

Low Back Pain

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Education for the Construction Industry

I have recently taken on a role as consultant to managers and trainee workers in the construction industry. This includes education and training on safe lifting and handling, and how to prevent low back and other injuries. I have designed a morning warm-up routine, based on the latest research and my philosophies on what is required for injury prevention. At the training facility, this is now conducted daily at the beginning of the shift. I perform screening and movement testing at the start of the trainee programme. What is apparent is that most young workers are not physically or biomechanically ready for the demands of construction work. The typical young person entering the workforce today has spent the majority of their developing years sitting at school and at home, invariably at computers or game consoles. A study of apprentice construction workers has shown that those who adopted sedentary postures outside of work had a three times greater risk for developing work-related low back pain (LBP) (Merlino et al 2003).

The screening examinations I have performed to date reveal the following about young workers entering the field:

- At the start of training **low back endurance** was on average 53% of the healthy population average. Poor endurance is a significant risk for low back injury.
- Other endurance test scores were also well below healthy population averages: thigh

endurance 37%; side abdominals 46%; front abdominals 58%

- Self-reported activity levels were low to very low in 79% of subjects.
- Average BMI was 28 ('overweight' is a score above 25).
- Functional Movement Screen™ scores were average less than 12 out of 21. FMS is a battery of 7 functional tests. While not previously studied in this population, numerous studies in athletes and firefighters has found a score of less than 14/21 to be associated with an increased injury risk.

Below is a summary of the basic introductory education lecture I provide to these workers.

Epidemiology:

- While the lifetime incidence of LBP in the general population is 80%, it is 90% in construction workers (Perich et al 2011).
- The incidence of LBP was found to be 50% higher in construction workers than in other industrial workers (Adams & Hutton, 1981).
- In injury surveys 60% to 66% of workers had suffered from LBP in the previous 12 months and **over 30% had experienced LBP during the previous week.** (Goldsheyder et al 2004).
- 54.4% of apprentice workers reported injuries to the low back (Merlino et al 2003).

Lifting training in manual trades is cursory and based on questionable advice. The figure on the right is a typical example. There is good evidence that the recommendation to “*bend the knees, not the back*” is the wrong advice for the majority of manual tasks. In many cases, the back bends as much this way as ‘stoop lifting’, and such methods often result in loss of balance and excessive leverage forces through the lower spine.



Typical signage displayed to advise workers on correct

I introduce workers to the concept of the ‘semi-squat lift’, and the advantages provided by using the flexibility and power provided by the hip joints and muscles. Research has shown that this method of bending and lifting is easy to teach (Sedgwick & Gormley, 1998), and is the one naturally used by more experienced workers^{9,16,24,43,44}.

Research has also shown that static postures we commonly adopt influence the way we move. (Mitchell et al 2008; Perich et al 2011). This can effect the degree to which people flex their lower spinal levels, and often results in excessive movement at the start of the bend.

I explain to the workers the mechanics of the spine, particularly the discs. The effect of prolonged & repetitive bending & twisting is shown using models and diagrams. This helps to explain the importance and rationale behind preventative strategies and the exercises which I have devised, I also give them advice on warning signs for impending low back trouble, and what to do if they suffer an injury.

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