PhysioEx Lab Report

Exercise 5: Cardiovascular Dynamics

Activity 2: Studying the Effect of Blood Viscosity on Blood Flow Rate

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Session ID: session-9a9e7c00-c008-218a-d305-c57bc005c997

Pre-lab Quiz Results

You scored 100% by answering 4 out of 4 questions correctly.

1. Which of the following is *not* a formed element?

   You correctly answered: plasma protein.

2. Thrombocytopenia is a reduction in platelets. What effect do you think this could have on blood viscosity?

   You correctly answered: decrease blood viscosity.

3. Which of the following does *not* contribute to the viscosity of the blood?

   You correctly answered: oxygen level in the blood.

4. Viscosity most directly affects

   You correctly answered: peripheral resistance.

Experiment Results

Predict Question

1. Predict Question: What effect do you think increasing the viscosity will have on the fluid flow rate?

   Your answer: The fluid flow rate will decrease.

Stop & Think Questions

1. What is the relationship between fluid flow and viscosity?

   You correctly answered: They are inversely proportional to each other.

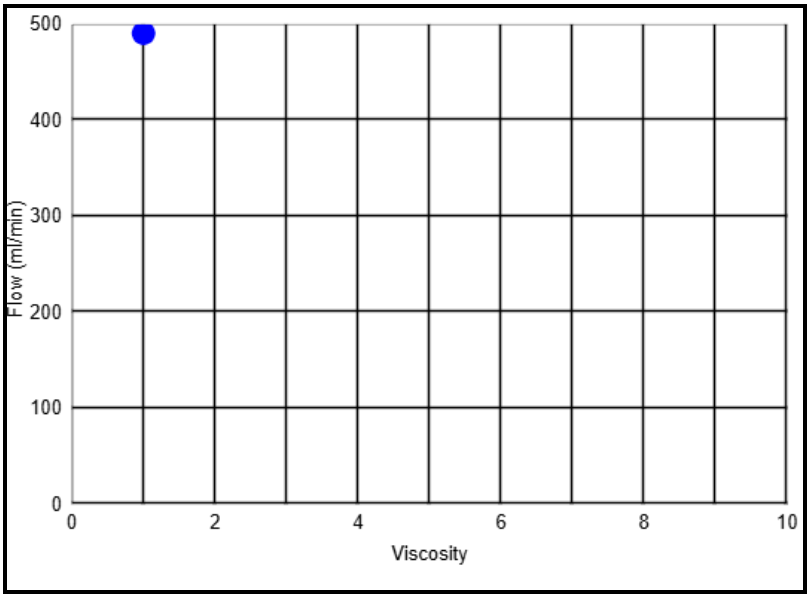
2. What effect do you think aplastic anemia (reduced red blood cells) would have on blood flow?

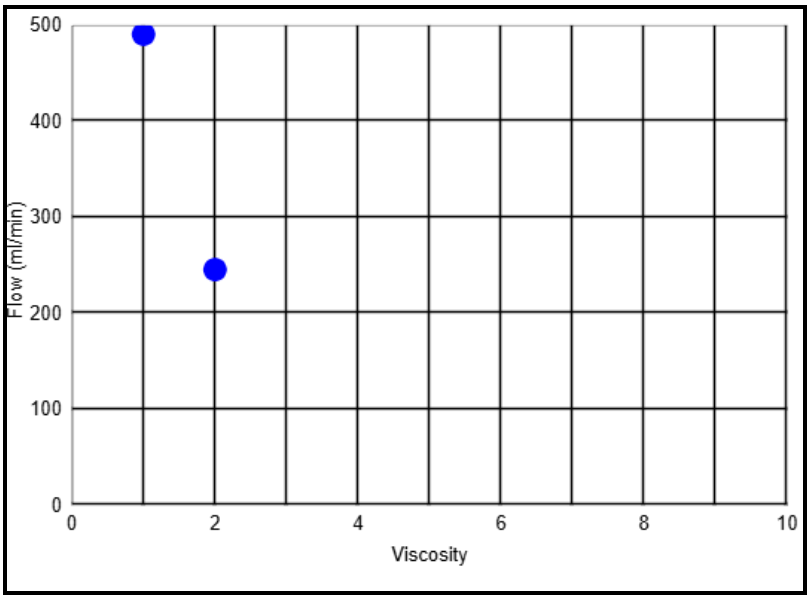
Your answer: increased blood flow due to increased viscosity.

Correct answer: increased blood flow due to decreased viscosity.

Experiment Data

Flow (ml/min)	Radius (mm)	Viscosity	Length (mm)	Pressure (mm Hg)
490.6	5.0	1.0	50	100
245.3	5.0	2.0	50	100
163.5	5.0	3.0	50	100
122.7	5.0	4.0	50	100
98.1	5.0	5.0	50	100
81.8	5.0	6.0	50	100
70.1	5.0	7.0	50	100
61.3	5.0	8.0	50	100

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Flow (ml/min)
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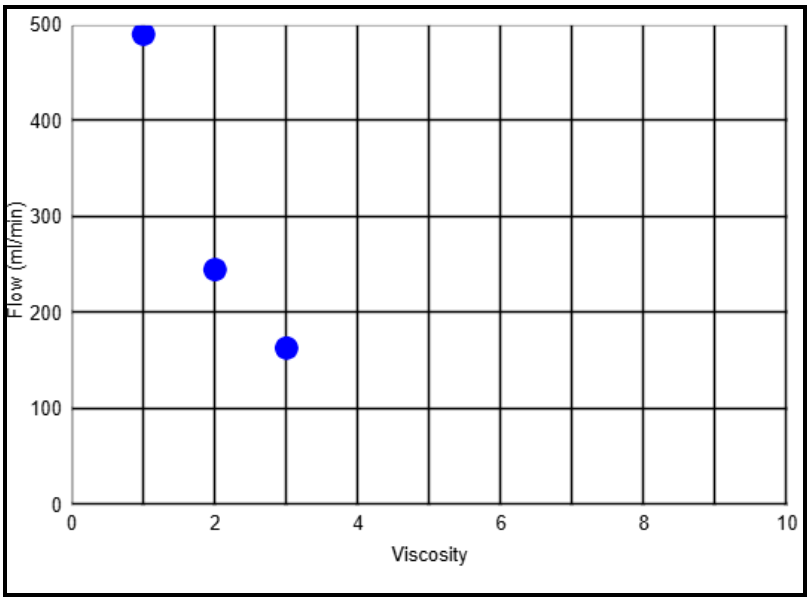
6
8
10
Viscosity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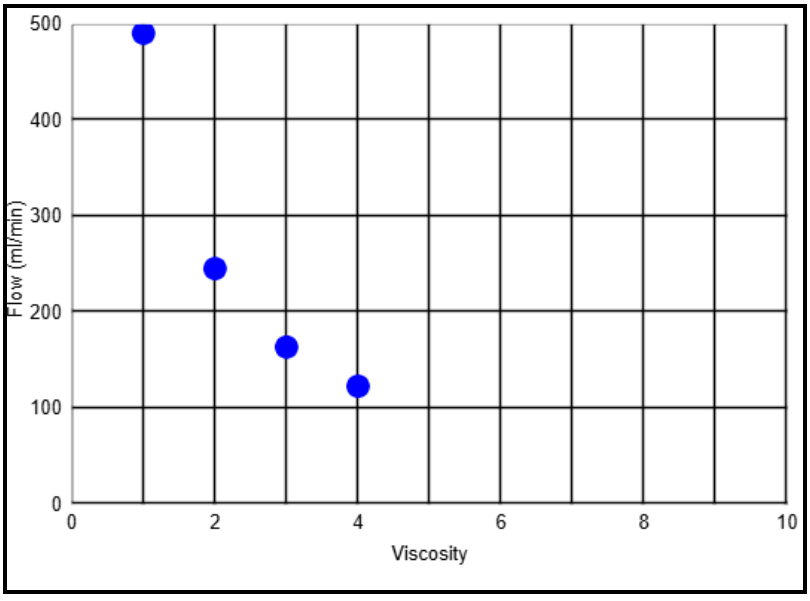
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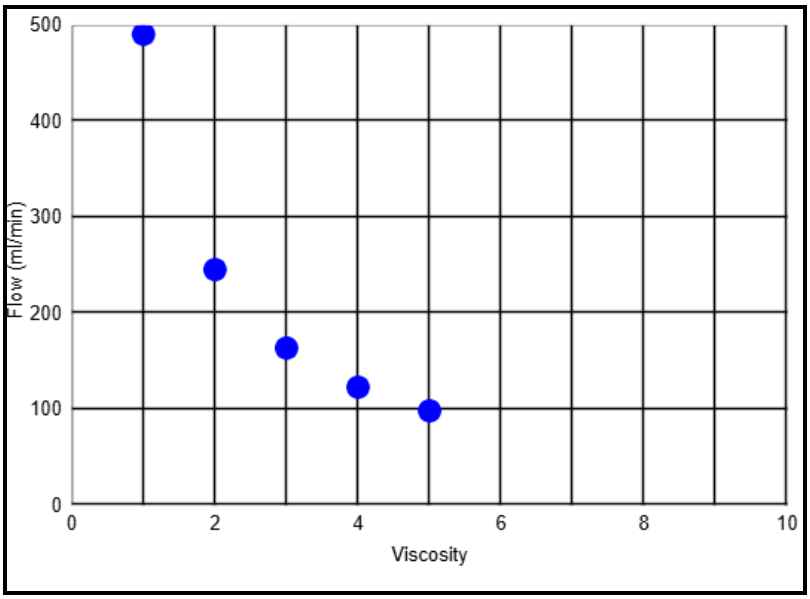
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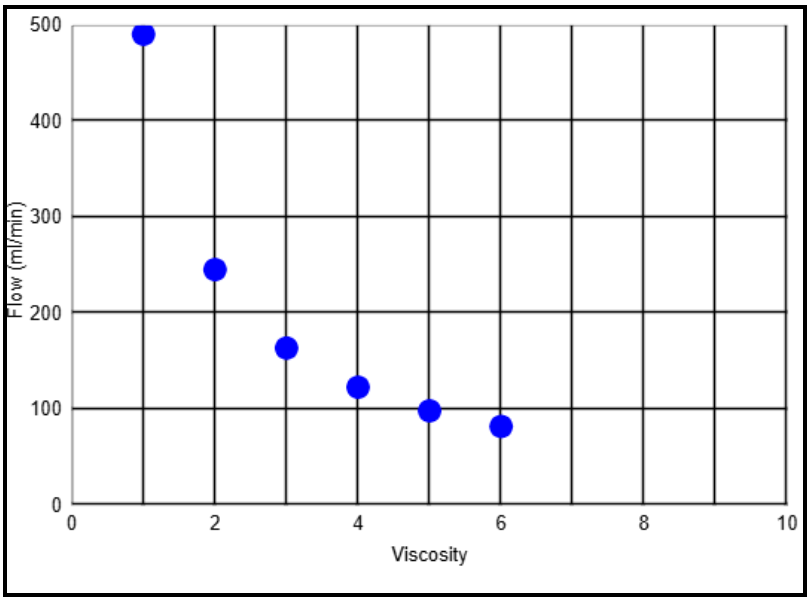
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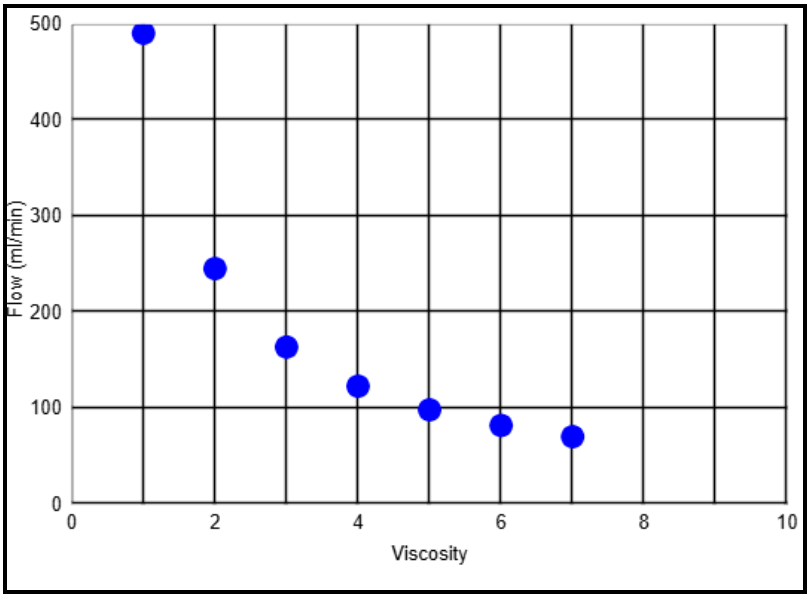
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Flow (ml/min)
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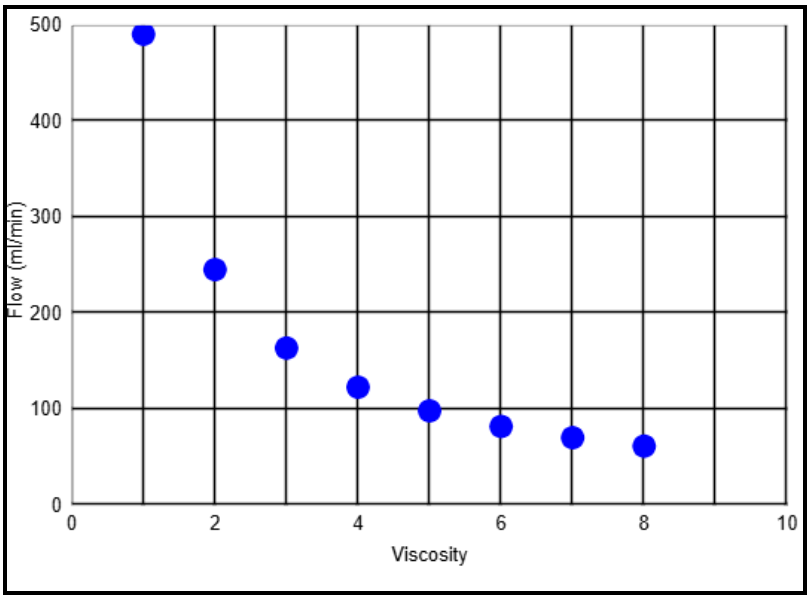

Post-lab Quiz Results

You scored 100% by answering 4 out of 4 questions correctly.

1 The variable that you altered in this activity was

You correctly answered: viscosity.

2 Increasing viscosity resulted in

You correctly answered: decreased flow rate.

3 What effect would a decreased hematocrit have on blood flow?

You correctly answered: decreased viscosity, increased flow.

4 What do you predict would be the overall affect on viscosity during dehydration?

You correctly answered: increased viscosity, decreased flow.

Review Sheet Results

1 Describe the components in the blood that affect viscosity.

Your answer:

Platelet count, hematocrit values, amount of red blood cells, water availability.

2 Explain the effect that the viscosity change had on flow rate. How well did the results compare with your prediction?

Your answer:

My assumption was correct and verified by the data collected.

3 Describe the graph of flow versus viscosity.

Your answer:

It is a logarithmic function inverse to the relationship between blood vessel radius and flow rate. In this case the higher the viscosity the lower the flow rate.

4 Discuss the effect that polycythemia would have on viscosity and on blood flow.

Your answer:

It would increase the viscosity of the blood, causing a decrease in flow.