

Cardiovascular Dynamics Lab

(an inquiry-based lab)

This lab will help you to quantify the effects of variable vessel length, diameter and fluid viscosity on blood flow. Each group will examine ONE of the three variables and will then present their findings in a short poster presentation to the rest of the class.

Supplies Available:

- tubing of various lengths and diameters
- straws
- syrup and water
- beakers
- ring stands and clamps
- funnels
- food coloring
- graduated cylinders
- stopwatches (or use your own as long as it can measure tenths of a second)

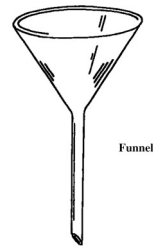
Assignment:

Your group will design and conduct experiments to determine **one** of the following:

1. The relationship between the diameter of a vessel and flow
2. The relationship between the length of a vessel and flow
3. The relationship between the viscosity of fluid and flow

Hints:

- Gravity will influence flow through a vertical tube; you must control for this.
- Flow through a funnel speeds up as the fluid moves through the neck; you must control for this



Strategy:

1. In your lab notebook, design an experiment to address your group's topic. Once the group is together at the beginning of the lab period, compare each person's ideas and combine or choose the design you plan to try. Have your instructor approve your experimental design before you begin.
2. Conduct the experiments and record all observations and data.
3. Present a poster to the rest of the class, showing your design, results (including graphs) and conclusions.
4. Make sure you also have graphs and conclusions in your lab notebook.