Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_\_\_\_

**Wolf Pack Attack**

**The Scenario**

John is the star of the Woodland High School Varsity football team who is extremely dedicated to the sport. Everyday before school, he wakes up at 4:30 am, runs 5 miles and then goes to the gym for 1 hour of hard lifting. After lunch, John has 5th period weight training in which he works out as hard as he did in the morning. During 6th period he has football conditioning and then has 3 hours of practice afterschool. When he gets home he usually plays some basketball in the driveway with his brothers before he does his homework. John eats small, healthy meals 5 times a day. These meals consist of protein bars, protein shakes and low carbohydrates (C6H12O6). He finds water rather dull tasting so he is often drinking Diet Pepsi.

During Friday’s big game against Pioneer High School, John was dizzy, vomiting, and short of breath and had to be taken to the hospital! You are the doctor that treats John. You question John and he tells you about his eating and exercise habits. He also tells you that before the game he had felt a little light headed and figured he was getting sick as his brother had the flu earlier in the week. Upon questioning his mother on John’s family history, you discover some members of the family have a genetic heart disease that may cause murmurs and shortness of breath.



You decide that John must be suffering from one of the following scenarios:

Does John have the flu?

Is he experiencing a disease?

Is John’s body getting enough Oxygen?



A blood tests find high levels of lactic acid and CO2 in his blood along with antibodies for H1WP3 (Wolf Flu). An echocardiogram showed that John’s heart was pumping perfectly. His vitals consisted of a 99.8o F temperature, normal heart rate, and normal breathing.

**Your task**

What is your diagnosis for John? How would you advise John to recover? What changes does John need to make regarding his life style? Your job is to write a diagnosis that explains all to John. Use the template below. You also have background information included to help diagnose John. You must include appropriate terminology covered in the unit that applies to your diagnosis.

Date:

Patient: Name of patient

Doctor: Name of doctor

Statement of purpose: Purpose of the visit to doctor.

TITLE: This is your official diagnosis, written all in caps and centered.

FINDINGS:

This is where you explain the illness and its causes. This may be a few paragraphs.

SUGGESTIONS:

 This is where you explain to the patient any lifestyle changes that need to be made. This may be a few paragraphs.

PRESCRIPTION:

 Explain what you prescribe (order) the patient to do/take. This may be a few paragraphs.

Please discuss what you will write first in a group. Use the graphic organizer to guide your discussion and writing.

|  |
| --- |
| Why are oxygen and nutrients important in homeostasis?Why is it important to remove toxic waste such as CO2 and lactic acid from the body in regards to homeostasis?What are the similarities and differences between viruses and bacteria?Briefly outline Immunity. |
| **Key factors in symptoms** | **Effect on the body** | **How to recover** |
|   |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Use this diagram to help organize your diagnosis**

**What is Lactic Acid?**

**Definition:** A point during exhaustive, all-out exercise at which lactic acid builds up in the blood stream faster than the body can remove it. Lactic acid is a by-product of the anaerobic energy pathway, a process which provides energy to muscles by partially breaking down glucose without the need for oxygen.

Anaerobic metabolism produces energy for short, high-intensity bursts of activity (lasting no more than a few minutes) before the lactic acid build-up reaches a threshold where it can no longer be absorbed and, therefore, accumulates. This point is known as the lactate threshold and is usually reached between 50 to 80% of an athlete's VO2 max.

Athletes often use their lactate threshold to determine how to train and what sort of a pace they can maintain during endurance sports. Because the lactate threshold can be increased greatly with training, many athletes and coaches have devised complicated training plans to increase this value (LT Training).

(http://sportsmedicine.about.com/od/glossary/g/lactate\_thres.htm)

**How do muscles recover?**

**Five Ways to Relieve Symptoms of Lactic Acid Build Up**

Lactic acid build up can be so uncomfortable that it may prevent you from working out again for several days. However, you can take steps to reduce the painful soreness associated with lactic acid buildup. This will allow you to continue working out at an intense level without dealing with a debilitating amount of soreness.

**Increase Your Intake of Vitamin C and Potassium**

While concrete scientific proof is still pending, Vitamin C and potassium are both believed to help muscles release greater quantities of lactic acid by many physical trainers. Both nutrients are also believed to speed the [recovery](http://www.life123.com/health/fitness/strength-training/lactic-acid-build-up-in-muscle.shtml) and repair the stressed muscle fibers. Vitamin C can be found in citrus juice and supplements. Potassium is found in bananas and kiwi.

**Drink Plenty of Water**

By drinking plenty of water, you can flush your body of excess lactic acid. Some nutritionists advise drinking sports drinks which restore electrolytes, claiming the restoration of electrolytes will decrease the pain experienced from lactic acid build up.

**Stretch After Exercising**

When you take the time to stretch after exercising, you allow the muscles to release some of the lactic acid building up in the muscles. Hold each stretch for at least 30 seconds, and be sure to stretch the muscles you worked the hardest for the most time. It’s best to stretch these muscles again right before bed and again the morning after a difficult workout session.

**Alternate Muscle Groups When Weight Training**

If you change up the muscle groups you work, you’ll give the broken down muscle fibers a chance to repair before breaking them down again. This will reduce the amount of lactic acid build up in those muscle groups.

**Keep Working Out**

After several workouts, you’ll find your muscles suffer less and less from pain related to lactic acid build up. This is because the muscles adapt to the strain placed upon them.

(http://www.life123.com/health/fitness/strength-training/lactic-acid-build-up-in-muscle.shtml)

## Know the F.A.C.T.S. of H2WP3

Flu symptoms can be mild or severe, and can come on suddenly - be sure you know your flu treatment options so you can be prepared. Symptoms generally appear 1 to 4 days after exposure to the virus.



The common symptoms of the flu include:

* **Fever** (100º F or greater)
* **Headache**
* **Muscle aches**
* **Chills**
* **Extreme tiredness**
* **Cough**
* **Runny nose** (more common in children than adults)

If you have one or more of these symptoms, it could be the Wolf Flu.

**Heart Murmurs**

**What causes heart murmurs?**

Heart murmurs are most often caused by defective heart valves. A stenotic (sten-OT'ik) heart valve has a smaller-than-normal opening and can't open completely. A valve may also be unable to close completely. This leads to regurgitation, which is blood leaking backward through the valve when it should be closed.

Murmurs also can be caused by conditions such as pregnancy, fever, thyrotoxicosis (thi"ro-toks"ih-KO'sis) (a diseased condition resulting from an overactive thyroid gland) or anemia.

A diastolic (di"as-TOL'ik) murmur occurs when the heart muscle relaxes between beats. A systolic (sis-TOL'ik) murmur occurs when the heart muscle contracts. Systolic murmurs are graded by intensity (loudness) from one to six. A grade 1/6 is very faint, heard only with a special effort. A grade 6/6 is extremely loud. It's heard with a stethoscope slightly removed from the chest.