

Functional Considerations of Injury Rehabilitation –

Using evidence-based exercise prescription to assist with return to work

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Audience poll 1

What is physical activity and how important is it?

Physical activity levels are recognised as a major risk factor for chronic disease and ill-health in Australia

1/3

Reduction in the risk of developing Alzheimers Disease



27%

LOWER RISK OF
STROKE

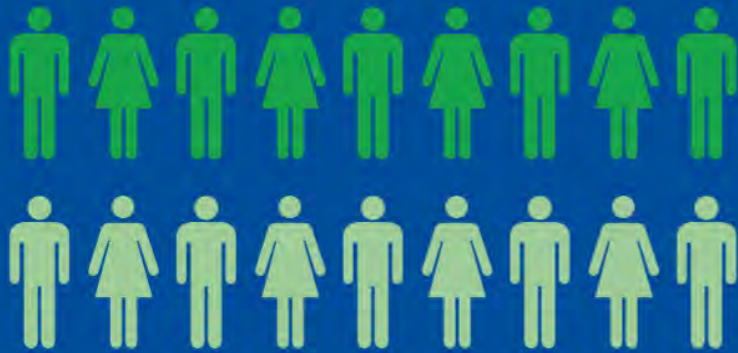
DECREASES DEPRESSION

As effectively as medications or behavioural therapy



60%

LOWER RISK OF
**COLON
CANCER**



Almost
50%

Reduction in the incidence of diabetes

Almost

50%

Reduction in the incidence of High Blood Pressure



ALMOST

50%

BREAST CANCER

REDUCTION IN

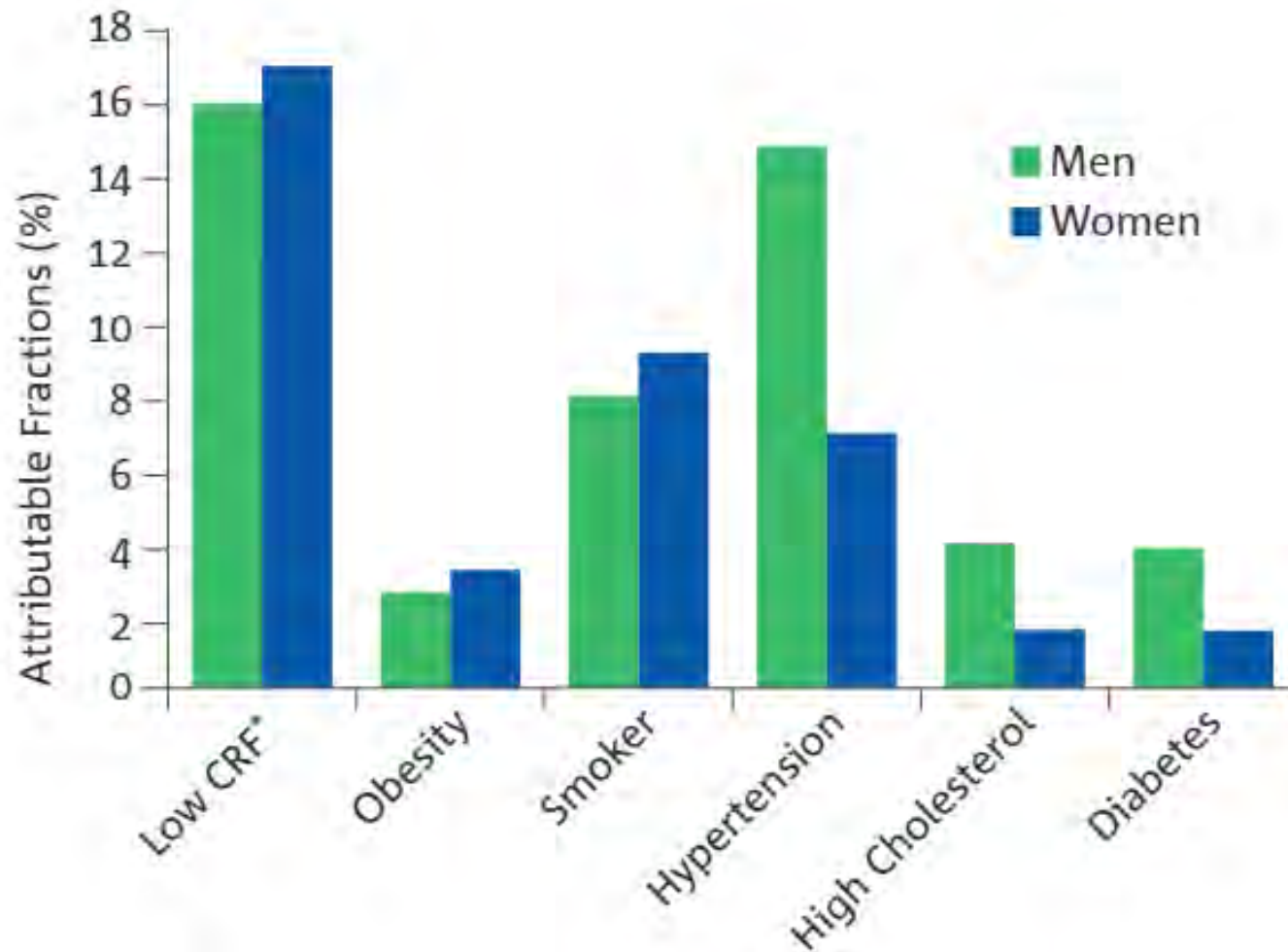
MORTALITY AND RISK OF RECURRENCE



40%

Reduction in the risk of
Heart Disease

70% of Australians are insufficiently active to achieve the preventative health benefits of exercise



Source: S Blair (2009)

Incidental

Undertaken as part of normal daily tasks

- household chores
- walking up stairs
- walking to bus
- often short duration

Structured

Planned activity (exercise) usually undertaken for an extended period of time

- purposeful
- specific goal
- improve health and fitness

All YOU NEED IS:

- VIGOROUS INTENSITY CARDIO** 20_{mins} x 3_{days}
- OR MODERATE INTENSITY CARDIO** 30_{mins} x 5_{days}
- PLUS STRENGTH TRAINING** 8-12_{reps} x 2_{days*}

**Do between 8 and ten different exercises*

What happens to our bodies when we are inactive?



DECONDITIONING

Multiple, potentially reversible changes in body systems, brought about by physical inactivity and disuse



What EXERCISE EQUIPMENT
Should really be called



MUSCLE ATROPHY

Decrease in the mass of the muscle, associated with reduced activity.
Results in muscle weakness and declining function



Even with regular exercise, people
who sit for the majority of their day



SHORTEN THEIR LIFE SPAN

Reducing total time sitting may be at least as important as increasing participation in physical activity^{1,2}

30 minutes of physical activity is as protective an exposure as **10 hours of sitting time** is as harmful as one

1. Katzmarzyk, P.T., et al (2009).
2. Patel, A.V., et al (2010)

Audience poll 2

What Can You Do?

The old standard of 20-30 minutes of exercise a day improves your health and mood, but isn't enough on its own.

Take walking breaks:
Hit step goals of

10,000
PER DAY

Stretch your legs
or stand up every

30-40

MINUTES

Use a Stand-Up Computer Desk:

60
CALORIES

Standing burns
60 CALORIES
more per hour
than sitting

Stand up

16 for **2**

TIMES

MINUTES

—it's healthier than **32 MINUTES**
of straight exercise

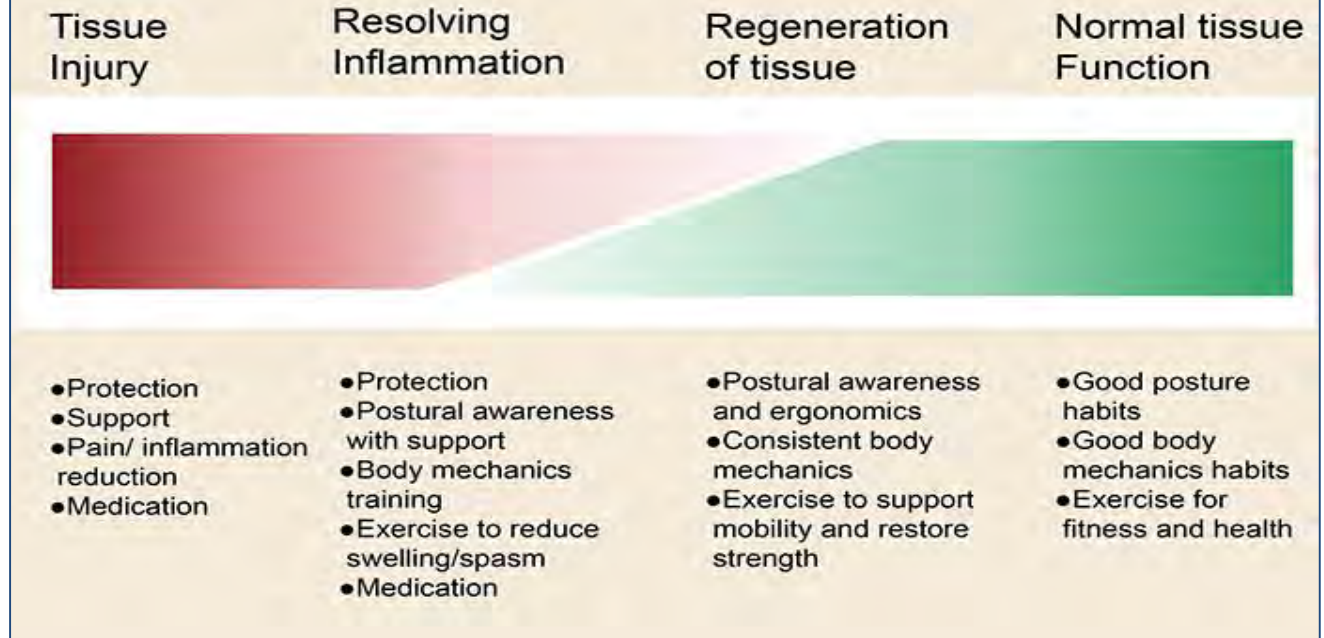
STRETCH your wrists.
ROLL your shoulders.
LIFT your feet.



STAGES OF INJURY

- Acute (protection)
 - 0-7 days
- Sub acute (repair)
 - Day 3 - 3 weeks
- Remodelling
 - 1 - 6 weeks
- Functional phase
 - 2 weeks - 6 months

Treatment For Each Stage



Rehabilitation is the action of restoring something that has been damaged to its former condition.
Process of applying the appropriate levels of stress, rest, and protection.

PAIN

Sleep

Pain and anxiety make it hard to sleep. Lack of sleep makes pain worse and lowers energy.

Energy

Coping with pain drains energy. Lack of energy makes it hard to be active and stay in shape.

Mood

Chronic pain and the limits it puts on your life can lead to depression, anger, and anxiety. These feelings make coping with pain harder.

Activity

Pain and lack of energy make it hard to be active. Lack of exercise worsens pain.

Active vs Passive Treatment ?



Healthy mix of **both passive and active treatments** tailored to the specific condition and outcomes required.

One is not necessarily better than the other but each are more effective at the **right stages of rehabilitation** and treatment.

Focus on **passive treatment** with some activity

Passive treatment should be **reduced** with a greater **emphasis on active rehabilitation**

Very **little** (if any) **passive treatment** with **increased active participation** aimed at functional restoration

Incorporating functional exercise may be appropriate when:

Acute passive therapy has plateaued and functional gains are no longer occurring

Early treatment has been well managed and progression to a complete functional program is required

There are indications of psychosocial barriers limiting progress

Breaking the Pain Spiral



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EXERCISE is a fundamental component of any treatment plan for acute or chronic pain.

Assist in regaining independence

Self-esteem and confidence boost

Increase energy and endorphins



Lower the risk of chronic disease

Decreasing stress and symptoms of depression

Increase strength, movement, stability, control, balance, flexibility, fitness,

Exercise and the Clinical Framework

1. Measure and demonstrate the effectiveness of treatment

2. Adopt a biopsychosocial approach

3. Empower the injured person to manage their injury

**4. Implement goals focused on optimising function, participation
and return to work**

5. Base treatment on best available research evidence

Encourage functional movement and independence

Pacing & graded exposure to activity

Promote activity and recovery

Holistic approach to recovery

Outcome focussed

Enhance activity tolerance

Self-management strategies

Education & empowerment

Increase energy and reduce stress

Promote self-efficacy

Manage co-morbidities

Role of an Accredited Exercise Physiologist

CASE STUDY

I am quite concerned that **over 4 months have passed** since the injury occurred and the worker **does not appear to be improving or increasing his work capacity.**

He is continuing hands on physio treatment which has been ongoing since January.

He saw the Occupational Physician who recommended hands on physio should cease however the GP is still recommending it.

I am hopeful that a **functional exercise program** will result in some improvements.

CASE STUDY

**42 yo male
storeman**

DOI - Jan 2018

**MRI - Very mild disc protrusions at L3/L4 and
L5/S1 without neurological compromise
referral to EP 4/12 after injury**

CASE STUDY

Pain 8/10 at worst, 6/10 avg
experiencing pain daily

aggravated with standing >30 mins, sitting >30
mins and lifting

Codeine twice daily to manage pain, endone as
required 1-2 times per week

Interrupted sleep, approx 3-6 hours per night

CASE STUDY

Initial

Lumbar mobilisation
daily

Seated row, lat
pulldown, leg press

Recumbent bike

2-3 x per week

Home walking
program as tolerated
on non-gym days

Wk 1 / 2

bridge

hip hinge (+wt)

plank with adductor squeeze

farmers carry

6kg KB deadlift

Client had seen increase in
ASLR to L)60 deg., R) 50 deg.
slight px 2/10
improved sleep

Wk 3

Added split squat,
dead bug, tall
kneeling and side
planks

Ct reported being
pain free, most
painful day 2/10

CASE STUDY

Wk 8:

Client pain-free with all movements - Nil pain episodes

ASLR 80 bilateral px free (increased from 20 degrees)

Toe touch pain free

Completed KB deadlift at 16 kg's achieved 12 before pain (will never lift 16 kg's at work unassisted)

Added in more global exercises for client to complete as part of ongoing private gym membership including goblet squat, bent over fly, bicep curl, etc.

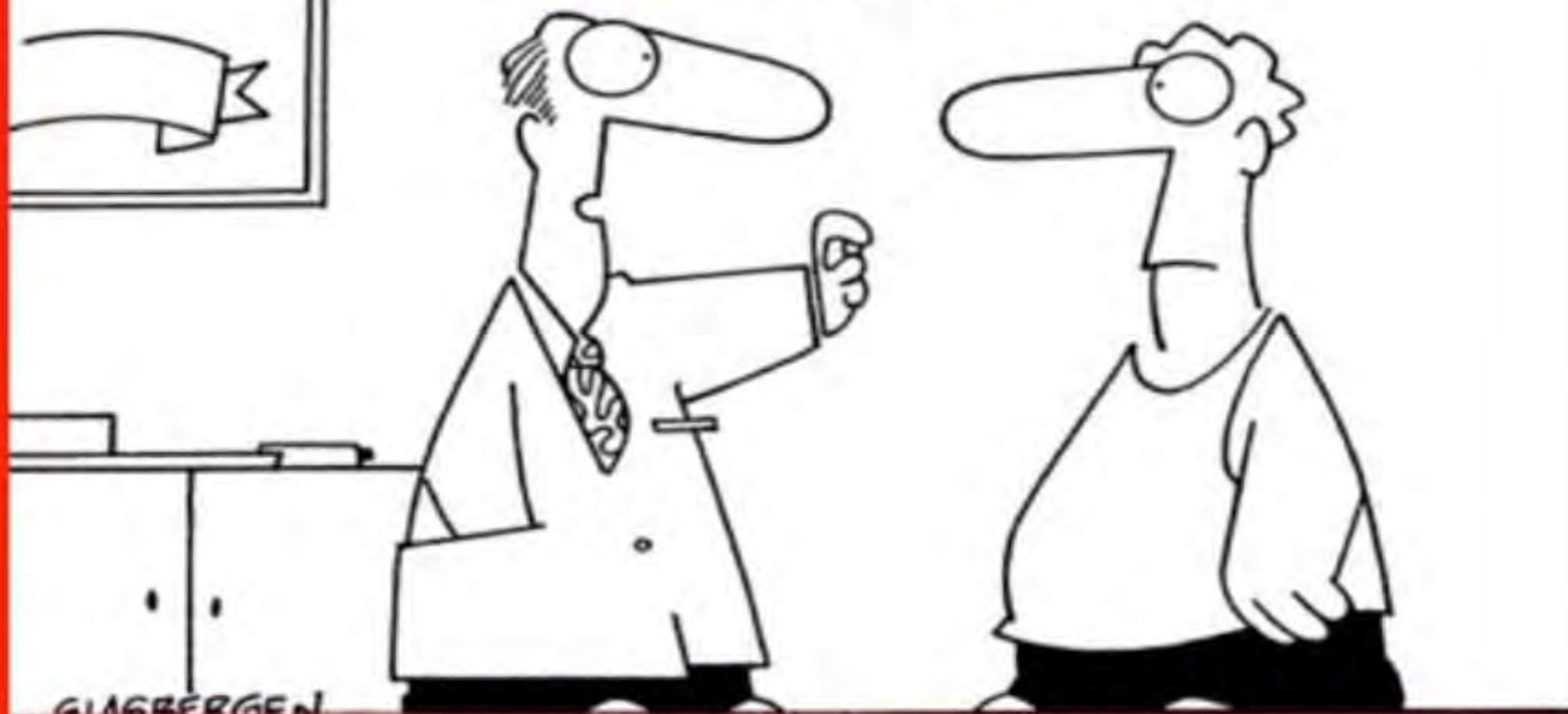
Oswestry - 20/50 - 0/50

CASE STUDY

After 10 weeks functional training program with EP (including

- undertaking 2 regular gym sessions per week
- walking at home 2 x per week
- RTW 5 hours per day, 5 days per week
- modified duties (some lifting restrictions)
- reduced pain relief (medication)

The Exercise Pill...



“To treat your high blood pressure, diabetes, hyperlipidemia, osteoporosis... take this new pill every day. Take it out for a jog, then take it to the gym, then take it for a bike ride...”