ACGIH® Physical Agents Committee Ergonomic TLV® Initiatives

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Outline

• ACGIH® TLV® development process
• Physical agents (ergonomic) understudy
  • Localized fatigue
  • Hand-arm vibration
• Schedule
TLV®/BEI® Development Process

See:

Recent initiatives

- ACGIH® recently produced two ergonomic TLVs®. One is a TLV® for monotask handwork and one is a TLV® for materials handling.
Under study

• Localized fatigue
• Hand-arm vibration
A “Model”  
from: Armstrong et al. (1993)

**External Exposure**

**Work Reqs**
- Standards
- Equipment

**External Load**
- Force (t)
- Posture (t)

**Individual Factors**
- e.g., Size
- Capacity
- Behavior

**External Physical & Social Environment**

**Dose (Internal Load)**

**Response 1**

**Response 2**

**Response n**

**Reporting**
Localized Fatigue

- Mechanical and physiological process
- Pain and impaired work performance
- Develops in seconds, minutes or hours
- Recovery should be complete within minutes or hours after cessation of work
- Symptoms may be hard to distinguish from those of other disorders
- Workers should seek help if symptoms persist from one day to next or interfere with activities of work or daily living.
Localized fatigue

- To some extent affects all workers – some very much
- A localized fatigue TLV® would be relevant to all body parts, e.g., forearm, arm, shoulder, neck, back, legs, etc.
- May be an important harbinger of chronic muscle, tendon and nerve injuries
- May be a precursor of chronic muscle, tendon and nerve injuries
- May be difficult to distinguish between effects of fatigue and those of chronic muscle, tendon and nerve disorders
Localized fatigue

- Intramuscular
- Extramuscular
Relevant to all body parts

Hand-arm Vibration

- Many workers are exposed
- Often occurs in combination with repeated forceful exertions and extreme postures
- Can be difficult to separate effects of vibration from ergonomic stressors
- Many studies have been published since the TLV® for hand-arm vibration was last changed
- Some studies address relationship between vibration and localized fatigue
Gathering Information

- Individuals on the TLV®-PA Committee may attend and participate in national and international meetings to identify experts in fatigue and vibration.
- Individuals on the TLV®-PA Committee may also participate in special sessions concerning fatigue and vibration and development of exposure guidelines.
- ACGIH® may organize a symposium on fatigue and vibration that would bring together experts to summarize the state-of-the-art.
- Symposium would be open to the public.
- The TLV®-PA Committee would use information from symposium and literature to facilitate development of documentation and recommend a TLV®.
Schedule

- Depends on budget
- Important meetings: ICOH, IEA and HFES 2006
- Possible Symposia 2006 or 2007
- Draft documentation and recommended TLV® circa 2007 or 2008
Thank you

• Further information:
  • www.acgih.org
  • http://www.acgih.org/TLV/DevProcess.htm

• Comments: science@acgih.org