

Outline

Are You Getting Hurt? Ergonomic for Fitness Professionals

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Outline

1. What is Ergonomics?
2. How Does it Apply to Fitness Pro's
3. Ergonomic Risk Factors for Fitness Pro's
4. Back Injuries
5. Proper Lifting
6. Voice Ergonomics
7. Environmental Risk Factors
8. Psychological Risk Factors

Introduction

Ergonomic issues don't just affect clients: exercise professionals need to consider their own ergonomics and injury prevention when performing their day-to-day job tasks at their "workstations" in the health club or office. Bend, lift, project the voice, move equipment, assist clients, take on the emotions of clients, fitness pro's do it all. And after weeks, months, and years the movements can take their toll with acute or chronic injuries. This is especially important for the self-employed fitness pro. In this presentation, we will examine how ergonomic risk factors relate to fitness pros, and give recommendations for prevention.

Objectives

Ergonomic injuries cause pain, disability, emotional stress, and reduced productivity. While most exercise professionals have probably heard of ergonomics as it relates to office workstations or an industrial setting, many exercise professionals take for granted the ergonomics of their work environment. In this presentation, we will examine how ergonomic risk factors relate to the health and fitness environment and offer strategies for countering hazards in job tasks.

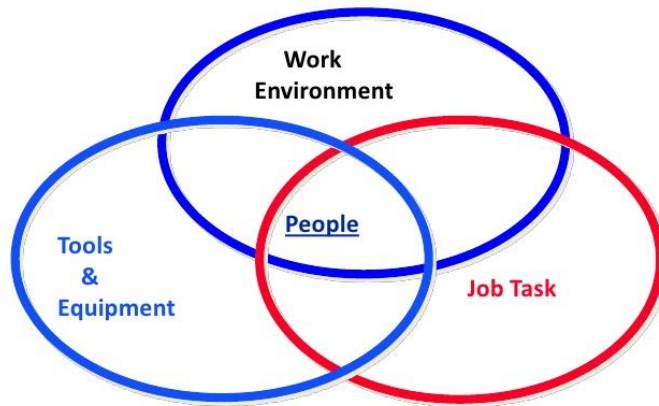
Many exercise professionals do not realize their jobs have ergonomic hazards that can affect their performance and increase the risk of injury. Indeed, many may have suffered some injuries or are hurt now. By being alert to these hazards and implementing some simple strategies to counter the risks, exercise professionals should be able to reduce the risk of, or even avoid, injuries in a health and fitness practice

What is Ergonomics?

The Chartered Institute of Ergonomics and Human Factors (www.ergonomics.org.uk):

“Ergonomics is the application of scientific information concerning humans to the design of objects, systems and environment for human use. Ergonomics comes into everything which involves people. Work systems, sports and leisure, health and safety should all embody ergonomics principles if well designed.”

What Ergonomics Involves



Exercise Ergonomics



There are eight ergonomic risk factors for all workers that include:

1. Poor posture
2. Repetitive or repeated work
3. High muscle force
4. Excessive static muscle work
5. Mechanical pressure on body parts
6. Poor environment – too hot, too humid, too cold, too dirty, slips, trips, falls – cluttered gym.
7. Vibration of the body
8. Behavioral, psychological, and stress issues.

In all jobs, including health and fitness professions, some of these ergonomic risk factors apply. Each one, separately or together, can cause pain and injury. By recognizing the hazards of the health and fitness setting and implementing specific strategies to counter them, health and fitness professionals can enhance performance, reduce the risk of injury, and make their job more enjoyable.

Goals of an Ergonomics Program

1. Design work-stations to be compatible with human limitations & prevent excessive fatigue and discomfort.
2. Create a safe work environment & prevent accidents.
3. Prevent musculoskeletal disorders.

What Can Ergonomics Do For You?

- Reduce accidents and injuries . . . reduce costs.
- Improve safety.
- Reduce errors.
- Increase job satisfaction.
- Increase efficiency.
- Improve comfort.
- Improve worker-management relations (Naccarato, 2001)

Ergonomics for Fitness Pro's

Canadian fitness facilities are subject to OHS rules, but many fitness pro's don't have an injury prevention program.

Melton, Katula, and Mustain (2008) - the fitness industry is largely unregulated and lacks a unified governing body to maintain rules for injury prevention.

Many fitness pro's take for granted the ergonomics and injury prevention of their work.

- Many fitness pro's are self-employed.
- Reducing injuries can have big payoffs for on-going wage earnings, ability to work, job satisfaction, and health care costs.

Ergonomic Risk Factors Fitness Professionals

Repeated lifting/trunk flexion

Improper lifting technique

Voice fatigue

Slips, trips, and falls

High stress from teaching too much

Poor hydration and nutrition through the day

Possible stress of working with certain clients

Personality conflicts with co-workers and supervisor.

Repeated Strain Injuries.

- number of times a movement is performed throughout the day.
- most common in fitness professionals.
- primary concern is the work to rest ratio.
- Injuries such as tendonitis and bursitis are common as are chronic aches and pains (Merrick and Bracko, 2005).

Frequently moving or racking weight plates or dumbbells can lead to repeated strain injuries.

- Do not rush
 - Squarely face the weight as you remove and replace it.
 - Turn the entire body, don't rotate the spine.
 - Keep load close to the body
 - Use both hands
- Avoid move plates with fingers alone
(Merrick and Bracko, 2005).

Ergonomic Considerations for Fitness Professionals

Posture

Standing

Trunk and neck flexion, no twisting of a loaded spine, and straight back when lifting.

Height of tables, weight plates, music controls, computers, manual resistance and aided stretching, and hard surfaces-standing.



Photo courtesy of Dana Merrick.



Photo courtesy of Dana Merrick.

Most injuries are a result of repeated micro-traumas. Repeated trunk flexion and neck flexion.

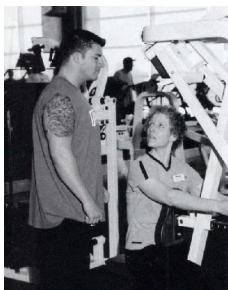


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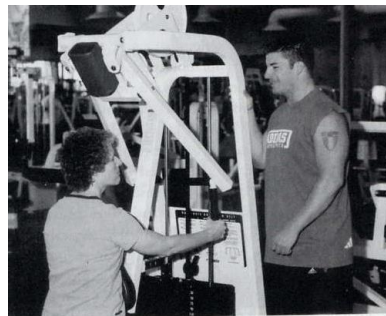


Photo courtesy of Dana Merrick.

- Use light weight when demonstrating exercises.
- Apply manual resistance from biomechanically correct posture.
- Have the client move the target area into place before you apply assisted stretching.

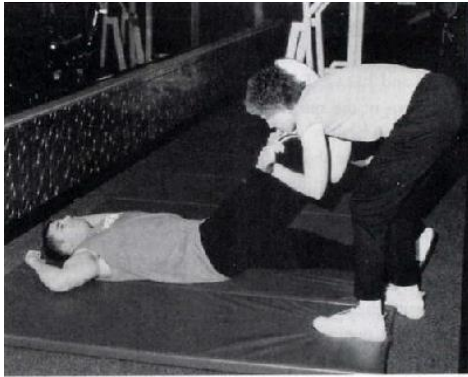


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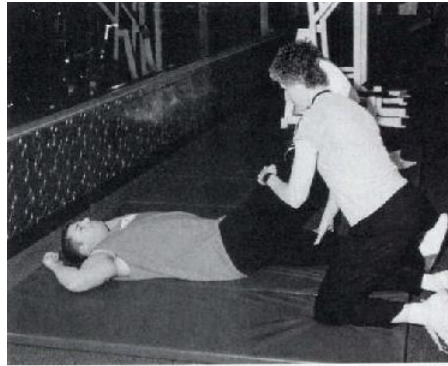


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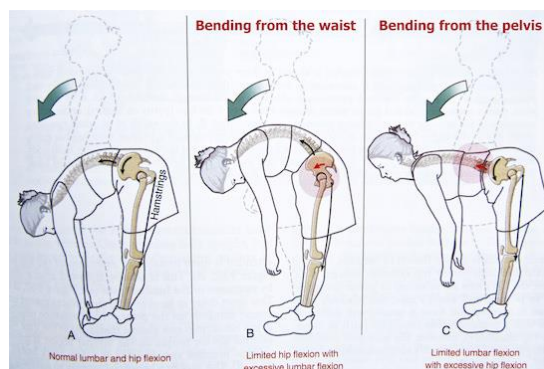
Charlotte Barker, Personal Trainer: Fitness NATION and Master Trainer for Lebert Fitness, Oakville, ON, Canada

“My clients know how to load weights, they don't expect full ‘service’ when getting or putting away weights.”

The energy of a group exercise class can cause an instructor to forget about safe lifting technique . . . always remember to be “safe” and lift properly.

Other Considerations for Fitness Pro's

- Repeated trunk flexion, flexing the spine instead of bending or hinging from the pelvis can cause pain or injury (Osteoporosis Canada, 2016).
- An example of repeated trunk flexion for a fitness professional is picking up a water bottle from the floor when teaching a class.
- The ergonomic solution is not to put the bottle on the floor rather, on a chair or higher.



Lifting Techniques



Picking Up Your Water Bottle

Where do you keep your water bottle?

On the floor?

1 hour class = drink every 5 minutes.

Trunk flexion to pick up bottle = 12 times/class

4 classes/day.

48 trunk flexions/day

240 trunk flexions/week

960 trunk flexions/month

10,560 trunk flexions/11 months

Mechanism for Back Injury

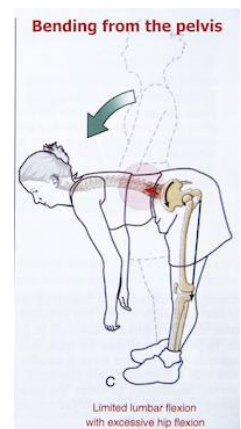
Most back injuries do not “just” happen . . . they are a result of . . . repeated microtrauma.

- Repeated incorrect lifting.
- Repeated static postures w/out reversal.
- Repeated flexion of the spine.
- Chronic physical stress on spine and muscles.
- Sitting for long time with little movement.
- McGill (2001) proposed a 50 minute sitting limit in an office work setting.

Proper Lifting



Golfer's lift



Stress – Back Injuries

“The Boeing Study”

“The Boeing Study” “A Longitudinal, Prospective Study of Industrial Back Injury Reporting.” (Bigos, et al., 1992).

3020 participants.

60 - 65% of the risk factors for back pain were “non-physical.”

Smoking - 40% increase in risk for back injury.

Previous back injury - 60% increase in risk . . . “flare-ups” are very common.

Strongest Predictors of Back Injury:

“Poor supervisor review was one of the strongest predictors of back pain.”

“Many times back problems seem to be only a part, rather than the patients total predicament.”

The Real Issue – Back Injuries

Back strains are the most common cause of occupational low back pain (McGill, 2002).

95-99% of all back pain involves soft tissue. (Andersson, Fine, & Silverstein, 1995).

"Injury . . . occurs when the ... load exceeds the ... strength of the tissue." (McGill, 2001)

“Boot Camp Guy!?!?” Lifting technique!?!?

Most back injuries do not “just” happen . . . they are a result of . . . repeated microtrauma.

- Repeated incorrect lifting.
- Repeated static postures w/out reversal.
- Repeated "unbalanced" lifting.
- Chronic physical stress on spine and muscles.
- Sitting for long time with little movement.

Back injuries are caused by micro- traumas which eventually lead to a macro-trauma.

Slips, Trips, and Falls

- Weights are not returned to racks.
Clients bring coats, street shoes, or workout bags onto the gym floor.
- Designated area for these items.
- Check floor for tripping hazards, and water, before and after each session.
- Camilla Cantelli, Personal Trainer, Eliot, Maine – “Cleaning up my studio, picking up the equipment allows “me time” (sic). I find that working in a clean and neat environment helps my sanity.”

Voice Ergonomics

Environmental risk factors:

- voice use without time for voice rest
- speaking in high background noise
- poor room acoustics
- poor indoor air quality
- poor speaking postures
- lack of voice amplifiers.
- (Vilkman, 2004, p.239).

Dehydration increases amount of pressure required to initiate vocal fold oscillation.

Dehydration reduces viscosity in the vocal folds.

(Verdolini-Marston et al., 1994; Verdolini et al., 2002).

Voice Projection

NOT the throat.

Throat is a channel for sound.

Power of voice ...

Lungs, diaphragm, intercostal muscles.

When teaching group exercise classes always use a wireless microphone/head set.

Wireless systems are reasonably priced, compact, and connect to almost any stereo (Halvorson, 2009).

One of the first rules of teaching is keeping words to a minimum, as such, “edit” teaching cues before speaking.

This enhances learning and prevents voice strain.

Environmental Risk Factors

Poor environment can be any of the following:

- a training facility that is . . .
- too hot
- too humid
- too cold
- poor air quality
- unpleasant odors
- poor ventilation
- smell of sweat in a gym.
- Do everything possible to make the training environment as comfortable as possible.

Behavioral or Psychological Risk Factors

- Personal issues
- Taking on too many clients
- Not having enough clients
- Problems with other trainers
- Poor relationships with supervisors.
- Stress causes an increase of the “stress hormone” cortisol which can lead to aches and pains, or injury, by altering muscle tension, perception of pain, and impairments with tendons (Hannibal and Bishop, 2014).

Psychological factors have been found to be of significance in predicting back, neck, and shoulder pain (Bigos, et al, 1992).

Clients can cause stress by being demanding or “unloading” their problems on the fitness pro.

For “emotional safety” maintain boundaries with clients (although this can be hard with long time clients).

Camilla Cantelli, Personal Trainer and Strength Coach, Eliot, Maine suggests “The fatigue is usually more mental, we often become not just a physical trainer but also therapists.”

Nutrition and Hydration

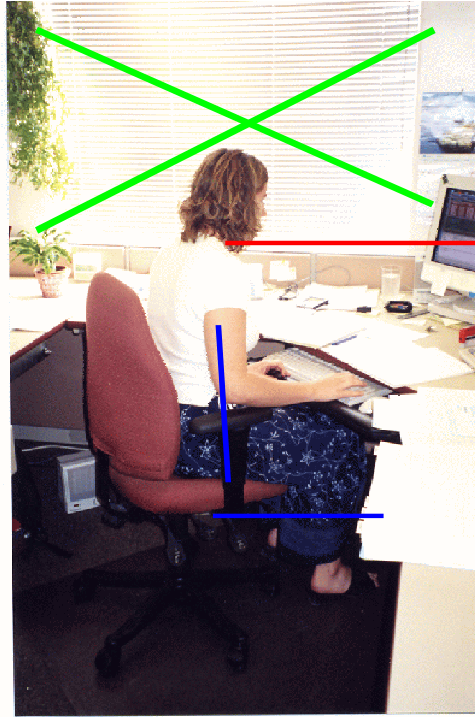
Make time to take nutrition breaks throughout the day or evening and between classes or training sessions.

Allow 15 to 30 minutes to eat ... gives the mind, body, and voice a chance to rest, recover, and to replenish nutrients needed for the demanding work of exercise instruction.

Important to prepare food to eat during the day. Prepare it the night before or in the morning.

Hydration is important because of the sweat lost during work-outs, but also because fluid is lost when talking a lot.

Office Ergonomics



Presented by Mike Bracko
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DVD's

<https://www.healthylearning.com/m-1804-mike-bracko.aspx>

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