

# ACGIH<sup>®</sup> Physical Agents Committee Ergonomic TLV<sup>®</sup> Initiatives

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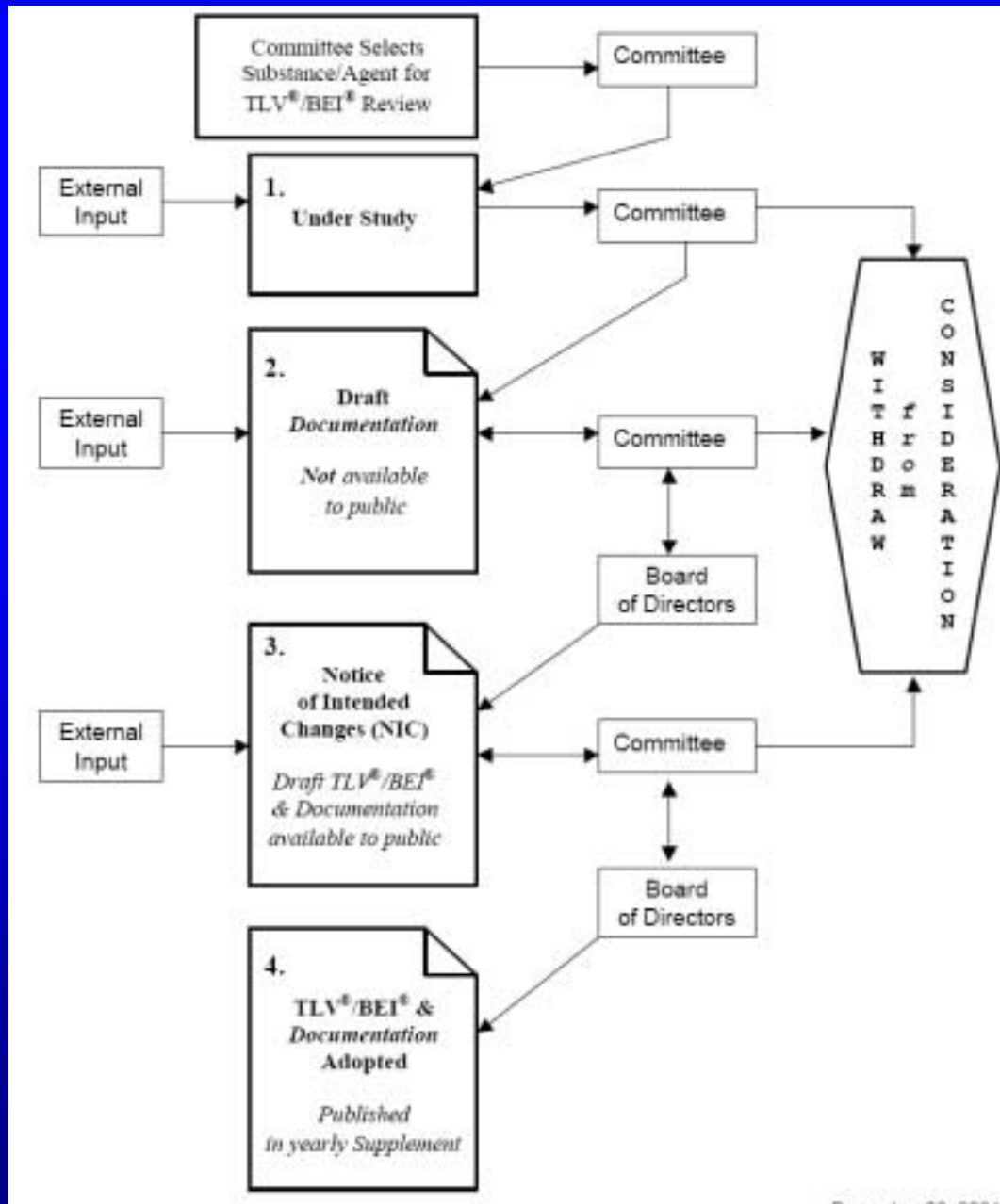
# Outline

- ACGIH<sup>®</sup> TLV<sup>®</sup> development process
- Physical agents (ergonomic) understudy
  - Localized fatigue
  - Hand-arm vibration
- Schedule

# TLV<sup>®</sup>/BEI<sup>®</sup> Development Process

See:

<http://www.acgih.org/TLV/DevProcess.htm>



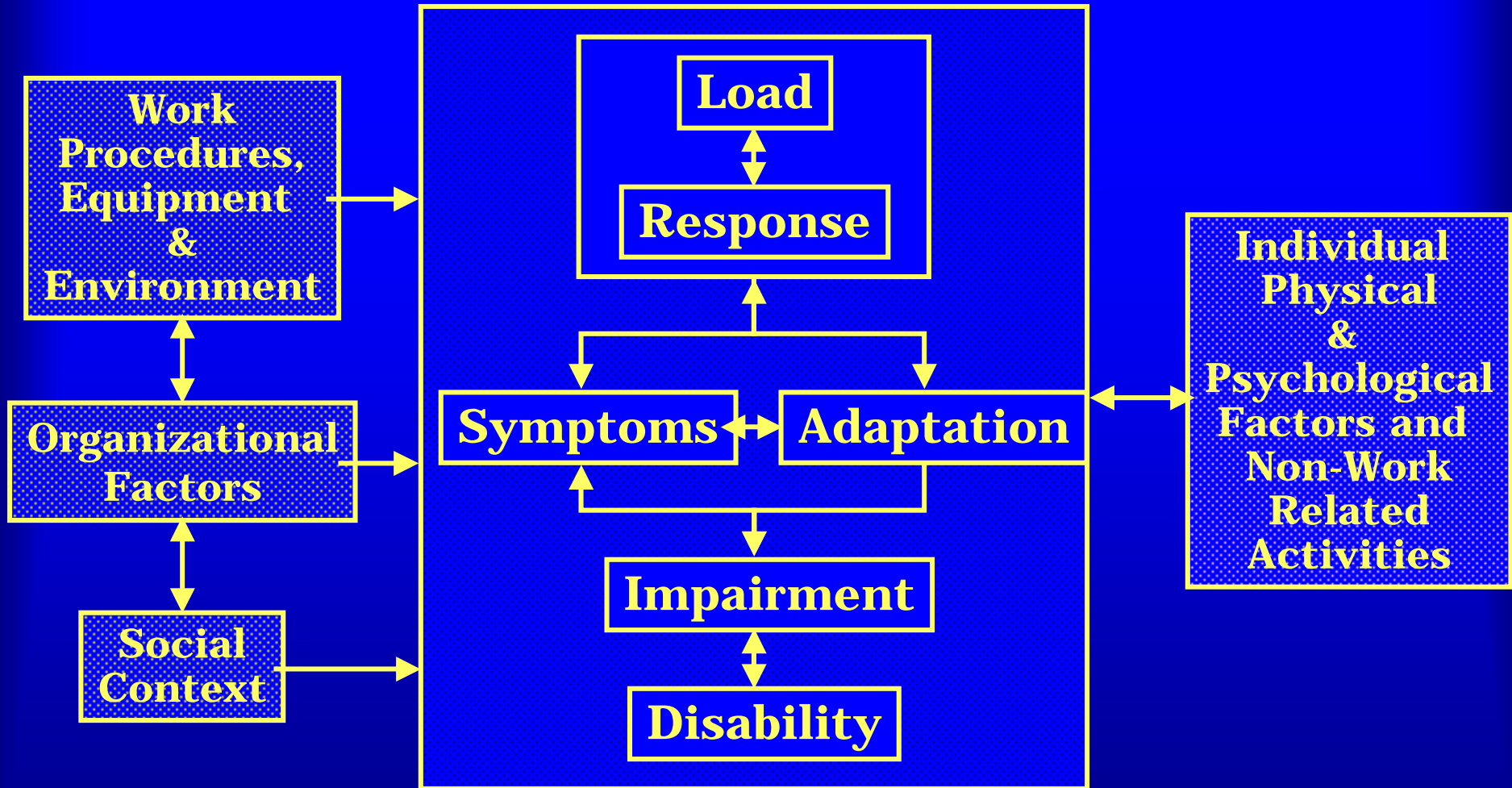
# Recent initiatives

- ACGIH<sup>®</sup> recently produced two ergonomic TLVs<sup>®</sup>. One is a TLV<sup>®</sup> for monotask handwork and one is a TLV<sup>®</sup> for materials handling.

# Under study

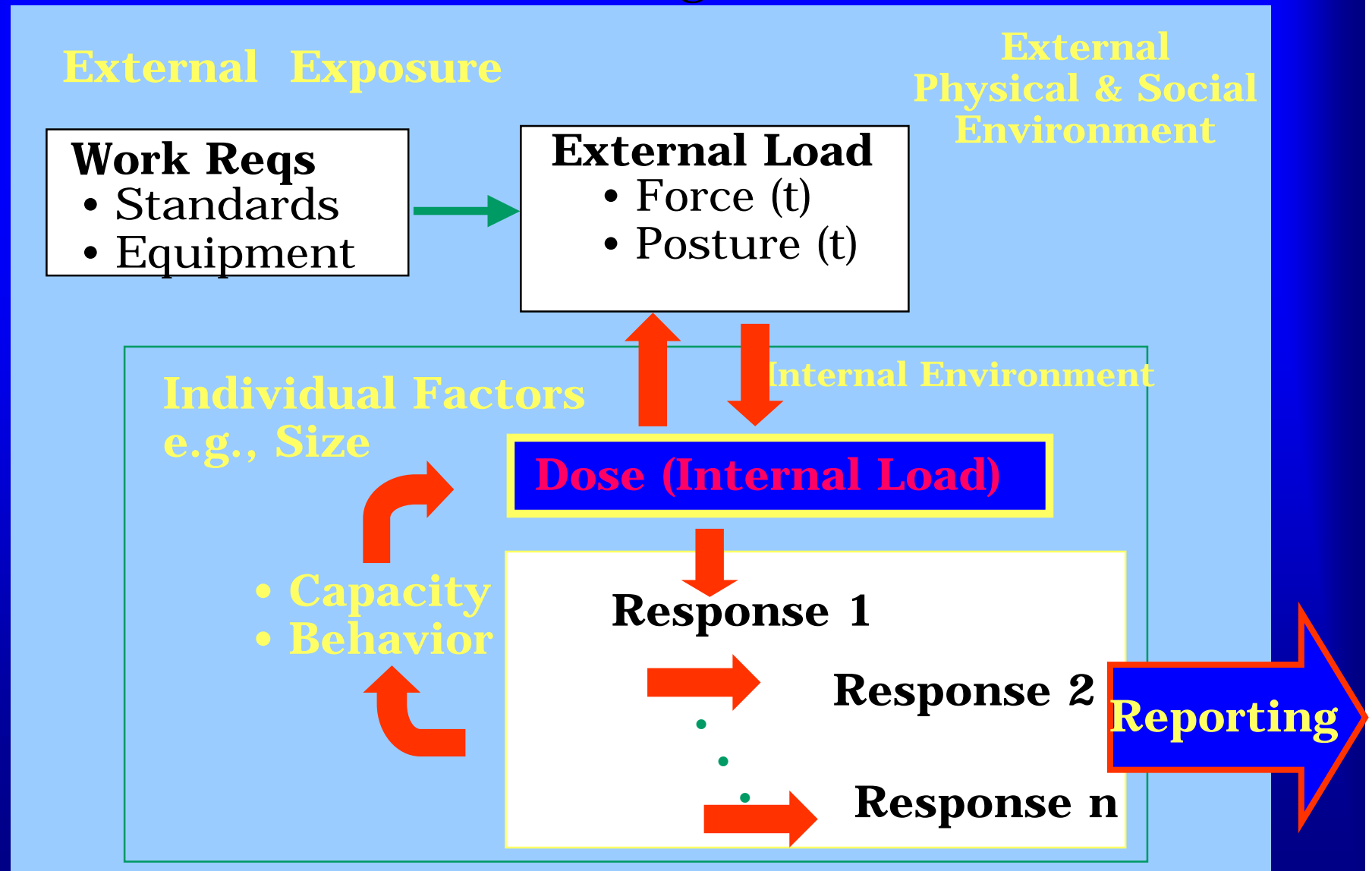
- Localized fatigue
- Hand-arm vibration

# NAS 1999, 2001



Work-Related Musculoskeletal Disorders: A Review of the Evidence.  
National Research Council, National Academy Press, 2101 Constitution  
Avenue N.W., Washington, D.C. 20418, 1998. [Http://www.nap.edu](http://www.nap.edu)

A "Model"  
from: Armstrong et al. (1993)



# Localized Fatigue

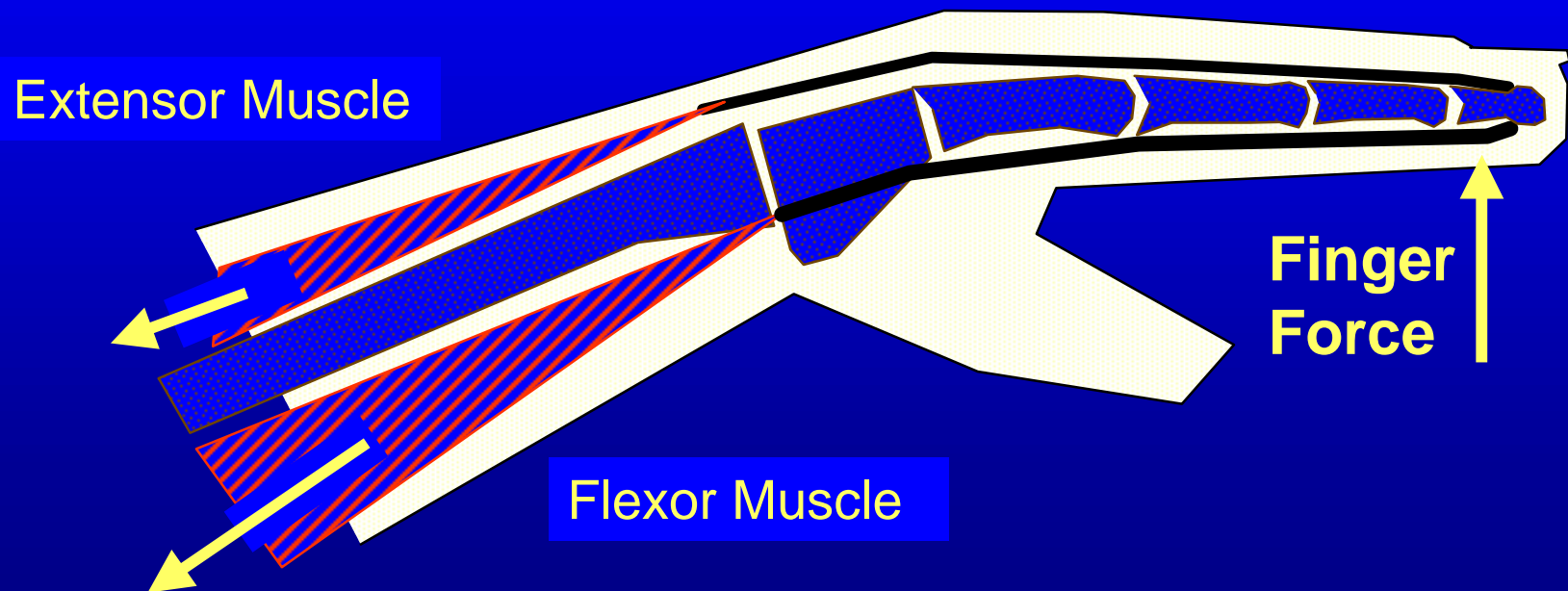
- Mechanical and physiological process
- Pain and impaired work performance
- Develops in seconds, minutes or hours
- Recovery should be complete within minutes or hours after cessation of work
- Symptoms may be hard to distinguish from those of other disorders
- Workers should seek help if symptoms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

# Localized fatigue

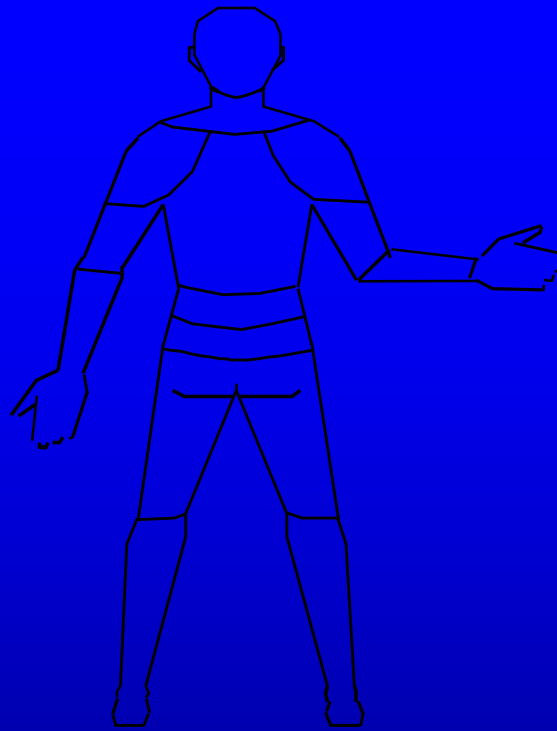
- To some extent affects all workers – some very much
- A localized fatigue TLV<sup>®</sup> would be relevant to all body parts, e.g., forearm, arm, shoulder, neck, back, legs, etc.
- May be an important harbinger of chronic muscle, tendon and nerve injuries
- May be a precursor of chronic muscle, tendon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



Corlett, E. & Bishop, R.: The ergonomics of spot welders. *Applied Ergonomics*, 9:23-32, 1978.

# 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<sup>®</sup> for hand-arm vibration was last changed
- Some studies address relationship between vibration and localized fatigue

# Gathering Information

- Individuals on the TLV<sup>®</sup>-PA Committee may attend and participate in national and international meetings to identify experts in fatigue and vibration
- Individuals on the TLV<sup>®</sup>-PA Committee may also participate in special sessions concerning fatigue and vibration and development of exposure guidelines
- ACGIH<sup>®</sup> 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<sup>®</sup>-PA Committee would use information from symposium and literature to facilitate development of documentation and recommend a TLV<sup>®</sup>

# Schedule

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

# Thank you

- Further information:
  - [www.acgih.org](http://www.acgih.org)
  - <http://www.acgih.org/TLV/DevProcess.htm>
- Comments: [science@acgih.org](mailto:science@acgih.org)