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Thursday Lab

08/25/23

Lab #1 Physiological Instrumentation

Purpose: Familiarize ourselves with equipment.

Procedures:

1 – A: Demystifying the black box

1. Observe the operation of these instruments.
2. Make a concerted effort to recognize and identify each on site.
3. Understand the application of the “black box” instrumentation to experiments and measurements of human physiological events.

1 – B: Units of measure

1. Become familiar with the basic metric units of measure.
2. Learn the basic unit of each measurement.
3. Understand the significance of the prefixes of each unit.
4. Complete the workesheet on page 6 using the following information.

Results:

1 – B: Units of measure

Linear – Length of notebook

1. 280 mm = 28 cm
2. 236 mm = 23.6 cm
3. 10 mm = 1 cm

Volume – Water in beaker, then in graduated cylinder

1. 75 ml = .075 liters
2. 69 ml = .069 liters

Mass – Beaker, then beaker with water

1. 113000 mg = 113 g
2. 180000 mg = 180g

pH – pH of liquid in A, B, C buffers

1. A. 3
2. B. 7
3. C. 12

Time – Pulse after 15 seconds, then after 60

1. Determine your pulse rate after 15 seconds: 1 beat per second and 60 beats per minute
2. Determine your pulse rate after 60 seconds: 60 beats per minute and 1 beat per second and 1000 beats per millisecond

Discussion: In lab 1 – B, we learned about units of measurement. For linear, we measured my notebook. It was not difficult to measure my notebook, but the conversion from mm to cm was tricky at first. After our first conversion from 280 mm to 28 cm, we understood the rest. For volume, it was difficult to get an exact measurement because the water in the graduated cylinder concaved. Other than that, the conversion from ml to liters was not difficult. For mass, we learned how to measure weight in mg and convert it to g. We also made sure to zero out the scale when measuring the beaker and the beaker with water. For pH, we learned the acidity of liquid in buffers. We learned that the range goes from 0 – 14, with 7 being neutral, lower than 7 being more acidic, and higher than 7 indicating a base. Lastly, we measured our pulse with time. I learned how fast my heart beats per minute, second, and millisecond.

Conclusion: In conclusion, we familiarized ourselves with the equipment. We learned about physiological instrumentation and how important conversion factors are in physiology. Without physiological instrumentation and the conversion system, we would not know how much drugs we can distribute to patients, how blood pressure monitors work, how stethoscopes work, etc.