



Ergonomics and Cumulative Trauma Disorder Reviews

Ergonomics is an applied science concerned with designing and arranging the tools people use - and their work environment - so that the people and things they work with, interact most efficiently, and safely.

In instances where ergonomics is less than optimal, workers can become injured. Injuries such as carpal tunnel syndrome, tendonitis, and lower back strain can be debilitating, not to mention costly. OSHA has also focused on these incidents, which are termed Cumulative Trauma Disorders (CTDs).

Besides attention from OSHA, these injuries as noted are expensive. The price tag includes: medical expenses, lost time from work, and overtime for replacement employees. Estimates do vary, but a general rule of thumb is to consider that for every dollar spent on an injury like this, it actually costs your business 2 to 5 times more in hidden costs!



However, there is more to consider than just the dollar value. Many times the employee's quality of life is permanently affected; as even with corrective surgery, the recovery is rarely 100 percent.



A-EHS's principal has received extensive ergonomic training at NIOSH and the University of Michigan, plus decades of practical field evaluations. He can review your ergonomic conditions: service/repair staff, machine shop, and manufacturing floor, and office areas. The final report will include also recommendations on corrective actions. And we have a few tools that are unique to us.

A-EHS has two iOS application: GEAR (**G**eneral **E**rgonomics **A**rea **R**eview) and EGOS (**E**rgonomics **G**eneral **O**ffice **S**urvey) that generate part of the report. This allows A-EHS to substantially reduce the time spent formatting a document, which reduces a client's costs. GEAR and EGOS also ensures the utmost in accuracy, as there is no chance of human calculation errors.

If requested, A-EHS can also set up an ergonomic program and team for you as well. Similar to a safety committee, individuals on this team would serve as an internal resource to review both complaints about existing work set-ups, as well as reviewing potential changes for ergonomic concerns, and identify them before they become an issue.

Printout of **General Ergonomics Area Review**, report comes directly from iPhone

General Ergonomics Area Review

Date: **7/29/2015** Survey By: **Mark Rollins, CIH, CSP**

A-EHS
360 Canterbury Road, Brooklyn, CT 06234
Tel: (202) 569-8027 www.A-EHS.com

Site contact: **[Redacted]**

Dept: Chem storage **Staff/area:** **ID:** **M/F:**M **Supv:**
Drum with residue is lifted manually so it can drain. Once per day



Snook Tables Design goals based on research by Dr. Snook at Liberty Mutual Insurance.

Lift Above Shoulder >54 in.	Lift Knuckle to Shoulder 29 - 54 in.	Lift Floor to Knuckle <29 in.
f 1/8 h 1/8 h	f 1/8 h 1/8 h	f 1/8 h 1/8 h
Actual 50 Limit 29	Actual 50 Limit 33	Actual 50 Limit 42
Carrying at Waist (elbows bent)	Carrying Below Waist (elbows straight)	
f N/A	f N/A	

Force is in Pounds; f is for Frequency. Red are weight/force above recommended limit. **Snook Tables** use 75% of limit for females, which may be low. To lessen chance of ergonomic injuries, reduce frequency and/or weight/force if that is feasible.

High Push Point about 55 in.	Middle Push Point about 36 in.	Low Push Point about 24 in.
f N/A	f N/A	f N/A
High Pull Point about 55 in.	Middle Pull Point about 36 in.	Low Pull Point about 24 in.
f N/A	f N/A	f N/A

RULA Rapid Upper Limb Assessment - Drs. Hedge, McAtamney & Corlett, published as "A Survey Method for Investigation of Work-Related Upper Limb Disorders," *Applied Ergonomics*, 1993.

The scoring indicated 'investigate and implement change,' which means based on this review, the ergonomic stress on the upper limbs, neck, and shoulders, needs additional investigation and corrective action as soon as feasible.

The **RULA** system looks at things like angle of neck, wrist, or upper body, and the amount of force used in the job.

REBA Rapid Entire Body Assessment - Drs. Hedge, McAtamney & Corlett, published as "A Survey Method for Investigation of Work-Related Upper Limb Disorders," *Applied Ergonomics*, 1993.

The scoring indicated 'very high risk, implement change,' which means based on this review there are high ergonomic stresses on the entire body, which necessitate additional timely reviews and definite rapid corrective actions.

REBA expands on RULA by looking at posture, torso, standing, twisting and other whole-body ergonomics.

General Comments Items noted during the survey are based on ergonomic principles, and need addressing, see full report.

- Twisting at waist to handle tools, loads, or parts
- Bending at waist to handle tools, loads, or parts
- Employee stand/walk >50% of time on concrete
- Work involves forceful, quick, or sudden motions
- Items picked up weigh more than 10 lb / 4.5 kg

Brief Recommendations These are related to ergonomic guidelines and principles designed to improve conditions.

A compact drum hoist that is able to rotate would be able to pick up a drum and rotate it to empty it, without any ergonomic risk to operator.

Confidential Information
These represent conditions noted or observed at the time of the survey

GEAR - General Ergonomics Area Review
was used to generate this document

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Printout of Ergonomics General Office Survey, report comes directly from iPhone

A-EHS
 360 Canterbury Road, Brooklyn, CT 06234
 Tel: (202) 569-8027 www.A-EHS.com

Ergonomics General Office Survey

Date: 7/27/2015 Survey By: Mark Rollins, CIH, CSP

Site contact: [REDACTED]

Bldg: Main Process: Quality
 Staff: Chris Biggs Supervisor:
 ID: Room: Area n/a

Office setup data entry work instructions update charts for quality tracking




Declined sitting posture. The user's thighs should be inclined with the buttocks higher than the knee and the angle between the thighs and the torso should be greater than 90 degrees. The torso should be vertical or slightly reclined and the legs should be vertical.

Declined

Position and Measurements Based on NIOSH & OSHA. **Red** are outside design limit. To lessen chance of ergonomic injuries, ensure angle or distance is within limits, if feasible.

Eye Distance in inches Actual 24 Goal: 16 - 28	Elbow Angle in degrees Actual 112 Goal: 90 - 120	
Display Angle in degrees Actual 9 Goal: 0 - 15	Head to Torso Angle in degrees Actual 32 Goal: 0 - 15	
		Knee Angle in degrees Actual 118 Goal: 90 - 105

Posture Items in **RED BOLD** noted during survey are based on ergonomic principles, and need addressing, see report for details.

No Head and neck upright, in-line with the torso?	Yes Upper arms and elbows close to the body?
Yes Head, neck, and trunk aligned (not twisted)?	Yes Wrists and hands are relatively straight and in-line?
Yes Shoulders and upper arms in-line with the torso?	

Display Items in **RED BOLD** noted during survey are based on ergonomic principles, and need addressing, see report for details.

No Top of display screen is at or below eye level?	No Eyeglass users read without bending head?
Yes Excessive glare is not reflected off the screen?	

Keyboard & Accessories **RED BOLD** noted during survey are based on ergonomic principles, need addressing, see report.

Yes Input device located just next to keyboard?	No Wrist/palm rest padded and free of sharp edges?
Yes Input device easy to activate and fits hand?	N/A Document holder stable/proper size to hold items?

Fatigue Items in **RED BOLD** noted during survey are based on ergonomic principles, and need addressing, see report for details.

Yes Relax eyes periodically, focus on distant objects?	
No Telephone users have headset so head not bent?	
No If sitting, get out of chair at least once per hour?	

Seating Items in **RED BOLD** noted during survey are based on ergonomic principles, and need addressing, see report for details.

No Backrest provides lower back support?	No Feet flat on floor or on stable footrest?
Yes Seat width/depth accommodates user?	Yes Employee knows how to adjust the chair?
Yes Seat cushion rounded with a "waterfall" front?	No Is there an instruction manual for the chair?
No Armrests, if so equipped, support both forearms?	Yes IF marked, weight exceeded? (everyone was asked)
No Thighs are approximately parallel to floor?	

General Comments Items noted during the survey are based on ergonomic principles, and need addressing, see full report.
 Minor changes as noted; note chair cylinder weight is exceeded.

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EGOS - Ergonomics General Office Survey
 was used to generate this document

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