



▶ BACKGROUND



▶ WHAT DOES THE RESEARCH SHOW?



▶ RECOMMENDATIONS



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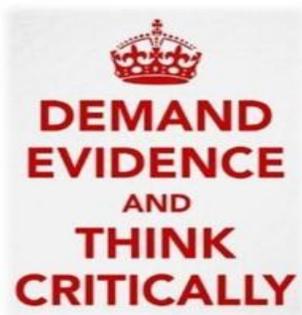
ABC White Paper

UNDERSTANDING, MANAGING, AND PREVENTING BLOOD DONOR REACTIONS IN TEENAGERS

Developed by a subcommittee of the ABC Scientific, Medical and Technical Committee comprised of Lou Katz, Jerry Gottschall, Chris Gresens, Todd Straus and Mary Townsend

Background

- Donation is a safe and common activity that meets a critically important community need
- 2-5% of whole blood (WB) donations are affected, usually reactions are mild
- Teenagers are at higher risk for vasovagal reactions (VVR) and falls with significant injuries due to
 - Hypovolemia
 - Hypotension
 - Bradycardia
- American Red Cross and Vitalant data show that teens
 - Accounts for >10% of donations
 - Risk of syncope reactions 2-3 times higher
 - VVR account for 50% of all injuries in this age group
- Occur anytime from arrival to well after departure from donation site



What Does the Research Show?

- Blood volume
- Fear of donation
- Physiological approaches to mitigating VVRs
 - ✓ Muscle Tensing Maneuvers
 - ✓ Replacement of fluids and electrolytes to combat orthostatic hypotension

Research: Blood Volume

- Limit WB collection in young donors to those with EBV ≥ 3.5 L based on gender, height and weight
- ARC and Vitalant saw 20% reduction in presyncopal and syncopal reactions

Bravo, Kamel, Custer, Tomasulo. Factors associated with fainting: before, during and after whole blood donation. *Vox Sang* 2011;51:1522-31.

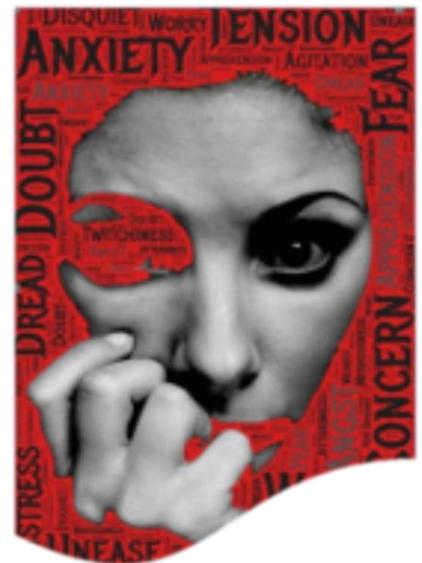
Eder, Dy, Kennedy, et al. Improved safety for young whole blood donors with new selection criteria for estimated blood volume. *Transfusion* 2012; 52:375-80

Research: Fear

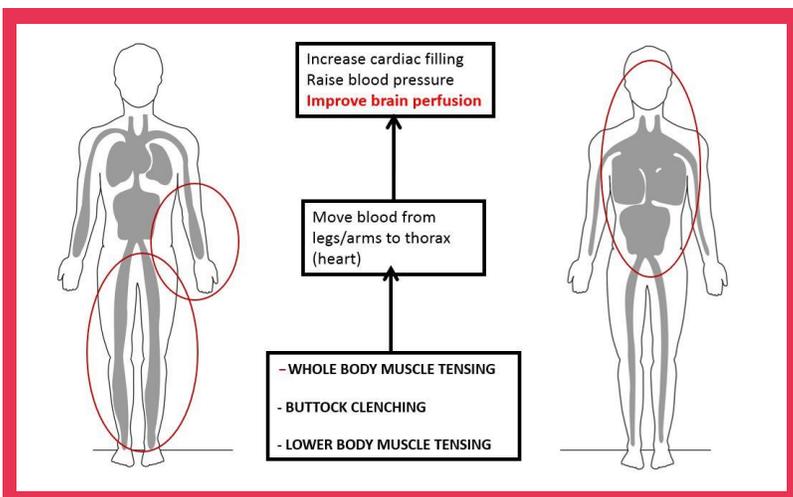
Fear of:

- Needles and pain
- The unknown
- Embarrassment in front of their peers if they have a reaction!!

France C, France J, et al. Assessment of donor fear enhances prediction of presyncopal symptoms among volunteer blood donors. *Transfusion* 2012;52:375-80



Research: Physiologic Approaches to ↓ VVR



MUSCLE TENSING MANEUVERS

Empties large capacitance veins in lower extremities

- ✓ Increases cardiac filling pressure
- ✓ Increases stroke volume
- ✓ Increases cardiac output
- ✓ Increases blood pressure

- Applied Muscle Tension
- Dutch Leg Crossing
- Simple Squat

Morand, Courdurier, Rolland, et al. Prevention of syncopal-type reactions after whole blood donation: a luste-randomized trial assessing hydration and muscle tension exercise. *Transfusion* 2016;56:2412-21.

Muscle Tensing Maneuvers such as Applied Muscle Tension, Dutch Leg Crossing and Simple Squat can reduce VVR by 36%

REPLACEMENT OF FLUIDS AND ELECTROLYTES LOST TO MAINTAIN BLOOD VOLUME AND COMBAT ORTHOSTATIC HYPOTENSION

- ✓ Orthostasis occurs when 500 ml blood pools upon standing
- ✓ Replacment of lost blood with fluids and salts helps maintain blood volume and blood pressure preventing VVR
- ✓ Consider providing water and salty snack or electrolyte/glucose solution pre-donation, during and post-donation



Recommendations

Reduce Emotional Stressors by

- ✓ Pre-donation education: address and reduce fear; empower donor to prevent reactions
- ✓ Blood donation area set-up and environment: fluids, privacy, welcoming refreshment area
- ✓ Staff supervision and phlebotomy skill: well trained staff that provide support and distraction

Prevent/Counteract physiological changes

- ✓ Take into account blood volume
- ✓ Provide fluids and electrolyte/salt early: isotonic drinks or water and salty snacks throughtout
- ✓ Muscle tensing: teach early, support use, make it fun instead of embarrassing
- ✓ Post donation instructions: what to do "just in case"