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# Operator-Power Tool Interaction and the Need to Update the Standards

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**Abstract:** Due to the lack of means to measure the force or torque encountered at the hand-handle interface, past ergonomic studies about operator response towards power hand tool operations mainly rely on indirect measures such as electromyography and subjective ratings of discomfort or exertion. A hand-handle interface force and torque measurement system is introduced as an alternative to fill the void acknowledged in the international standard ISO 6544, which governs pneumatic assembly tool reaction torque and force measurement. This system consists of an instrumented handle with a sensor capable of measuring grip force and reaction hand moment when threaded fastener driving tools are used by operators. The handle is rigidly affixed to the tool in parallel to the original tool handle with minimal interference on actual fastener-driving tasks. Demonstration of this proposed system was made with tools of three different shapes: pistol grip, right angle, and in-line. During tool torque buildup, operators exerted greater grip force on the soft joint than on the hard joint. The soft joint demanded greater hand moment impulse than the hard joint. This system, supplemental to ISO 6544, can provide additional force and torque related information experienced by the tool operator, and hence allow ergonomics and occupational safety practitioners to better assess the impact of power hand tool operations. A resultant peer-review paper was published in the *Journal of Occupational and Environmental Hygiene*. However, no update has been amended to the standard. The procedure to update an ISO standard for an individual scientist is not readily available. The sub-committee of various ISO standards may not have the incentive to initiate updates. Certain form of facilitation should exist to take advantage of research findings.

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