.g., "walk at least 1 mile every day" rather than "exercise")



Health Care Provider Roles:

Determine the role of each team member. Then share one strength or skill each team member brings.

Team Member	Role	Strength/Skill

### Case Study Steps:

- \_\_\_\_\_ 1. Review the coversheet & preview the case.
- \_\_\_\_\_ 2. Assign team roles. Share strengths & skills each team member can contribute. Determine team norms everyone can agree upon.
- \_\_\_\_\_ 3. Document information from nurse's note into the SOAP note.
- \_\_\_\_\_ 4. Prepare **5 questions** for Jack's mother or father. When they visits your team, ask your questions!
- \_\_\_\_\_ 5. Read transcript of a portion of the patient interview at Jack's visit. Add new information to SOAP note.
- \_\_\_\_\_ 6. Complete the *Pre-Assessment Guiding Questions*.
- \_\_\_\_\_ 7. Research FOUR (or more) possible diseases or conditions Jack might have. Determine 1-3 tests or labs to run to help determine the diagnosis. Submit **Test/Lab Request** to Pathologist and receive results.
- \_\_\_\_\_ 8. Finalize the SOAP **Assessment** section. Begin investigating your treatment options (**Plan**). Share information and determine the final Plan.

### Nurse Notes:

Jack Jones, a 4-year old male, was brought in for shortness of breath and weakness in arms and legs. On initial examination, Jack appeared only mildly fatigued. His mother reported he had been crawling around the waiting room playing aggressively with the train set. According to past medical records, Jack achieved his gross motor skill milestones (e.g., holding head up, sitting, rolling, & standing) on pace with other children. However, he didn't begin walking until 17 months. At 2.5 years old, he began to display a lordotic posture.

Jack is 35 pounds and 2'2" and his vital signs are (1) heart rate = 108 beats per minute, (2) respiratory rate = 25 breaths per minute, (3) temperature = 101.3 deg F, and (4) blood pressure = 118 / 70. In the physical exam, pupils were normal and reactive to light. Mother notes that development of speech was slightly delayed. No facial muscle weakness was noted. Breath sounds were reduced and cough was very weak. Heart sounds were normal (no murmur). Shoulder, arm, and thigh muscles appear slightly atrophied. Calf muscles appeared slightly enlarged. Muscle strength reduced in the biceps & triceps muscles (+4 on a scale from 0 to +5, +5 being normal).

**SOAP Note:**

<b>SOAP Note</b>	
<b>Subjective:</b>	
Signs & Symptoms	
Allergies	
Medications	
Past medical history	
Last oral intake	
Events leading to injury or illness	
Frequency	
Associated Symptoms	
Radiation	
Character	
Onset	
Location	
Duration	
Exacerbating Factors	
Relieving Factors	

<b>Objective:</b>	
Measurements	
Vital Signs	
Exam Results	
Lab Results	

Questions:

Prepare 5 important (unanswered) questions for Jack's mother. She will visit your team shortly, so be prepared to ask, listen, and record.

SOAP Section	Question

### Transcript of Patient Interview:

Read the transcript of the patient interview between the physician, Jack, and his parents. Add all new relevant information to the SOAP note.

**Doctor:** Hi Jack, how are you feeling today?

**Jack:** Good. I play with trains. Do you like trains?

**Doctor:** I do like trains. Jack, can you tell me how your legs feel?

**Jack:** They hurt, like OUCH.

**Mother:** He usually complains of the pain once or twice a day, but it seems to be pretty constant. It seems that most of the time he is just too distracted.

**Father:** This has been going on for about three weeks now. At first we didn't really think much of it...you know, kids say all kinds of things. But when it kept happening, we got worried

**Doctor:** Jack, does the pain feel like more of a belly ache or a scrape?

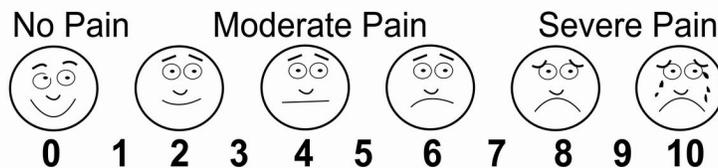
**Jack:** Ummm. Do you watch Thomas the Tank Engine?

**Father:** We think it's more of an ache feeling, because he usually keeps on playing. But sometimes he lies down to play or seems to slow down with whatever he is doing.

**Doctor:** I notice that he looks a bit hunched over when he is sitting. Is this his usual position?

**Mother:** Yes. We have always felt that he has poor posture compared to other kids at preschool. And his teachers say that at recess he usually prefers sitting to play rather than running around with the other children.

**Doctor:** Jack, can you show me which of these faces is like you when your legs hurt?



**Jack:** {Points to the spot between 6 and 7, distractedly, while playing with his train.}

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**Mother:** It is so hard for us to tell what he is really feeling. Sometimes I just think he is having growing pains. But what really started to worry us is when he started getting short of breath about a week ago.

**Father:** We took him to the playground and tried to play a game of tag. Jack would get just a few steps in and plop down heaving. We also noticed that he started to stop to take a break when he was going up the stairs to his bedroom in our home. He just seemed to always be breathing harder than usual.

**Doctor:** Thank you, that is important to know. Jack, can you point to where it hurts right now.

**Jack:** *{Points to his lower back}*

**Doctor:** Jack, does your back hurt a lot?

**Jack:** No

**Doctor:** (To parents): Do either of you have any musculoskeletal conditions or other major health problems?

**Father:** I have Type I diabetes, but other than that my wife and I are healthy.

**Doctor:** What about your family? Do Jack's grandparents or any aunts or uncles have health conditions?

**Mother:** My mother died of breast cancer at age 55 and my father was never in the picture so I have no idea what health issues he might have had.

**Father:** My family has been in great health, except for my father who suffered a mild heart attack. He is 76 years old.

*Pre-Assessment Guiding Questions:*

1. Describe the difference between skeletal, cardiac, and smooth muscles. Which do you think are involved in Jack's disease or condition?
2. Name the functions of muscles. Which functions are problematic for Jack?
3. Which specific muscles are problematic for Jack? Where are they located?
4. How does a muscle contract? What are some possible reasons a muscle would fail to contract?
5. Why might Jack be experiencing muscle weakness? Give at least two possible explanations.

**Research:**

Determine four (or more) possible diseases/conditions Jack may have. Find key information to help confirm or refute each hypothesized disease. Then decide on 1-3 tests/labs to run in order to finalize the diagnosis.

Possible Diagnosis	Information

Lab/Test	Explanation	Possible Results

<b>Assessment:</b>	
<b>Summary</b>	
<b>Differential Diagnoses</b>	
<b>Final Diagnosis</b>	<p><i>Claim (Diagnosis):</i></p> <p><i>Evidence:</i></p> <p><i>Reasoning:</i></p>

<b>Plan:</b>	
<p><b>Steps of Plan</b></p> <p><i>(Consider mental, social and physical health; short- and long-term needs, and follow-up care required)</i></p>	