



NABT Position Statement

The Use of Human Body Fluids and Tissue Products in Biology Teaching

Introduction

Laboratory activities using body fluids and tissue products can be important components of biology teaching, especially if used in an inquiry manner. However, the inherent risk of using samples produces issues not associated with other laboratory activities. The chances of human samples transmitting serious diseases raise concerns about their use by students. Special considerations must be made when using human samples in teaching activities. Human samples used in high school and college biology teaching include blood, cheek cells, feces, hair, human parasites, microbial cultures, mucus, saliva, semen, sweat, and urine. Whole samples or extracts of biological molecules from samples are equally able to transmit disease.

Position

The National Association of Biology Teachers supports using human samples for teaching biology only if instructors and laboratory preparation personnel ensure established safe conditions that prevent the spread of disease. Instructors should use substitute materials or virtual activities if they cannot guarantee the safe collection, handling, storage, cleanup, and disposal of human samples. The National Association of Biology Teachers recognizes that all of the human samples described above should be treated as biological hazards having the potential to spread human disease. It is also important to recognize that any vertebrate specimens collected from the wild or from households should be treated similarly to human samples. Approved disease-free specimens purchased from reputable suppliers still need to be treated with caution.

Recommendations

The National Association of Biology Teachers offers the following recommendations for instructors wishing to conduct activities requiring the use of human body fluids or similar materials:

1. It is not recommended to use student samples collected on or off campus. Use human body samples only if it is definitively known that the samples are free of disease. Do not use any samples of unknown origin.
2. Human body samples should only be used if all students, instructors, and other people coming in contact with the samples are following the Universal Precautions for Handling Human Body Samples as outlined by the Department of Health and Human Services, Centers for Disease Control and Prevention, and the Department of Labor Occupational Safety & Health Administration regulations for bloodborne pathogens standards in 29 CFR 1910.1030.
3. Whenever possible, try to substitute comparable but safer alternatives for human body samples. There are many materials available for purchase that mimic the properties of blood, saliva, and urine. Disease-free animal and human samples of blood, enzymes, feces, microorganisms, and semen can be purchased for

- microscopic analysis from biological supply companies. DNA samples for extraction can be done from fresh foods. It is also feasible to substitute laboratory activities with pedagogically- sound CDs or online virtual activities.
4. The minimum precautions must be used if students are going to handle human body samples:
 - a. Students handle only their personal samples.
 - b. Strict supervision is available for sample handling and disposal.
 - c. All laboratory procedures are conducted using the following personal protection equipment:
 - i. Vinyl or latex surgical quality gloves
 - ii. Chemical resistant safety glasses or goggles
 - iii. A lab coat or apron
 - d. Cleanup and disposal are done in a way that prevents contamination of students and the environment.
 5. The following Web sites are recommended for information about handling human body samples:
 - a. [Centers for Disease Control and Prevention](http://www.cdc.gov/ncidod/dhqp/bp_universal_precautions.html) at http://www.cdc.gov/ncidod/dhqp/bp_universal_precautions.html
 - b. [Department of Health and Human Services](http://www.nationalguidelines.org/guideline.cfm?guideNum=6-15) at <http://www.nationalguidelines.org/guideline.cfm?guideNum=6-15>
 - c. [US Department of Labor](http://www.osha.gov/index.html) at <http://www.osha.gov/index.html>
 - d. [National Association of School Nurses](http://www.neahin.org/programs/reproductive/responding/guide.htm) at <http://www.neahin.org/programs/reproductive/responding/guide.htm>

References

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