

Abstract

Eighty percent of sonographers suffer from musculoskeletal disorders. This is attributed to the combination of sustained pinching and pushing needed during some ultrasound procedures. In order to alleviate the need for the sonographer to apply a sustained force, we developed a design that can apply a force for the duration of the procedure. The design consists of an arc attached over the echocardiogram bed connected to a transducer by a arm. Movement is possible via a slider over the arc, a ball and socket joint, a hinge joint, and a rotating joint where the transducer is attached. The sonographer locks the arm in place to sustain a force and performs the detailed movements necessary.

Problem Statement

Motivation:

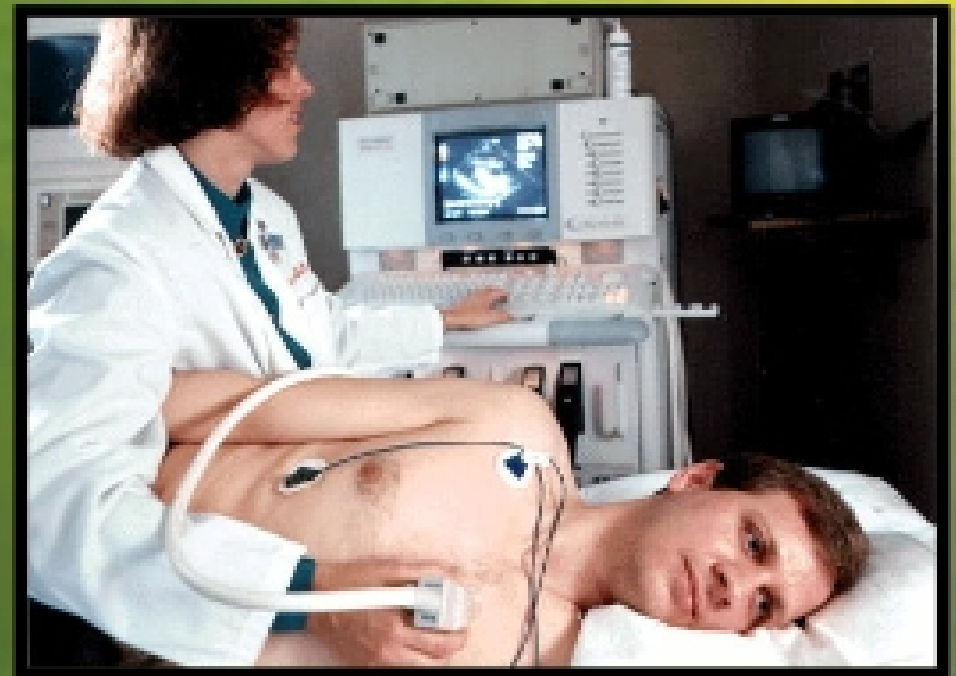
Sonographers apply high levels of force while performing detailed movements, increasing work-related injuries.

Goal:

To develop an ergonomic design to minimize the forces applied and improve the current ultrasound procedure.

Background

- Relevant Ultrasound Procedures
 - Echocardiogram
 - Duration: 45 min.
 - Biopsy
 - Duration: 30-60 min.



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