

THE FACTS ON LIFTING AND THE LOWER BACK

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Last weekend I attended another seminar on ergonomics and biomechanics and how it relates to work health and safety.

The biomechanists who use the laws of physics and engineering concepts related to knowledge of anatomy are producing some interesting facts.

Information to enhance work performance while minimising the risk of injury.

This information is relevant to not only those that must regularly lift various objects and weights at work but also to weekend warriors like myself that tackle household maintenance and gardening jobs with vigour. Not to mention those involved in weight training or carting the groceries or washing around.

The National Institute of Occupational Health and Safety have found that lumbar spinal compression forces above 3400N or 340 kg can be potentially hazardous.
Compressive

forces on the lumbar spine above 6400N or 650kg are definitely hazardous. 340 kg of force is a heck of a lot you say and you're right but you will be surprised at this.

If someone weighing about 60 kg leans forward about 40 degrees from the hip and then holds a 12kg weight out in front 30cm, then the compressive forces tip just over the 340 kg mark.

Into the potentially hazardous zone for back injury.

How many times do we do this after grocery shopping. Repeat this many times at the gym or stacking shelves at the supermarket and the injury risk greatly increases.

Bear in mind this looked at only the compressive forces and not the dangerous shearing forces.

Also add any twisting and the injury greatly increases.

If this person was performing an upright row in the gym with 40 kg the weight would be closer to the body but the loads at the lumbar spine can still reach 550kg approaching the definitely hazardous zone.

Our lower backs are simply amazing in that most of the time they can withstand these forces but give this some thought the next time you lean forward to heave that rock, lift that bag of fertiliser or lift the gym weights back onto their rack.

To Minimise the Risk

If you regularly lift it is wise to obtain an effective back stretching program and learn the correct low back and abdominal strengthening exercises. Then learn how to lift properly.

You need to get as close as possible as you can to the 'ideal' lift.

- i) A secure two handed grip.
- ii) Feet wide apart for a good base of support.
- iii) Back straight and knees flexed.
- iv) Tense abdominals.
- v) Lift with legs. Often squatting right down to the weight is impossible or impractical and the semi-squat position is now preferred.
- vi) Keep weight close to the body.
- vii) Avoid twisting the trunk. Use the feet to move weight where desired.
- viii) When putting the weight down, do the reverse.

If lifting at work the recommended maximum weights for lifting close to the body and not above waist height are as follows:

Two-handed lift

- Male - 27kg
- Female - 20kg

One-handed lift

- Male - 9kg
- Female - 6kg

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