Musculoskeletal Disorders Symposium

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Psychosocial factors and musculoskeletal disorders: Using the evidence to inform risk management

Presenter: Dr Jodi Oakman

11 November 2015

Webinar Presenter: Dr Jodi Oakman

Dr Jodi Oakman is your expert presenter for today. Jodi is a senior lecturer at the Centre for Ergonomics and Human Factors and the postgraduate coordinator for the Ergonomics, Safety and Health Program.

Jodi has worked extensively in industry as a consultant ergonomist to many organisations. She is a qualified physiotherapist and has a PhD in the area of the ageing workforce and the impact of organisations on their employees' retirement intentions.

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Three key questions!

1. Are MSDs a problem?

1. What does the evidence tell us about MSDs?

1. Are there gaps in current strategies used to manage MSDs?

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1. **What are MSDs?**
2. MSDs are a major OHS problem worldwide
3. Research evidence on MSD causes and requirements for effective interventions
4. Current workplace practices
5. Workplace Toolkit for MSDs risk management

What are MSDs?

Many definitions but some consensus on versions of the following:

> Work-related musculoskeletal disorders (WRMSDs) affect tendons, tendons sheaths, muscles, nerves, bursae, and blood vessels in the body.

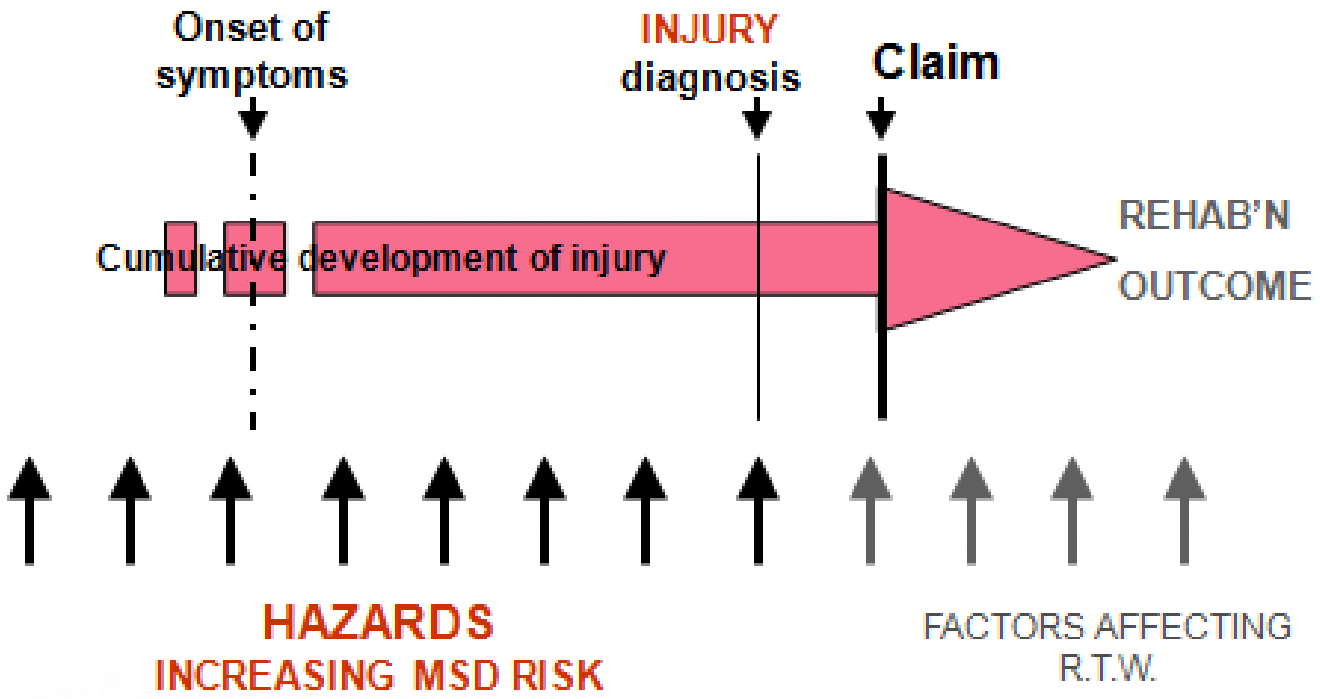
Injuries or disorders a complex issue:

- development over time
- exposure to a single event

How do we know whether an injury or a disorder?

What are MSDs?

- Many clinical diagnoses
- Reliability of diagnosis often poor
- Many arise from cumulative trauma – CTDs, RSIs, OOS



What are MSDs?

- *Cumulative* injury lowers the threshold for *sudden onset* injury, that is people with *cumulative* injury have higher risk of *acute* injury
- ICOH* 2012 consensus statement that the goal of workplace risk management should be to prevent or reduce ***musculoskeletal discomfort that is at risk of worsening with work activities, and that affects work ability or quality of life*** – specific diagnoses are not relevant to workplace risk management

*International congress on occupational health

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Extent of the problem

Australia: National Data Set serious claims (2012-13)

Nature of injury or disease	Number of serious claims			Percentage of serious claims		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Injury & musculoskeletal disorders						
Traumatic joint/ligament & muscle/ tendon injury	32 670	19 980	52 650	43.7%	46.3%	44.7%
Musculoskeletal & connective tissue diseases	10 355	7 605	17 955	13.9%	17.6%	15.2%
Wounds, lacerations, amputations & internal organ damage	13 265	4 640	17 900	17.8%	10.8%	15.2%
Fractures	7 435	3 360	10 795	10.0%	7.8%	9.2%
Other injuries	2 405	1 085	3 485	3.2%	2.5%	3.0%
Burn	1 300	670	1 970	1.7%	1.6%	1.7%
Intracranial injuries	320	230	550	0.4%	0.5%	0.5%
Injury to nerves & spinal cord	130	70	200	0.2%	0.2%	0.2%
Total injury & musculoskeletal disorders	**68 035**	**37 770**	**105 800**	**91.1%**	**87.6%**	**89.8%**

Extent of the problem

Nature of injury or disease	Number of serious claims			Percentage of serious claims		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Mental disorders	2 920	4 060	6 980	3.9%	9.4%	5.9%
Digestive system diseases	2 465	165	2 630	3.3%	0.4%	2.2%
Nervous system & sense organ diseases	615	610	1 225	0.8%	1.4%	1.0%
Skin & subcutaneous tissue diseases	350	185	535	0.5%	0.4%	0.5%
Infectious & parasitic diseases	125	120	245	0.2%	0.3%	0.2%
Respiratory system diseases	70	135	205	0.1%	0.3%	0.2%
Circulatory system diseases	75	25	100	0.1%	0.1%	0.1%
Other diseases	35	40	70	0.0%	0.1%	0.1%
Neoplasms (cancer)	15	5	20	0.0%	0.0%	0.0%
Total diseases	**6 670**	**5 345**	**12 015**	**8.9%**	**12.4%**	**10.2%**
Total serious claims	**74 705**	**43 115**	**117 815**	**100.0%**	**100.0%**	**100.0%**

MSDs are a very large OHS problem

- **Europe –** OHS data**:**
  - chronic musculoskeletal pain affects 100 million people
  - MSDs remain single biggest cause of work absences
  - up to 2 per cent of European gross domestic product (GDP) due to direct costs of MSDs (Bevan et al, 2009)

- **Worldwide –** OHS data lacking in many countries, but ...
  - **37 percent of *all* back pain attributable to work**, resulting in huge costs – economic and personal (Nelson et al, 2005)

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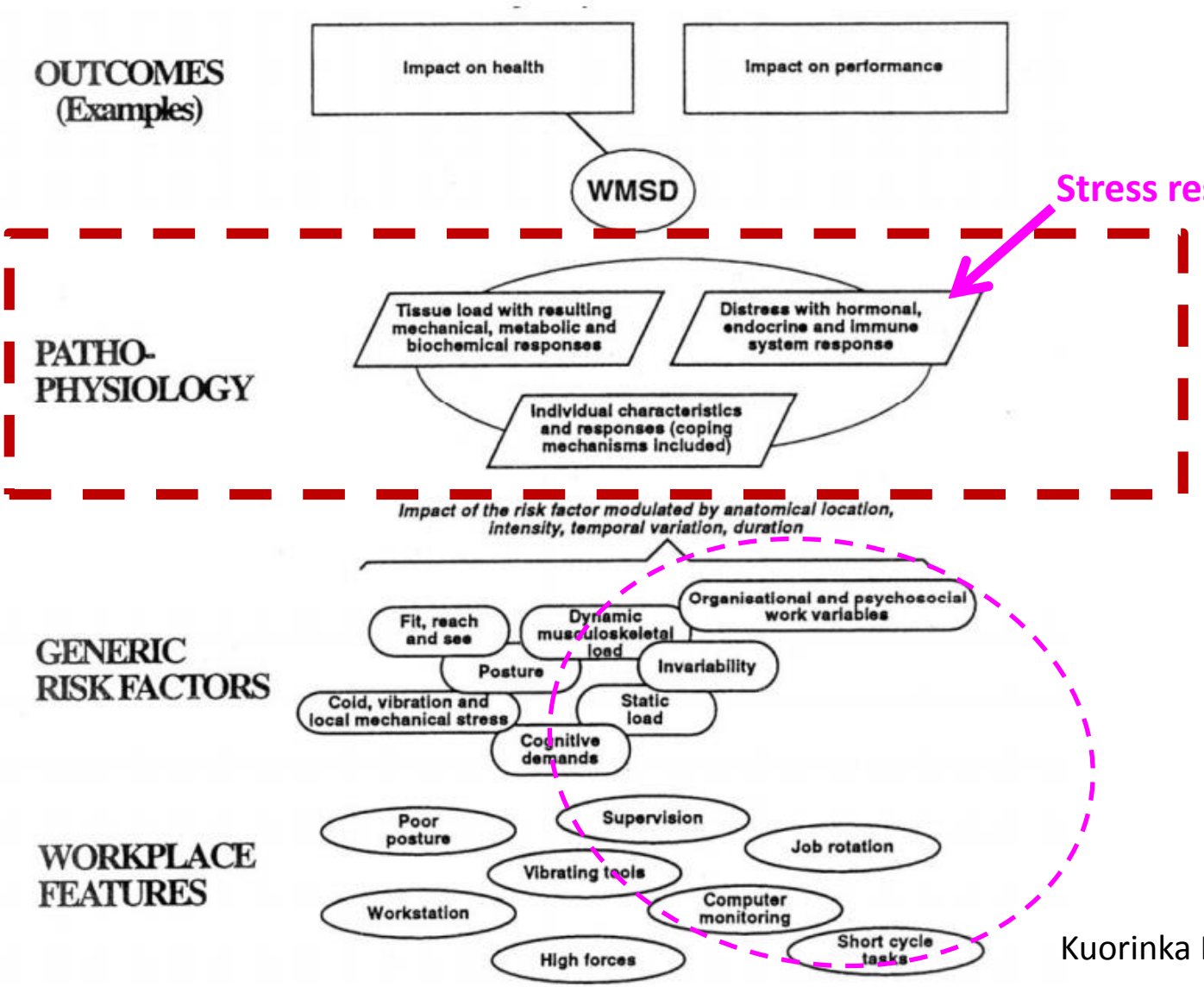
Model of work-related causes of MSDs: 1995

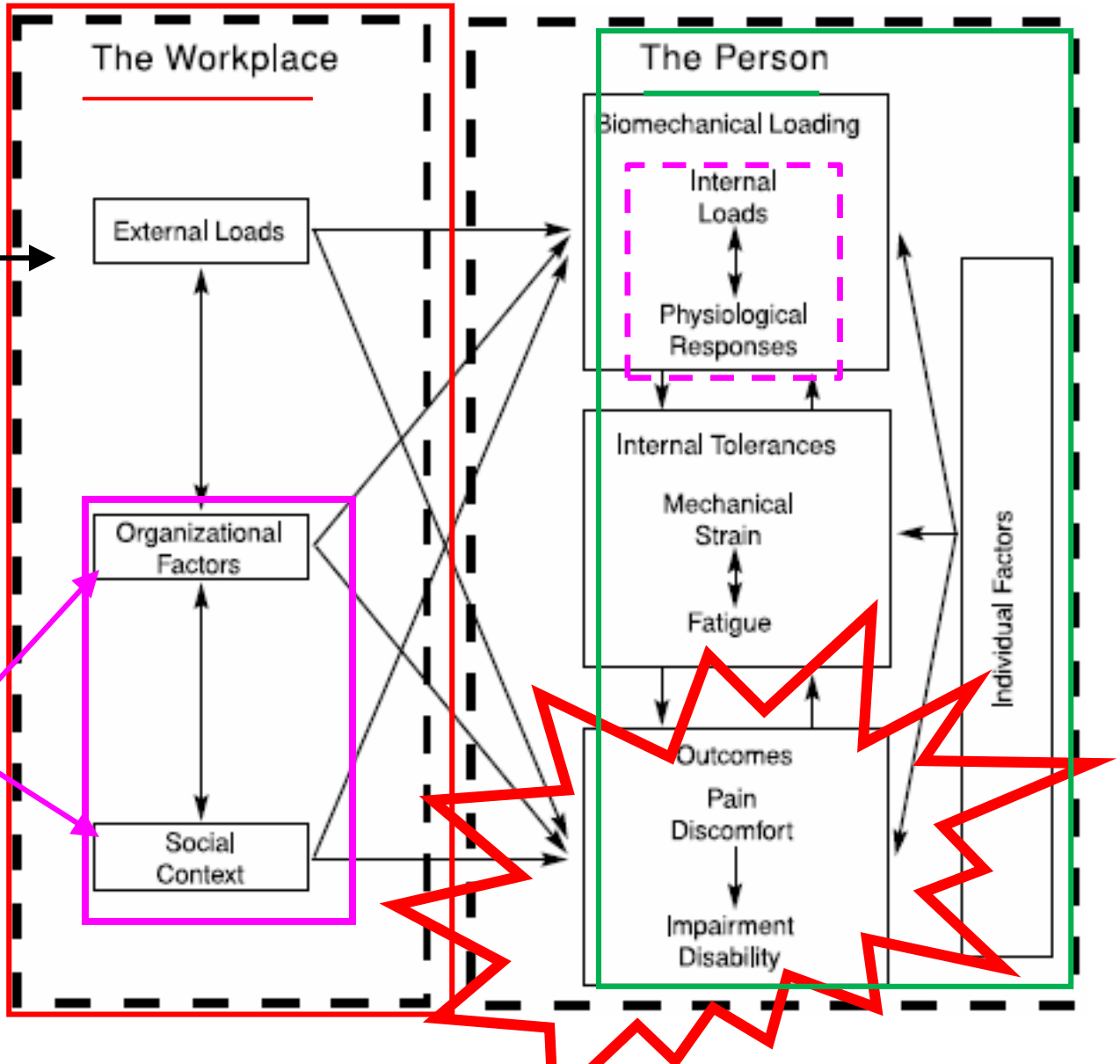


Kuorinka I & Forcier L (1995)

Model of work-related causes of MSDs: 2001

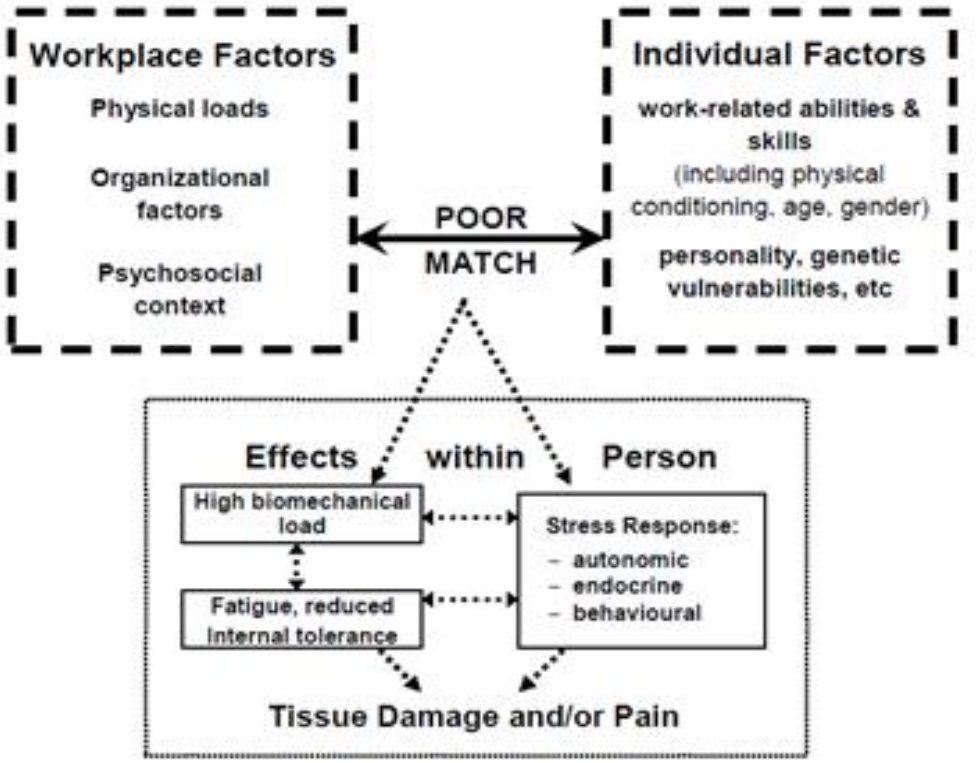
Manual Handling hazards

Psychosocial hazards



USA National Research Council and Institute of Medicine: 2001

Model of work-related causes of MSDs: 2014



Contents lists available at ScienceDirect

Applied Ergonomics

ELSEVIER

journal homepage: www.elsevier.com/locate/apergo

Developing a comprehensive approach to risk management of musculoskeletal disorders in non-nursing health care sector employees

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Workplace Hazard Categories

Types of workplace hazards

(a) **Manual handling hazards** ... task specific

(b) **Psychosocial hazards** ... 2 sub-groups:

- **Organisational** – work organisation, job design
- **Social context**- support, communications, relationships with managers

Psychosocial hazards Subgroups	
Organisational	**Social Context**
Working hours	Communications with management
High workloads	Being valued
Poor job design	Health/Safety Culture
Low levels of control	Relationship with colleagues
Pace of work	Relationships with supervisors
Conflicting work demands	

Many organisational hazards are the responsibility of managers and supervisors because they arise from how work is organised and jobs designed

Overlap between the two groups managers and supervisors play a key role in creating/controlling many of them

- MSD risk is determined by MANY hazards – organisational and psychosocial hazards as well as manual handling ones

- Many of these hazards interact or are additive

But in reality, aren't manual handling hazards the *main* problem?

Marras et al. 2009

Reviewed epidemiological evidence and reported on the contribution of workplace factors to MSD development

	Physical factors	Psychosocial factors
Low Back	11-80%	14-63%
Upper extremity	11-95%	28-84%

Johnston et al, 2003

Population: 6311, Retail material handlers

Prospective study

Results at follow up

Psychosocial hazard	Odds Ratio for new back pain
High job intensity	1.8
High scheduling demands	1.6
Job dissatisfaction	1.7
Lack of influence	1.2
Lack of job security,	1.2
Low supervisor support	1.4
Lifting 20lb at work, usually every day	1.2

Australian research 2007 – current

- 7 organisations

  2 warehousing and distribution centres, 2 manufacturers,

  2 hospital networks, 1 ambulance service

- Employee Survey – scores on ...

  Workplace hazards*:* physical & psychosocial hazards

  Workers' hazardous states*:* stress, fatigue, low job satisfaction, poor work-life balance

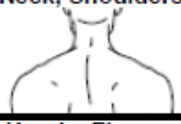
  MSD risk indicator: discomfort/pain score (/60)

Ratings of Discomfort / Pain

HOW OFTEN have you felt discomfort or pain? **AND**

for each area where you've felt it (that is – where you circle '1' or higher) ... **HOW BAD** has it been?

	HOW OFTEN				
	Never	*Occasionally*	*Sometimes*	*Often*	*Almost always*
Neck, Shoulders 	0	1	2	3	4
Hands, Fingers 	0	1	2	3	4
Arms 	0	1	2	3	4
Middle to Lower Back 	0	1	2	3	4
Hips, Bottom, Legs, Feet 	0	1	2	3	4

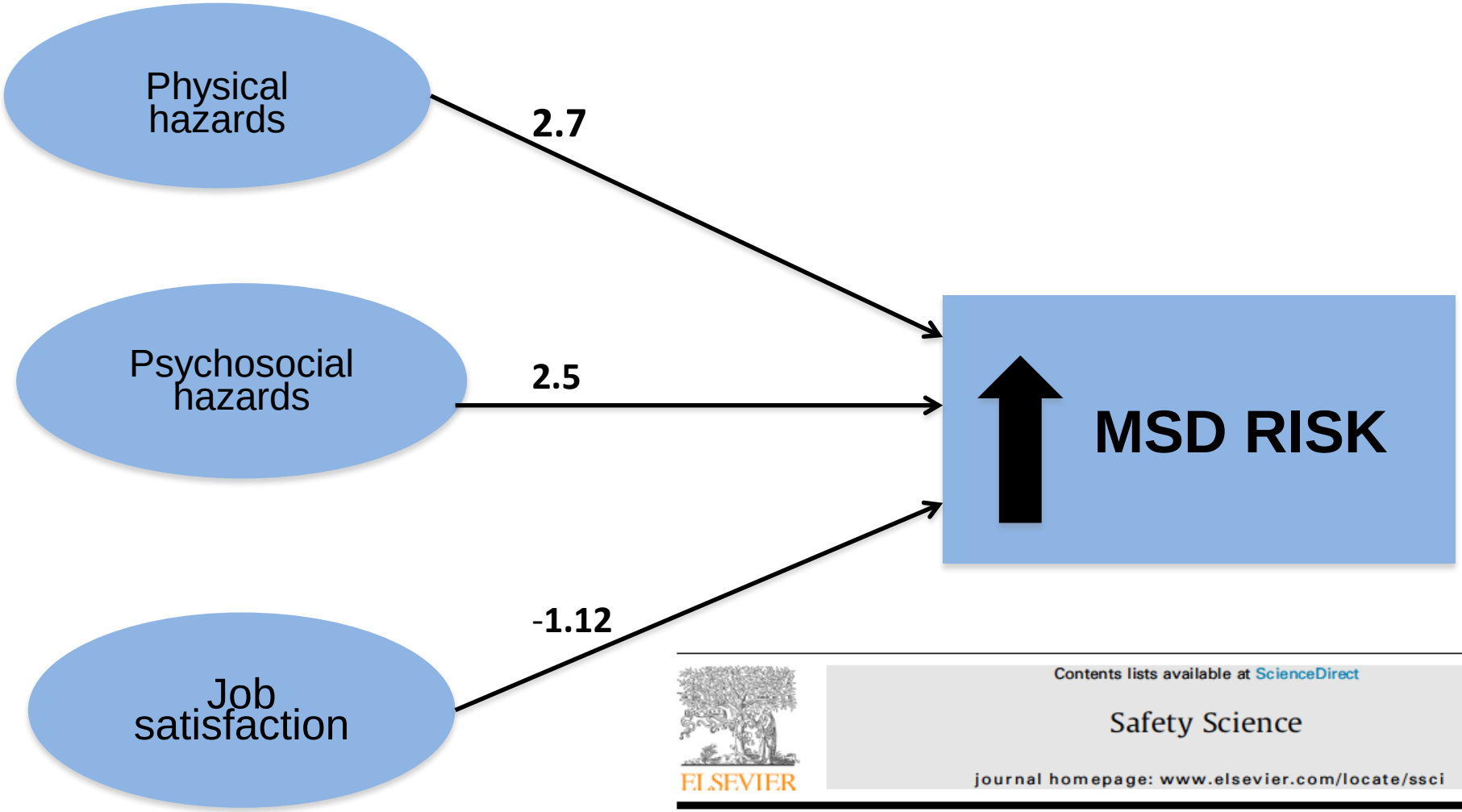
For each body area where there's been *some* discomfort or pain (i.e. *marked as '1' or higher*) circle a number below to show **HOW *BAD***		
Neck, Shoulders 	*Mild*	1
	Moderate	2
	Severe discomfort	3
Hands, Fingers 	*Mild*	1
	Moderate	2
	Severe discomfort	3
Arms 	*Mild*	1
	Moderate	2
	Severe discomfort	3
Middle to Lower Back 	*Mild*	1
	Moderate	2
	Severe discomfort	3
Hips, Bottom, Legs, Feet 	*Mild*	1
	Moderate	2
	Severe discomfort	3

Score out of 60

Main workplace factors measured

- Manual handling hazards (for each of 12 items – frequency of substantial exposure)

- **WOAQ** (Work Organisation Assessment Questionnaire):
  - Relationships with management
  - Reward / Recognition
  - Workload
  - Relationships with colleagues
  - Physical environment



Contents lists available at ScienceDirect

Safety Science

journal homepage: www.elsevier.com/locate/ssci

Risk management: Where should we target strategies to reduce work-related musculoskeletal disorders?

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Taking this evidence into account

- High variability between studies in their relative importance ...
  - partly due to varying measurement methods

- Physical and psychosocial hazards have substantial influence on MSD risk, it will vary depending on context of workplace and measures used

Implications for MSD risk management

It is clear that:

- assessment and management of psychosocial hazards is essential, not optional
- severity of exposure to any *single* hazard is not necessarily a good indicator of *overall* MSD risk
- output of tools for assessing adverse postures and/or biomechanical loads indicates severity or 'riskiness' *of the particular hazard(s)* … DOES NOT necessarily indicate overall MSD risk

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Real world: What is happening?

- Little published evidence of actual practices
- A strong focus on physical hazards exists, not much evidence to support the management of psychosocial hazards in relation to MSDs

Some examples:

2003: Survey of Australian Certified Professional Ergonomists (CPE)

2004: Study of Ergonomics Consultants in the UK

2008-2013: Documented routine MSD risk management procedures in Australia (9 organisations, unpublished)

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5. **Workplace Toolkit for MSDs risk management**

Why this toolkit is needed?

- Current MSD risk management strategies don’t reflect research evidence as depicted in our framework model
- Barriers to more effective MSD risk management :
  - Usual approach is too narrowly focused on just a subset of hazards usually physical
  - Common concepts of ‘a hazard’ focuses attention on a single event or object as the problem, rather than several interacting agents or events

Psychosocial hazards: What is the problem?

- Challenging to manage
- Hazard may not be proximal to the outcome
- Perceptions of being difficult to manage

However, we need to assess and control these hazard in the same way we would any other OHS hazard (Way, 2012)

Where are we at?

- A MSDs risk management toolkit must address psychosocial hazards as well as physical hazards

- Targeting of risk management needs to be at job level

- Results very useful in recent participative workshops in each organisation – involving employee reps, supervisors, OHS reps, Union reps, Managers, OHS personnel – together they identified potentially cost-effective interventions.

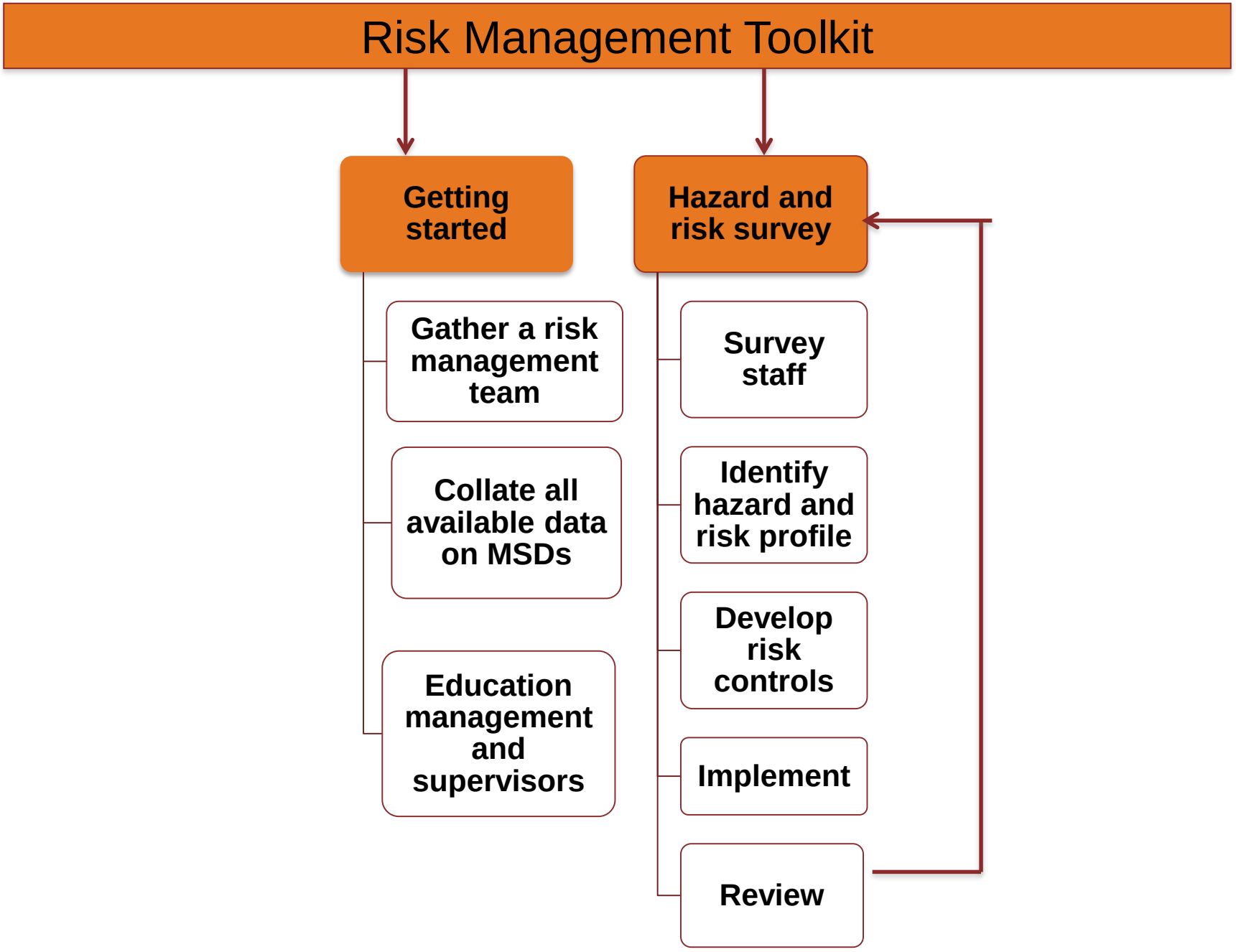
But … toolkit needed to achieve sustainability

WHO concept of a ‘toolkit’

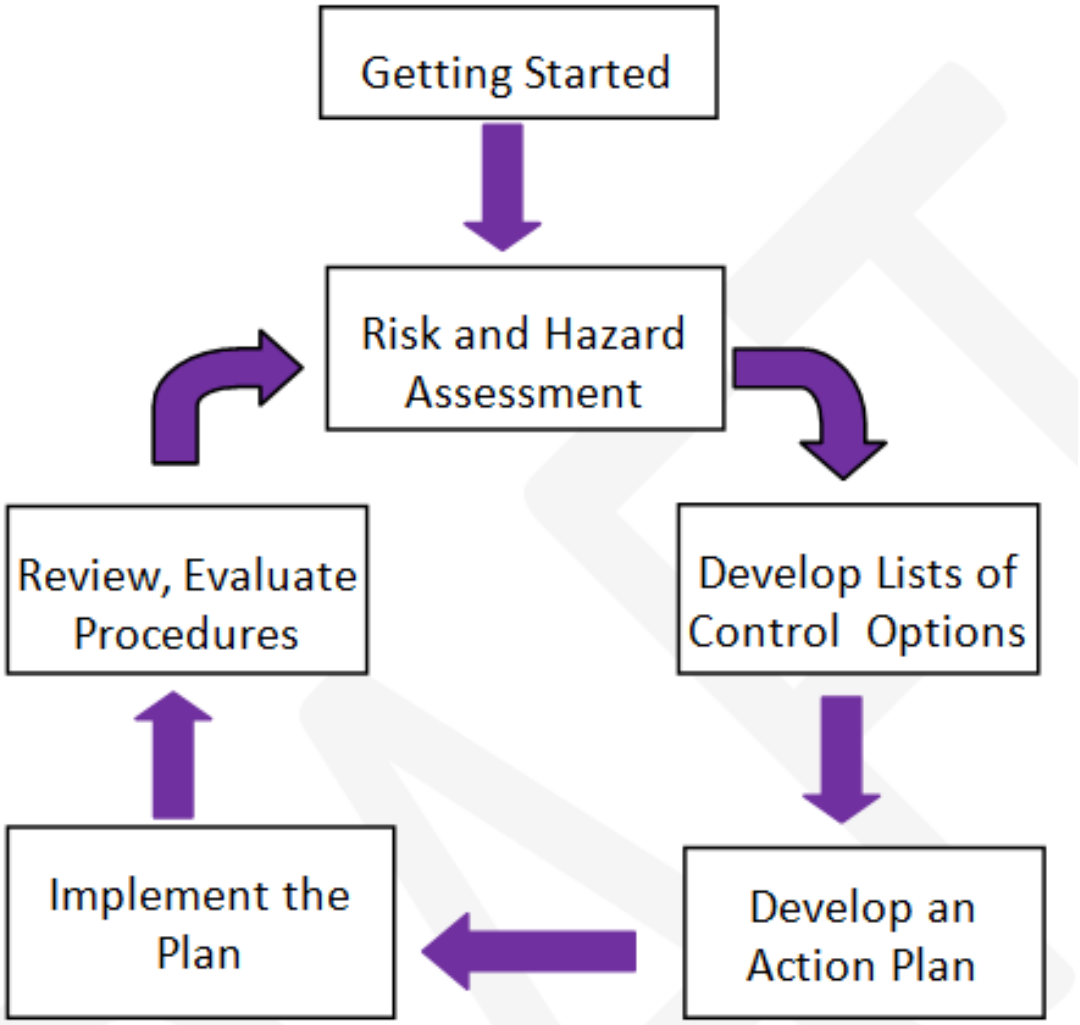
- a documented strategy for applying practical tools to support workplace changes to control …
  - a specific ***risk** **** (e.g. risk of MSDs, risk of asbestosis) *or*
  - risk from a specific ***hazard** **** (e.g. excessive biomechanical loads, exposure to asbestos dust) *or*
  - a *group* of hazards (e.g. related to ‘manual handling’, or shift work)

* ***hazard*** *has inherent* ***potential to cause harm***

* ***risk relates to a harmful outcome*** *stemming from exposure to one or more hazards ...* ***risk =*** *probability x severity of harm*


Risk Management Toolkit
Getting started
Hazard and risk survey
Gather a risk management team
Collate all available data on MSDs
Education management and supervisors
Survey staff
Identify hazard and risk profile
Develop risk controls
Implement
Review

Risk management framework



Key requirements for toolkits

- Practicable and easy to use … clear guidance
- Can be implemented by the employer, workers, or their representatives (and others)
- Applicable in most settings
- Cost-effective
- Support integrated approach to risk management
- Assist stakeholders to work through the full **risk management cycle** – in accord with WHO Healthy Workplace Model

What will our toolkit look like?

- Currently in the testing stage – working with organisations to customise toolkit to their existing OHS management systems
- Will be interactive, allowing users to customise further, and to enter their own workplace data to obtain guidance on risk control options
- Future work will entail implementation, evaluation and comparison of data across different sectors
- A key question – to what extent will we need to customise for different jobs/sectors?

Back to the three questions!

1. Are MSDs a problem?

1. What does the evidence tell us about MSD?

1. Are there gaps in current strategies used to manage MSDs?

Take home message

Three key points to consider about your own workplaces:

- Does your organisation's current policies and procedures reflect contemporary evidence relating to musculoskeletal disorders?
- Don’t step away from management of psychosocial hazards, difficult but not impossible just needs practice
- Leadership is pivotal, need to have support in making changes happen

Interested in learning more:

Short course: Health and Design of Work

How do we design work to prevent MSDs and improve health and wellbeing?

http://www.ergonomics.org.au/calendar/event.asp?ContentID=hfesa_la-trobe-university-hfesa-short-course---health-design-of-work

Graduate Certificate or Masters in Ergonomics, Safety and Health at La Trobe University

http://www.latrobe.edu.au/courses/ohs-and-ergonomics/postgraduate

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Resources

Hazardous manual tasks: https://www.worksafe.qld.gov.au/injury-prevention-safety/hazardous-manual-tasks

Slips, trips and falls: https://www.worksafe.qld.gov.au/injury-prevention-safety/workplace-hazards/slips-trips-and-falls

Occupational stress and People at Work: https://www.worksafe.qld.gov.au/injury-prevention-safety/workplace-hazards/work-related-stress

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