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Evaluation of Wearables for Preoperative Cardiorespiratory Fitness Screening and Risk Stratification in Geriatric Surgery

Abstract

Major surgeries are increasing in older adults, with approximately half of the population over the age of 65 years requiring one or more major surgical procedures. This is a concerning trend, because older adults suffer high rates of postoperative morbidity and mortality due to diminished functional capacity, comorbidities, frailty, and lack of access to comprehensive geriatric care. Preoperative assessment is of particular importance in geriatric surgery to identify patients at increased risk of surgical complications, to fully inform patients and providers in their surgical decision-making, and to determine if additional preoperative testing or medical interventions are required prior to surgery. We are conducting a prospective observational study of older adults undergoing elective major noncardiac surgery to assess the use of wearable consumer fitness monitors and supervised machine learning models for prediction of preoperative functional capacity and postoperative complications. This study will provide critical foundational data on the use of wearables for surgical risk stratification of older adults.