

Physical Demands and Motor Function Standards

Diagnostic Medical Sonography Program — Echocardiography and General Sonography Tracks

Sonography is physically demanding in a way that is not obvious from observing an examination. The injury mechanisms such as sustained shoulder abduction, static loading of the scanning arm, sustained grip and transducer pressure, and sustained neck and trunk positioning are inherent to image acquisition rather than incidental to it. The resulting conditions include tendonitis, tenosynovitis, bursitis, muscle strain, and nerve pathology of the upper extremities, neck, and back, and they affect a large majority of practicing sonographers, with the shoulder most commonly involved and hand and wrist involvement increasing with years of practice.

Section 1 — Baseline Standards (Both Tracks)

The student must be able to:

Posture and transducer control	• Maintain a balanced, neutral seated or standing posture throughout the examination. • Grip and precisely manipulate the transducer (rotate, angle, slide, and rock) while applying and adjusting pressure. • Maintain transducer contact and pressure for prolonged time across multiple examinations per clinical day. • Operate keys, trackball, touchscreen, and system controls with the non-scanning hand while holding transducer position.
Ergonomic setup	• Independently adjust the system, monitor, control panel, examination table, and chair before and during examinations. • Position patients to minimize reach and work within the primary reach zone whenever possible. • Maintain scanning-arm abduction below approximately 30 degrees when feasible. • Adapt ergonomics and scanning techniques to varied clinical environments, including the laboratory, bedside, emergency department, and operating room. • Take brief microbreaks between and during examinations and vary tasks when workflow permits.
Mobility and patient handling	• Move equipment, examination tables, wheelchairs, and stretchers requiring up to 50 pounds of push/pull force and recognize when additional assistance is needed. • Assist with patient positioning and transfers using appropriate transfer devices. • Stand, walk, sit, bend, and reach while transporting portable equipment throughout patient care areas, including elevators and confined spaces.
Infection control and safety	• Perform hand hygiene, don and doff personal protective equipment, and handle sharps and disinfectants safely.

Section 2 — Self-Monitoring and Injury Reporting (Both Tracks)

The student must be able to recognize early signs and symptoms of work-related musculoskeletal injury in themselves, report them promptly, and apply the ergonomic controls within their own control. This is a technical standard, not a courtesy. Because injury develops gradually from cumulative exposure rather than a single event, the student is best positioned to detect it early. Reporting symptoms will not be treated as a performance deficiency; concealing symptoms to appear capable does not meet this standard.

Sections 3 and 4 — Additional Standards by Track

In addition to Sections 1 and 2, the student must be able to meet the standards for their track:

Echocardiography Track	General Sonography Track
<i>Cardiac imaging concentrates postural load in a narrower range of positions over longer continuous acquisition windows.</i>	<i>General sonography spreads load across more varied postures but adds higher peak transducer force and a wider range of patient positions and room setups.</i>
• Cross-body reach. Reach across the patient during left lateral decubitus imaging, requiring sustained shoulder abduction and forward reach. • Wrist control. Maintain precise wrist positioning and fine transducer control while sustaining pressure and image acquisition. • Directed pressure. Apply and maintain firm transducer pressure, including difficult acoustic windows and larger patients. • Breath-hold acquisition. Maintain transducer position and image quality throughout repeated breath-hold sequences during examinations lasting on average 45-60 minutes. • Apical access. Position patients and equipment to obtain apical views while maintaining safe hand and wrist posture. • Bedside critical care. Transport and operate equipment in confined spaces around monitoring and life-support devices. • Stress echocardiography. Acquire complete post-exercise image sets within required imaging timeframes. • TEE and interventional procedures, as applicable to placement: prolonged standing and, where required, a lead apron and thyroid shield.	• Elevated pressure. Apply and sustain increased transducer pressure during abdominal and vascular examinations, including venous compression maneuvers and imaging of larger patients. • Endocavitary examinations. Maintain forearm and wrist control during prolonged endocavitary imaging. • Vascular imaging: Maintain neutral posture while scanning lower extremities and tolerate standing portions of vascular protocols. • Neck and superficial imaging: Maintain fine transducer control and precisely modulated pressure for carotid, thyroid, small-parts, and musculoskeletal examinations. • Frequent repositioning. Change transducers, reposition equipment, and reconfigure the examination room throughout the day. • Portable examinations. Transport and operate ultrasound equipment in patient rooms, emergency departments, operating rooms, and intensive care units. • Variable exam length. Sustain scanning during examinations of unpredictable duration, including extended obstetric and vascular studies.