REAL BLEED™ ADVANCED SUTURING WORKSHOP

Bypass + patch. Every connection counts.

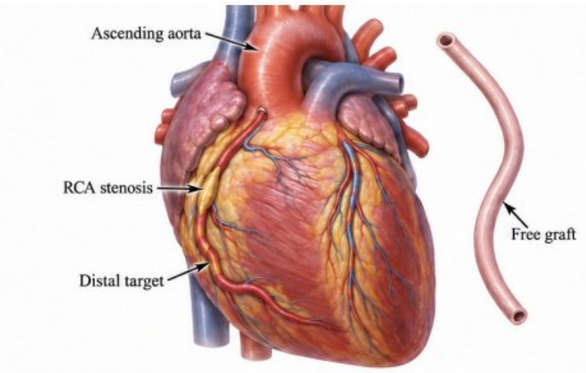
Combined bypass and patch reconstruction skills | 120-minute faculty-led lab | Experienced residents, fellows and surgeons

PREPARE / 15 MIN One aorta + two carotids + a suitable spare tissue patch. Keep both aortic cannulas attached. Faculty attach the target return to the right aorta and close its other end before the lab. Reserve target length for the Step 4 patch. Pump off during open suturing.

READ THE IMAGES Clinical anatomy above; proposed bench exercise below. Gold rings mark the current join.

01 Plan the bypass

ORIENT GRAFT AND TARGET / 15 MIN



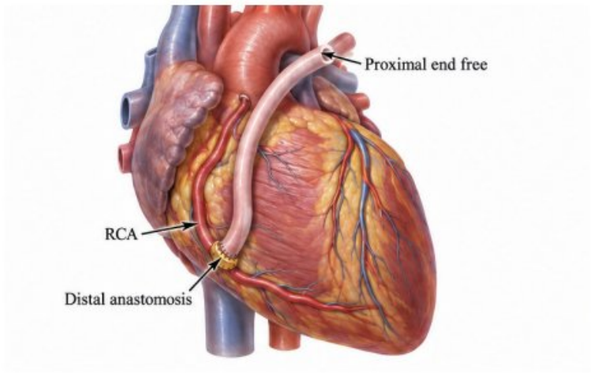
CONNECTED AORTA / CAROTID GRAFT + TARGET

Two learner joins; target return prepared by faculty

Connect: Plan a free graft from ascending aorta to right coronary artery beyond stenosis.
Rehearse: Position the graft between the aorta and smaller carotid target. Mark both sidewall openings.
Check: Adequate length, no twist or tension; identify heel and toe.

02 Distal coronary join

SMALL-VESSEL ANASTOMOSIS / 25 MIN



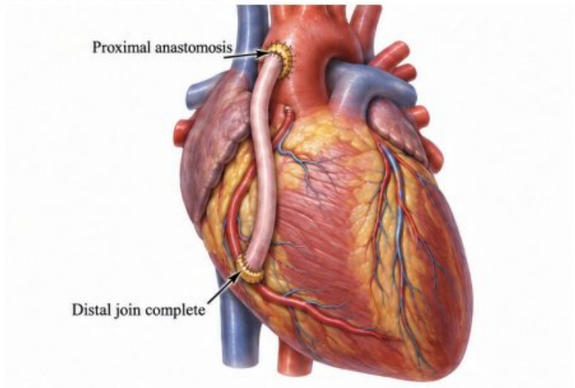
CONNECTED AORTA / CAROTID GRAFT + TARGET

Two learner joins; target return prepared by faculty

Connect: Graft end-to-side to coronary artery beyond the narrowing.
Rehearse: Sew the graft end into the side of the carotid target. The proximal graft end remains free.
Check: Fine bites, open lumen, no back-wall capture. Pump stays off.

03 Proximal aortic join

AORTIC ANASTOMOSIS / 25 MIN



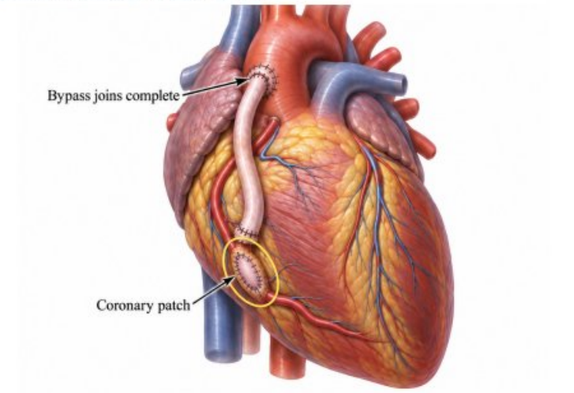
CONNECTED AORTA / CAROTID GRAFT + TARGET

Two learner joins; target return prepared by faculty

Connect: Free graft end-to-side to ascending aorta.
Rehearse: Sew the remaining graft end into the left aortic opening. The distal join is already complete.
Check: Secure heel and toe; preserve graft lie and both lumens. Both cannulas remain attached.

04 Add the patch

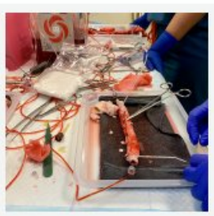
TARGET-VESSEL PATCH / 20 MIN



SAME BYPASS / PATCH THE TARGET CAROTID

Both bypass joins remain intact

Connect: Patch reconstruction is a selected coronary adjunct, not a routine CABG step.
Rehearse: With pump off, open the target carotid lengthwise beyond the distal join. Fit and suture a tissue patch.
Check: Preserve both bypass joins, lumen and patch tips. Keep the aorta connected.



05 FLOW. FIND. REPAIR.

FINAL CHALLENGE / 20 MIN

Find leakage, stop flow, repair and retest. Record completion time, leak sites and repairs; inspect lumens after testing. **Target:** two open bypass joins and a sealed patch perimeter at the agreed setting. Through-flow testing needs a bench-validated method because the main aorta can bypass the loop.

YOUR REAL BLEED™ SETUP

Photo at left: your connected station. The aorta remains intact and cannulated throughout. Two carotids permit a smaller distal target and a separate graft. One long carotid may supply both segments if length allows. Reserve a suitable patch offcut before mounting. Faculty prepare the target return before the lab.

WHAT THE MODEL REPRESENTS

Carotids represent graft and coronary target; target return to aorta is bench plumbing. Caliber and wall properties differ from coronary tissue. The model does not reproduce myocardial perfusion or a beating heart. Patch-last is a workshop sequence, not a prescribed operative order.

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. RCA = right coronary artery.

Sources: CABG overview Patch evidence

One page / 17 × 11 in / Bypass + patch / Revision 01

REAL BLEED™ SYSTEM | PATENT PENDING

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