

安全警示

7月
第10期
31日

SAFETY ALERT

别让针尖成“凶器”：一起针刺受伤事件警示

2025年5月28日下午，A同学在进行小鼠心脏灌流实验时，被接入蠕动泵软管内的双头采血针的针头刺伤右手食指。事件发生后，A同学马上前往校门诊部就诊，校医为他清创包扎后，将他送到医院就诊，医院为他打了破伤风针。

事件还原：

A同学在实验中使用了蠕动泵，在他开始实验前，双头采血针已被上一位使用人接好。在A同学将采血针刺入小鼠心脏时，发现目前的针头不够锐利，无法刺入，因此需要更换新的采血针继续实验。当他将双头采血针从蠕动泵软管中拔出时，被软管内的尖锐端针头刺破右手食指。



小鼠心脏灌流实验示意图



采血针（尖锐端）



采血针较钝端（有橡胶软套）



采血针较钝端（摘除橡胶软套后）

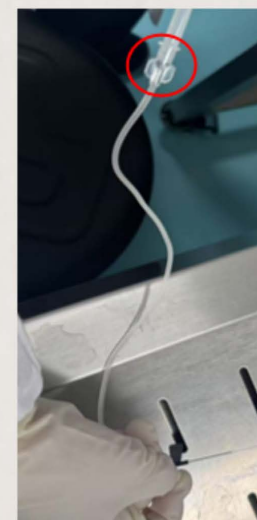
双头采血针示意图

事件分析：

- 1、这是A同学**第一次**使用该蠕动泵开展实验。在他开始使用蠕动泵时，双头采血针已被上一位使用人接入到蠕动泵软管中，加上蠕动泵软管为半透明材质，无法看清接入软管内的采血针头，因此他在事发前并不清楚蠕动泵软管内有采血针头。
- 2、采血针与蠕动泵软管间的接口较紧，且现场**没有可用于拆卸采血针头的工具**，A同学需要徒手使出一定的力气才能将采血针从软管中拆卸下来。

改进措施：

- 1、加强**利器安全使用培训**，掌握安全使用利器的方法。
- 2、设备周边**张贴警示标识**，提醒实验人员当心尖锐针头！
- 3、使用更安全的方式将针头与蠕动泵连接：
 - 建议使用头皮针代替双头采血针连接蠕动泵，降低操作人员被刺伤的风险；
 - 如果遇到软管接口与**头皮针**接口不适配的情况，建议选择**转接口+头皮针**的方式连接蠕动泵；
 - 在移除或废弃采血针头时，应**使用工具（如镊子、针夹等）**，避免徒手操作



参考资料：

- 1.NO. 022 Safety Guidelines for The Use of Syringe Needles
- 2.《针刺伤预防与处理》T/CNAS 41-2024 中华护理学会

SAFETY ALERT

安全警示

JUL 31
NO. 010

Laboratory Needlestick Incident Alert

On the afternoon of May 28, 2025, a student was injured by the needle of a double-wing blood collection needle while performing a mouse heart perfusion experiment. Following the incident, the student went to the hospital and received a tetanus shot.

Brief Description :

This was the first time the student used this peristaltic pump for experimentation. Before he began his experiment, the double-wing needle had already been attached to the pump's tubing by the previous user. When inserting the needle into the mouse's heart during perfusion, the student found that the current needle tip was not sharp enough to penetrate. He therefore needed to replace it with a new collection needle to continue. While disconnecting the other end of the double-wing needle from the peristaltic pump tubing, he was accidentally punctured in the right index finger by the exposed beveled needle tip.

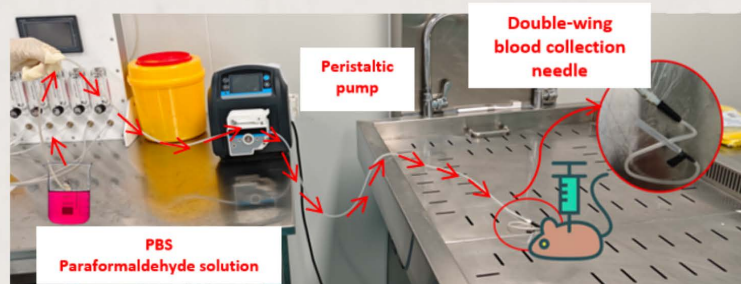


Figure 1 : Mouse Heart Perfusion Experiment



Figure 2 :double-wing blood collection needle

Analysis of Factors affecting the incident:

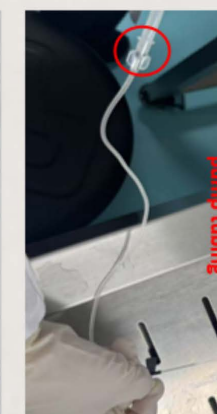
1. This was the student's **first time using** the peristaltic pump for experimentation. When initiating operation, the double-wing blood collection needle had already been connected to the pump tubing by the previous operator. Due to the semi-opaque tubing material obscuring internal components, he **had no knowledge of the presence of any needle tip within the tubing** before the incident.
2. The connection between the blood collection needle and peristaltic pump tubing was exceptionally tight, with no dedicated disassembly tools available onsite.

Learning Points:

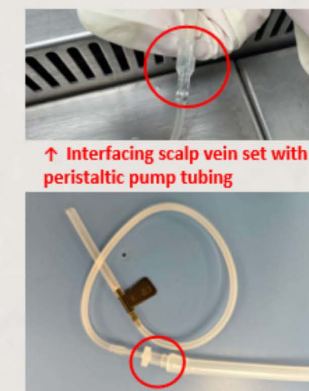
1. Strengthen **safety protocols for sharps handling** through comprehensive training.
2. **Post conspicuous warning signs** near equipment to alert personnel.
3. Optimize peristaltic pump connection methods :
 - Substitute double-wing blood collection needles with **scalp vein sets** for pump connections to eliminate puncture hazards.
 - For tubing incompatibility issues, utilize **luer-lock adapters coupled with scalp vein sets**.
 - When removing or disposing of blood collection needles, **use blunt-tip forceps or needle clamp tools**.



Scalp vein set



↑ Interfacing scalp vein set with peristaltic pump tubing



↑ Interfacing luer-lock adapter with peristaltic pump tubing

References:

- 1.NO. 022 Safety Guidelines for The Use of Syringe Needles
2. 《针刺伤预防与处理》 T/CNAS 41-2024 中华护理学会