REAL BLEED™ ADVANCED SUTURING WORKSHOP

Bypass + two patches. Every stitch counts.

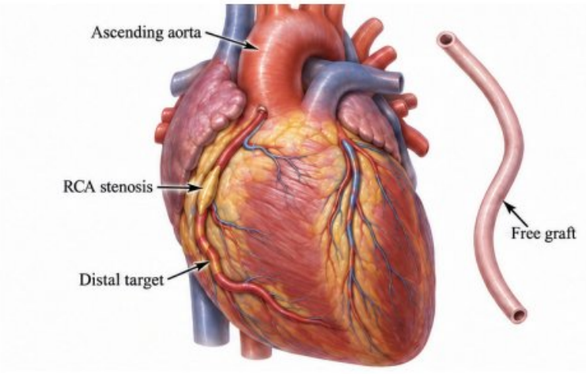
Combined bypass and patch reconstruction skills | 140-minute faculty-led lab | Experienced residents, fellows and surgeons

PREPARE / 15 MIN One aorta + two carotids + two suitable spare tissue patches. Keep both aortic cannulas attached. Faculty attach the target return to the right aorta and close its other end before the lab. Reserve clear target and aortic wall areas for both patches. 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



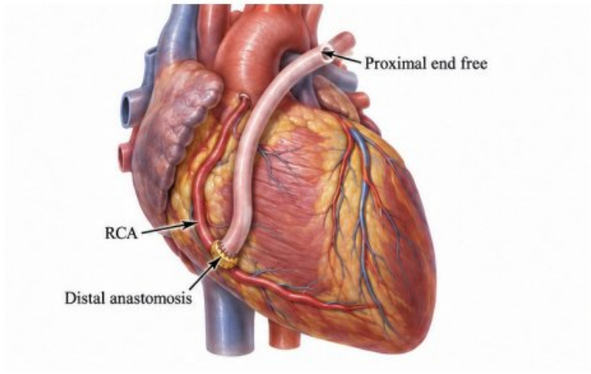
CONNECTED AORTA / CAROTID GRAFT + TARGET

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



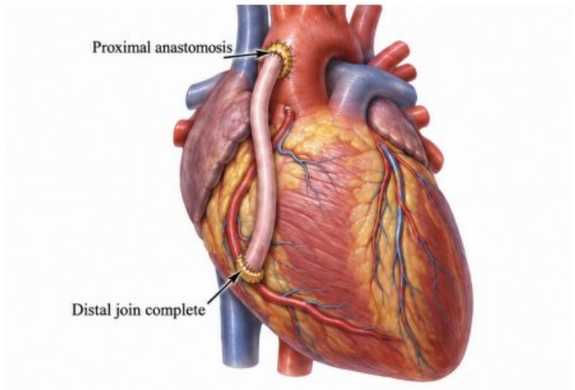
CONNECTED AORTA / CAROTID GRAFT + TARGET

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



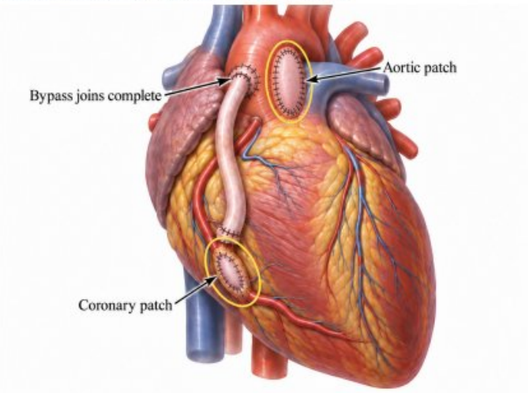
CONNECTED AORTA / CAROTID GRAFT + TARGET

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 both patches

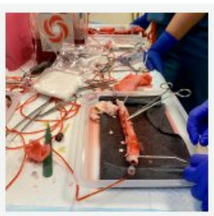
CAROTID + LARGER AORTIC PATCH / 40 MIN



SAME BYPASS / SMALL + LARGE PATCH

Both bypass joins and both patches remain visible

Connect: Two patch-reconstruction skills; not a routine CABG sequence.
Rehearse: Pump off. Patch the target carotid, then a separate, larger opening in the main aorta.
Check: Keep both patches clear of joins and cannulas. Preserve lumens; inspect both perimeters.



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 two sealed patch perimeters 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 stays connected throughout. Two carotids permit a smaller distal target and a separate graft. One long carotid may supply both segments if length allows. Reserve two suitably sized patch offcuts 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. Combined coronary and aortic patches are a skills extension, not a routine CABG sequence.

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 + two patches / Revision 01

REAL BLEED™ SYSTEM | PATENT PENDING

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