



Blood Typing

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Abstract

- 15 participants pricked their finger using a lancet, 3 drops of blood were placed on a blood test card, and an agglutination test kit with anti-serums were mixed with the blood to determine blood type.
- 67% was blood type O. Based on the U.S. population, the class was above the national average for Asians.
- In conclusion, blood typing is a vital component in science, and is especially crucial in clinical settings. Getting the correct blood transfusion is a matter of life or death.

Introduction

It is important to know compatibility of blood types because adverse reactions are usually fatal. Before blood typing was invented, many people were dying from blood transfusions because incompatible blood agglutinated and killed patients. Agglutination causes clotting in veins, arteries and capillaries, which could cause blockages that prevents oxygen, nutrient, and waste removal from occurring. Determining Rh factors are important for expecting mothers because their antigens can have a fatal effect on the fetus causing miscarriages.² In addition, a person's blood type is used to give whole or parts of blood to a recipient. Whole blood or blood parts include plasma, iron, red blood cells, and white blood cells.



Figure 1. Subject is in the process of collecting their own blood with a lancet device.

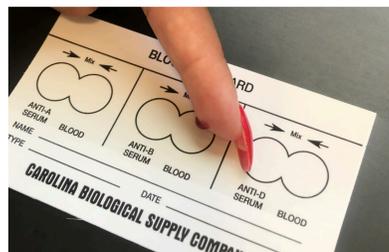


Figure 2. Subject is in the process of applying blood on blood card.

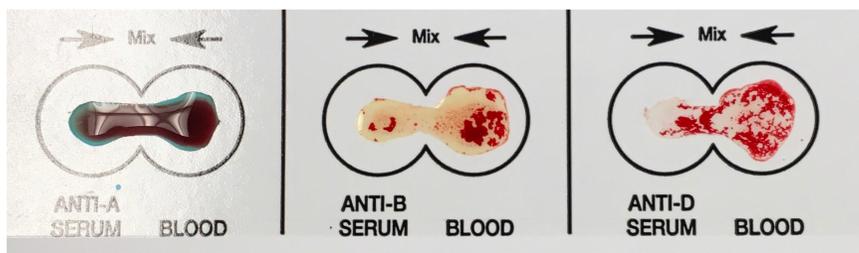


Figure 3. Subject applied serums to identify their blood type. This subject's blood type were B+.

Methods

- A lancet was used to prick the index finger in order to obtain a small blood sample.
- One drop of blood was placed on each of the circles that indicated "blood" on the blood test card.
- Disposed lancets in the sharps container.
- Wiped off excess blood from the finger and use a band-aid to stop bleeding.
- Placed one drop of anti-A serum (yellow) in the circle that indicated anti-A on the blood test card.
- Repeated steps using anti-B and anti-D serum.
- With the white stick, carefully stirred the blood and anti-D serum.
- After stirring the blood and serums, gently moved the blood test card back and forth for one minute on a flat surface. Gently tilted the blood test card from right to left allowing the two substances to mix.
- If the two mixed substances remains the same, there is no agglutination.
- If the mixed substances appears granular, then agglutination has occurred.

Results

- There was a total of 15 blood type results representing 3 major ethnic groups: Asian, Mixed, and Pacific Islander.
- The most common blood type was O (67%) followed by blood type B (27%), and blood type A (6%).
- Most of the class was Rh positive (87%) and the rest was Rh negative (13%).
- Asian blood: 57% was type O blood, 29% was type B blood, and 14% was type A blood.
- Mixed ethnicity: 100% was type O blood.
- Pacific Islander: 50% was blood type B, and 50% was blood type O.

Table 1. The average percentages of blood types

Type of Blood	Average
Type A	6%
Type B	27%
Type AB	0%
Type O	67%
Rh Negative	13%
Rh Positive	87%

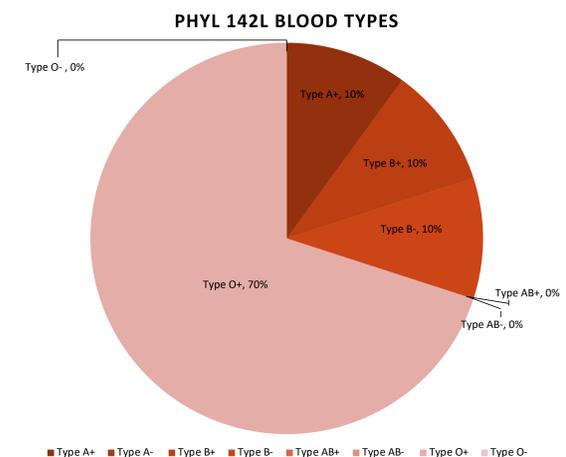


Chart 1. The different blood types within the Anatomy and Physiology 142 Class

Discussion

- Class subjects broke down into 3 major ethnic populations: Asian, Mixed, and Pacific Islander, which are major ethnic groups in Hawaii.
- For blood types O and B, the Asian population in the class was higher than national percentages. The reason could be that Hawaii has a higher ratio of Asian people in general. Type A blood representing Asians in the class was much lower compared to the U.S population (14% difference). Out of the total mixed ethnicity in the class: 100% was type O blood. The book did not have data reflecting mixed ethnicity, but this result makes sense as ethnicities mix—one reason why type O blood is the "universal donor."
- Class data was compared with U.S. populations taken from the e-text, Table 17.4: ABO Blood Groups. Class data was too limited to generally compare with the national data. But even if the class size were sufficient, it is not uncommon for national data to omit data representative of Hawaii's ethnic populations; e-text did not have data representing the population of Pacific Islanders.

Conclusion

Blood is made up of four main components: red blood cells, white blood cells, plasma, and platelets. The blood group types consist of: A, B, AB, and O. Rh factor is another blood typing group that can either be positive or negative. Whether people are recipients or donors of blood, it is important for individuals to know their own blood type to limit the fatal effects of agglutination. Class data supported current research indicating that Type O blood is the most common blood type.

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References

1. Blood Types & ABO Blood Group Test: What Blood Type Are You? (n.d.). Retrieved from <https://www.webmd.com/a-to-z-guides/blood-types-what-to-know#1>
2. Marieb, E. N., & Hoehn, K. (2019). *Human anatomy & physiology*. Hoboken, NJ: Pearson Education.