

Suturing and Knot-Tying Verification of Proficiency

Goal: To provide interns a solid foundation in basic open surgical skills through simulation-based suturing and knot-tying training and assessment. Interns will demonstrate proficiency in two- and one-handed knot-tying and basic suturing techniques on knot-tying boards and synthetic skin pads at the conclusion of this curriculum.

Phase I: Prework: complete and review *prior to hands-on training in Intern Bootcamp*

- View suturing videos: <https://www.youtube.com/c/GSECStanfordSurgery>
- Practice suturing and knot-tying on materials provided in the Intern Care Package

Phase II: Hands-on Training Session:

- In-person mentored practice during the Intern Bootcamp skills sessions
- Residents are advised to practice on their own time prior to testing date

Phase III: Verification of Proficiency Testing:

- Occurs ~2 months after training
- Individual demonstration of suturing and knot-tying proficiency with real-time evaluation by trained rater using checklist (Appendices 1 and 2)

Requirement:

- *All PGY 1's (categorical and non-categorical)*

Appendix 1: Knot-tying

Resident: _____

Date: _____

If tries again, considered “inconsistent” at best.

Knot Task	Checklist Item	Never	Inconsistent	Always	
Tying at the surface Tying at the wide-end of the elastic bands 6 knots 2-Handed 0-Silk tie	Secure post <i>Stable anchoring of suture, does not drop suture or readjust lengths</i>				
	Correct distance from knot <i>4-6 inches from knot</i>				
	Grasps suture with forefinger and thumb <i>No excessive fumbling during loop formation</i>				
	Gathers to shorten suture				
	Lays down knots with forefinger				
	Crosses hands on alternate knots				
	No Air Knot <i>The elastic bands are touching</i>				
Total (max 14 points)					
Tying at depth 6 knots 1-Handed 0-Silk tie	Secure post <i>Stable anchoring of suture, does not drop suture or readjust lengths</i>				
	Correct distance from knot <i>4-6 inches from knot</i>				
	Grasps suture with forefinger and thumb <i>No excessive fumbling during loop formation</i>				
	Gathers to shorten suture				
	Lays down knots with forefinger				
	Total (max 10 points)				
Atraumatic tying 6 Knots Handedness (up to resident) 0-Silk tie	Secure post <i>Stable anchoring of suture, does not drop suture or readjust lengths</i>				
	Correct distance from knot <i>4-6 inches from knot</i>				
	Grasps suture with forefinger and thumb <i>No excessive fumbling during loop formation</i>				
	Gathers to shorten suture				
	Lays down knots with forefinger				
	Moves spoon?	No	Yes		
	Handedness	One-Handed	Two-Handed		
	Total (max 10 points)				
	Total Points:				

Comments:

Appendix 2: Suturing

Resident _____

Examiner _____

Date _____

ITEM	Not Done	Done Incorrectly	Done Correctly
SUTURING – Basic technique			
1. Holds needle driver properly (thumb and long/ring finger with index as stabilizer)			
2. Loads needle properly (at tip of jaws, 1/2 to 2/3 from point)			
3. Needle enters perpendicular to skin			
4. Bites are symmetrical			
5. Passes needle through tissue without sawing, following curve of needle			
SUTURING - Simple interrupted skin closure			
1. No gap between wound edges			
2. Everts wound edges			
3. No dog ear at ends			
SUTURING – Running simple stitch			
1. No gap between wound edges			
2. Everts wound edges			
3. No dog ear at ends			
4. Alternative – demonstrates running locked stitch			
SUTURING – Running subcuticular stitch			
1. Stitches anchors securely without distorting skin			
2. Enters skin at same vertical level on each side, perpendicular to dermis edge following curve of needle through tissue			
3. No gap between skin edges			
SUTURING – Vertical mattress stitch			
1. Places sutures far-far/near-near, at the same distances from the edge on each side			
2. Ties suture with appropriate tension to align edges without bunching tissue			
SUTURING – Horizontal mattress stitch			
1. Places sutures equidistant from the edge and with the same advancement on each side			
2. Ties suture with appropriate tension to align edges without bunching tissue			

Total Points:

(57)

Comments: