ERGONOMIC MICROSCOPES REDUCE THE RISK OF MUSCULOSKELETAL DISORDERS AT NAVAL HEALTH RESEARCH CENTER'S RESPIRATORY DISEASE LABORATORY

Laboratory professionals at the Navy Health Research Center in San Diego, California, participate in critical and cutting-edge research in infectious respiratory diseases. To do this, technicians must look at specimens under traditional binocular, or two-eyepiece, microscopes for long periods of time. Because the laboratory receives a large number of specimens from military facilities across the country, this work may require technicians to spend up to seven hours a day, three times a week, at the microscopes inspecting slides for the presence of viruses or bacteria.

The Respiratory Disease Laboratory research team recognized that, after long hours of studying slides, technicians were at risk for eyestrain and discomfort in their wrists, arms, shoulders, and necks. The angle of the microscopes' eyepieces and the position of the controls used to force technicians to stand for long periods with their body weight resting on their forearms, or to sit with their necks bent and arms extended.

Work tasks that require maintaining an awkward or uncomfortable posture for long periods of time may stress and fatigue the muscles and tendons that support that position. The awkward postures that technicians used to assume while using binocular microscopes presented an ergonomic hazard.

Maintaining awkward postures for long periods can stress and fatigue muscles and tendons.

Ergonomics is the science of fitting the work task to the worker, instead of requiring a worker to adapt to existing working conditions. The goal of an ergonomics program is to reduce the frequency and severity of work-related musculoskeletal disorders (WMSDs). Ergonomic stressors, such as awkward postures, are minimized by redesigning work tasks or workstations to fit the user and selecting equipment and tools that are matched to the task.

When the Quality Assurance Specialist at the laboratory identified microscope-related ergonomic risk factors at Naval Health Research Center, the Laboratory Director responded promptly by identifying and acquiring a versatile new model

of clinical microscope. The new microscope has a wide range of ergonomic features, including adjustable controls that allow users to sit or stand upright with the head and neck at a natural angle and with forearms resting comfortably on a worktable. The photograph at right shows a lab technician working with one of the new microscopes.

Adjustable microscope controls allow users to work comfortably.

Many features on the older microscope were not flexible, so a technician had to bend and twist his or her body to use the microscope. The new microscopes have a lower stage (the flat surface that holds the slide) than conventional models so that oculars, or eyepieces, are at the technician's eye-level. The microscope's observation tube tilts so that technicians can either stand or sit comfortably while using the microscope. These adjustable features accommodate workers of different heights so that all can work in comfortable, ergonomically correct postures.

Ergonomic microscope can be adjusted to suit each technician.

By eliminating awkward postures, the new microscopes reduce the risk of WMSDs. Laboratory professionals, especially bacteriology and virology technicians, at Naval Health Research Center are very pleased with their new equipment. The Respiratory Disease Laboratory team continues to be proactive in addressing ergonomic hazards in their highly productive work environment.

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