REAL BLEED™ ADVANCED SUTURING WORKSHOP

Free-Flap Vascular Anastomosis

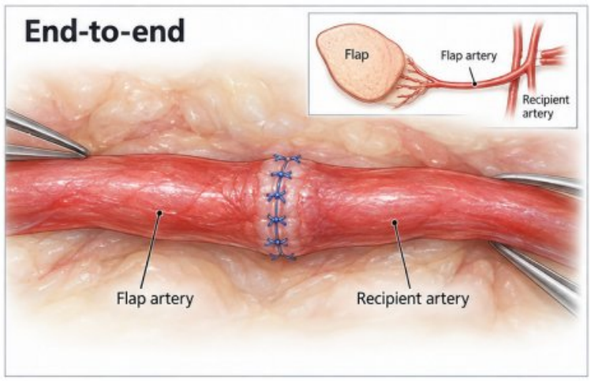
Plastic surgery, ENT and maxillofacial reconstruction | 120-minute faculty-led lab | Anastomosis skills using tissue surrogates

PREPARE / 15 MIN One connected aorta + four short carotid pieces: three form the upper arch; one forms the lower arch. Faculty attach the two upper outer ends and lower left end. Select a modest upper-right caliber mismatch. Use one specimen if suitable. Leave working joins open; pump off during suturing.

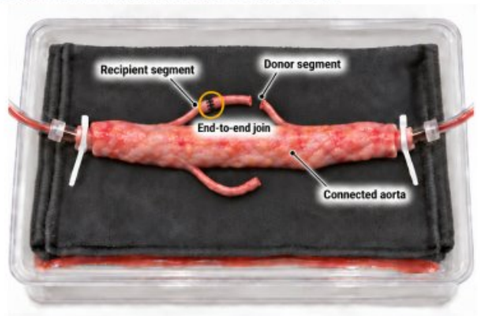
READ THE IMAGES Clinical connection examples above; cumulative bench practice below. The model teaches geometry, not flap physiology.

01 End-to-end join

MATCHED CAROTID ENDS / 25 MIN



ONE CONNECTED AORTA / THREE WORKING JOINS

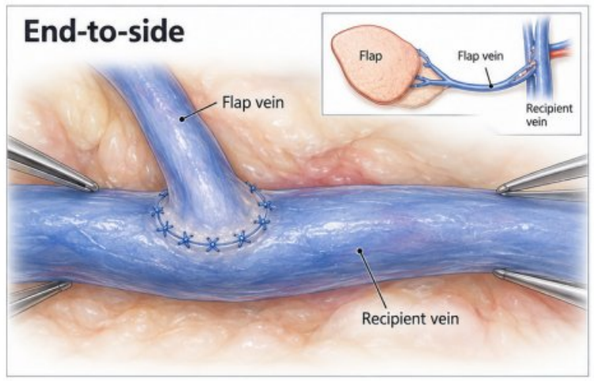


Short tissue segments / previous connections retained

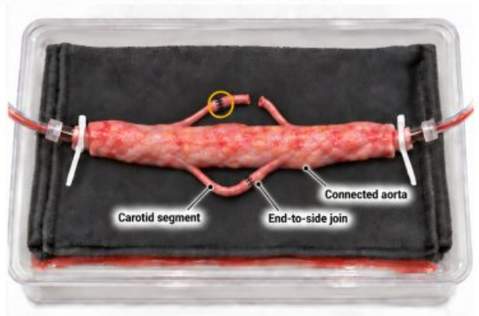
Connect: Flap artery to recipient artery.
Rehearse: Join the matched ends at the upper-left working site. Keep the upper-right ends free.
Check: Align the lumen and avoid twist or back-wall capture. Both aortic cannulas stay attached.

02 End-to-side join

CAROTID END TO AORTIC SIDE / 25 MIN



ONE CONNECTED AORTA / THREE WORKING JOINS

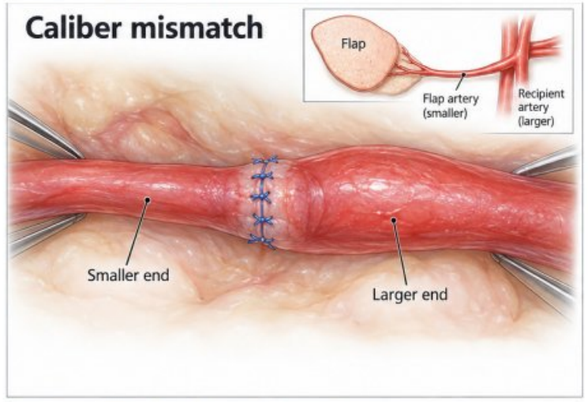


Short tissue segments / previous connections retained

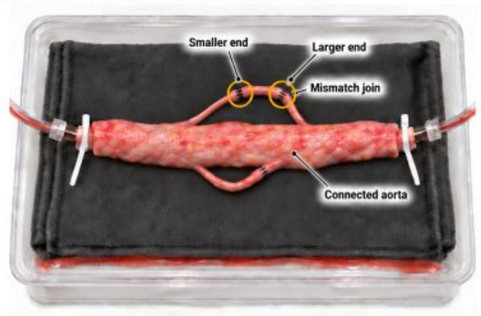
Connect: Flap vein to recipient vein sidewall.
Rehearse: Join the lower arch free end to the aorta. This is a geometry surrogate using arterial tissue.
Check: Preserve heel, toe and parent lumen. Keep the upper end-to-end repair intact.

03 Caliber mismatch

UNEQUAL SHORT TISSUE ENDS / 25 MIN



ONE CONNECTED AORTA / THREE WORKING JOINS

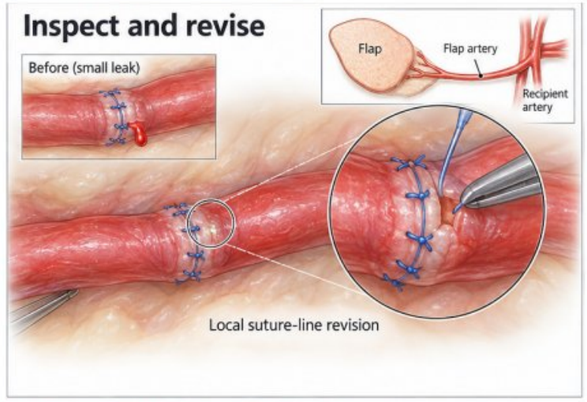


Short tissue segments / previous connections retained

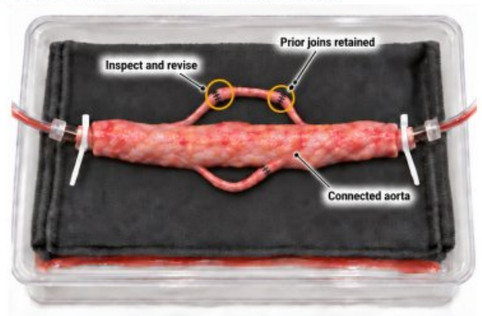
Connect: Accommodate unequal vessel calibers.
Rehearse: Complete the upper-right end-to-end join using faculty-selected, modestly unequal ends.
Check: Inspect suture distribution, lumen and tension. Do not stretch tissue to force a match.

04 Inspect and revise

LOCAL LEAK ASSESSMENT / 15 MIN



ONE CONNECTED AORTA / THREE WORKING JOINS



Short tissue segments / previous connections retained

Connect: Assess completed anastomoses.
Rehearse: Test all three joins; stop flow and revise a localized leak or faculty-marked weak point.
Check: Retest and preserve prior work. Bench filling does not establish flap viability or through-flow.



05 FLOW. FIND. REPAIR.

FINAL CHALLENGE / 20 MIN

Reassess the matched end-to-end, end-to-side and mismatch joins. Identify leakage, stop flow, correct and retest. Record suture quality, revisions and completion time. **Target:** three intact learner anastomoses at the agreed setting. Use a bench-validated test for loop through-flow; filling alone is insufficient.

YOUR REAL BLEED™ SETUP

Photo at left: your original station. The aorta remains connected. Four short carotid pieces provide three learner joins and revision practice; faculty prepare three attachment joins. Use minimum workable lengths with clamp access. Source extra tissue only if needed for caliber selection.

WHAT THE MODEL REPRESENTS

Carotid and aorta teach connection geometry at available tissue scale. They do not reproduce tiny flap vessels or venous wall behavior. True microsurgical training requires appropriately small vessels and magnification. The paired arches are bench circuits, not a perfused tissue flap.

Educational concept for faculty review. Clinical and bench illustrations are AI-generated from anatomical descriptions and your equipment photographs; not operative photos. Follow the Real Bleed™ IFU. Proposed bench setup requires validation. Faculty select the mismatch exercise to suit actual tissue; illustrations are not calibrated dimensional drawings.

Sources: Flap anastomosis Real Bleed™
One page / 17 × 11 in / Free-Flap Anastomosis / Version 01

REAL BLEED™ SYSTEM | PATENT PENDING

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