Drill Bit Wear Decreases Worker Productivity – and Increases Vibration Exposures

Effect of Bit Wear on Hammer Drill Handle Vibration and Productivity

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Journal of Occupational and Environmental Hygiene, 2017.

Overview

Rotary hammers and hammer drills are used extensively in commercial construction for drilling into concrete for tasks including rebar installation for structural upgrades and anchor bolt installation. A CPWR-supported research team has developed a test bench for standardized measurement of dust, noise, force and vibration during rock drilling. Extended exposures to handle vibration may lead hand-arm vibration syndrome, causing injury to the nerves, bones, joints and blood vessels in the hand. In this experiment, the team tested carbide-tipped bits in four different states of wear, measuring drill handle vibration and productivity while drilling concrete block.

Key Findings

- Bit wear led to a small but significant increase in handle vibration.
- Bit wear led to a large and significant reduction of productivity, so that workers were exposed to unhealthy vibration for longer periods of time.
- Construction contractors should implement a bit replacement program to boost productivity and limit worker exposure to handle vibration.

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See abstract:
http://bit.ly/2v6UaBj

 Production of this Key Finding was supported by Grant OH009762 from the National Institute for Occupational Safety and Health (NIOSH). The contents are solely the responsibility of the authors and do not necessarily represent the official views of NIOSH.

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