



Service Priorities and Programmes
Electronic Presentations

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Applicability of Isometric Pushing/ Pulling Forces in Determining a Worker's Work Capacity.

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Keywords:

Isometric pushing/ pulling

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Introduction

In work capacity evaluation, a worker's physical capacity in pulling/ pushing a trolley could be simulated and assessed with the EvalTech (a computer aided functional testing system). One's force could be measured within seconds by simply setting the handle of the EvalTech to the required height and width (such as those in a trolley). However, it provides isometric data which is insufficient to reflect a worker's real life situation of keeping a trolley in motion at daily practice. Hence, in order to make the data obtained from the EvalTech to be applicable in work simulation assessment, a pilot is conducted to collect the pushing/ pulling forces in moving a trolley with a force gauge. The data collected could then be used to correlate with the forces generated by the EvalTech as a reference to determine a worker's work capacity.

Objectives

(1) To measure the pushing and pulling forces required in moving a trolley with various weights on it.

(2) To determine a worker's work capacity in pushing/ pulling tasks by using the collected data.

Methodology

Weights are added at 10 kg intervals (from 10kg to 200kg) to a foldable trolley. The trolley is pushed/ pulled for 5 meters on levelled ground which is lay with vinyl flooring. Forces required 1) to get the trolley start moving and also, 2) to keep it in motion are measured with a force gauge.

Result

Results: Regression lines on pushing and pulling forces required to initiate or sustain a trolley in motion showed strong linear trends ($r^2 > 0.80$, p