The Global Alliance for Musculoskeletal Health
Bone and Joint Decade 2010 - 2020

Musculoskeletal First Aid
Promoting musculoskeletal health and reducing the impact of musculoskeletal disorders in the workplace

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Royal Cornwall Hospital, Truro & University of Exeter Medical School
Chair, Bone and Joint Decade 2010-20
Importance of Musculoskeletal Health

- Mobility
- Lifting and carrying
- Dexterity

Essential for
- General health and fitness
- Activities of daily living
- Work
- Economic independence
All require of mobility and/or dexterity at all ages.
A Ferrari without wheels!
Work and Musculoskeletal Health

- Work causes musculoskeletal disorders
  - eg heavy work causes back pain, repetitive work related to upper limb problems

- Musculoskeletal conditions limit work capacity
  - eg osteoarthritis of the hip or knee prevents many people aged over 50 years working
Work-related Musculoskeletal Disorders

Major cause of work loss

Back pain
Shoulder pain
  Capsulitis
  Bursitis
Elbow pain
  Medial epicondylitis
  Lateral epicondylitis
Hand pain
  Tenosynovitis

Most are chronic and only occur after exposure to work based risk factors over a period of time.
Spectrum of Musculoskeletal Conditions

Characterised by pain, physical disability and loss of personal and economic independence

- Joint diseases
  - Osteoarthritis
  - Rheumatoid arthritis
  - Gout
  - Infections
- Systemic connective tissue disorders
- Back pain
- Musculoskeletal pain
- Osteoporosis and low trauma fractures
- Bone infections
- Trauma
- Injuries (occupation, sports) and more………

ARTHRITIS
BACK PAIN
INJURIES & TRAUMA
OSTEOPOROSIS
What effect do musculoskeletal conditions have?

- Pain
- Deformity
- Disability
- Quality of life
- Loss of physical independence
- Loss of economic independence
Disability Adjusted Life Years (DALYs) provide a ranking of how much death and disability each disease/condition causes.
Musculoskeletal conditions are the greatest cause of disability
Years Lived with Disability (YLDs) %: UK by cause, 2010

Musculoskeletal conditions are the greatest cause of disability
Musculoskeletal conditions are the greatest cause of disability, impacting on adults of all ages.
Disability from specific musculoskeletal conditions in UK at all ages, 2010
Musculoskeletal problems most common main health problem in the EU working age population

Main health problem in people aged 15 – 64 yrs with a health problem in EU-25

Labour Force Survey AHM 2002, EUROSTAT
Musculoskeletal Disorders were 38% of work-related diseases in Europe in 2005.
Most serious work-related health problems in past 12 months

Percentage reporting most serious work-related health problem in past 12 months, 2007

Musculoskeletal disorders
Stress, depression, anxiety
Prevalence rate of work-related musculoskeletal disorders by type in GB (HSE)

Note: No ill health data was collected in 2002/03
Musculoskeletal disorders by anatomical site 2010-2012 (HSE 2013)
Musculoskeletal disorders by attributable task (HSE 2013)
Musculoskeletal disorders by attributed movement 2010-12 (HSE 2013)
Work related problems by sociodemographic factors, occupation

- Low educated workers reported work-related problems more often and more likely to report MSDs as the most serious work-related problem.
  - In those with low educational level with a work-related health problem MSD was the main problem in 68%.
  - In those with high educational level this was 44%.

- MSD most often reported as the main work related health problem in manual workers and lowest in highly skilled non-manual workers.

EUROSTAT 2010.
Impact on work

Impact can be described in terms of:

- **Absenteism**
  - missing part or whole days from work (e.g. number of days/hours off work)

- **Presenteeism**
  - an individual remains in work but with difficulty or reduced efficiency/productivity.

- **Work disability**
  - ceasing to work before retirement age
Musculoskeletal problems account for 20% of sickness absences in UK
Labour Force Survey 2014, ONS

<table>
<thead>
<tr>
<th>Reason given for sickness</th>
<th>Percentage of sickness absences in 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor illnesses</td>
<td>30%</td>
</tr>
<tr>
<td>Musculoskeletal problems</td>
<td>20%</td>
</tr>
<tr>
<td>Other*</td>
<td>14%</td>
</tr>
<tr>
<td>Stress, depression, anxiety</td>
<td>8%</td>
</tr>
<tr>
<td>Gastrointestinal problems</td>
<td>7%</td>
</tr>
<tr>
<td>Eye/ear/nose/mouth/dental problems</td>
<td>4%</td>
</tr>
<tr>
<td>Respiratory conditions</td>
<td>4%</td>
</tr>
<tr>
<td>Heart, blood pressure, circulation problems</td>
<td>3%</td>
</tr>
<tr>
<td>Genito-urinary problems</td>
<td>3%</td>
</tr>
<tr>
<td>Headaches and migraines</td>
<td>2%</td>
</tr>
<tr>
<td>Serious mental health problems</td>
<td>1%</td>
</tr>
</tbody>
</table>

* “Other” includes the total number of days lost to diabetes as well as days lost to accidents, poisonings, infectious diseases, skin disorders and anything else not covered.
Musculoskeletal problems account for greatest loss of working days in UK
Labour Force Survey 2014, ONS
Is back, neck and muscle pain hurting the UK economy?

By Joe Miller
Business Reporter
Work limitation (presenteeism)

- During a 2-week period
  - 13% of total workforce experienced loss in productive time due to a common pain condition.
  - Most common pain conditions resulting in lost productive time
    - Headache 5.4%
    - Back pain 3.2%
    - Arthritis pain 2.0%
    - Other MSK pain 2.0%
  - The majority (76.6%) of lost productive time explained by reduced performance while at work and not work absence. (Stewart et al. 2003)

- Individuals with neck, shoulder or arm pain reported lost productivity while at work of up to 36% (van den Heuvel et al. 2007)
Duration of incapacity benefit claim by condition England, Scotland & Wales 2010

Incapacity benefit caseload working age by duration of claim ES& W 2010

- Injury, Poisoning and certain other consequences of external causes
- Diseases of the Circulatory or Respiratory System
- Diseases of the Nervous System
- Diseases of the Musculoskeletal system & connective tissue
- Mental & Behavioural disorders

Caseload (1,000s)
The needs of society

- Economic productivity and independence throughout life
- Extended working lives because of increasing life expectancy
Ageing of the population

We are going to have to work for longer
WRONG QUEUE, MR. GRIMLEY—THIS IS PENSIONS—YOU'RE ONLY 83
Musculoskeletal Health in the Workplace

A BONE AND JOINT DECADE INITIATIVE

• How do we enable people to have full and productive working lives despite musculoskeletal problems (work related and non-work related).

The Bone and Joint Decade

Global Alliance for Musculoskeletal Health

brings together medical, scientific and patient organisations to make musculoskeletal health a priority to reduce the growing burden on individuals and society

- Half of the world’s people are economically active and spend at least one third of their time at the workplace.
- Fair employment and decent work are important social determinants of health, and a healthy workforce is an essential prerequisite for productivity and economic development.
- Certain global health problems, such as noncommunicable diseases, result in increasing rates of long-term illness and absence from work.
- Respiratory diseases and musculoskeletal disorders are the most common occupational diseases, only one third of countries have special programmes to address them.
- Only a small proportion of the global workforce has access to occupational health services for primary prevention and control of occupational and work-related diseases and injuries.
<table>
<thead>
<tr>
<th>Factor</th>
<th>Possible result or consequence</th>
<th>Example</th>
<th>Good practice example or solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exertion of high-intensity forces</td>
<td>Acute overloading of the tissues</td>
<td>Lifting, carrying, pushing, pulling heavy objects</td>
<td>Avoid manual handling of heavy objects</td>
</tr>
<tr>
<td>Handling heavy loads over long</td>
<td>Degenerative diseases especially of the lumbar</td>
<td>Manual materials-handling</td>
<td>Reduce mass of objects or number of handlings per day</td>
</tr>
<tr>
<td>periods of time</td>
<td>spine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequently repeated manipulation</td>
<td>Fatigue and overload of muscular structures</td>
<td>Assembly work long time typing, check-out work</td>
<td>Reduce repetition frequency</td>
</tr>
<tr>
<td>of objects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working in unfavourable posture</td>
<td>Overload of skeletal and muscular elements</td>
<td>Working with heavily bent or twisted trunk, or hands and arms above</td>
<td>Working with an upright trunk and the arms close to the body</td>
</tr>
<tr>
<td>Static muscular load</td>
<td>Long-lasting muscular activity and possible</td>
<td>Working overhead, working in a confined space</td>
<td>Repeated change between activation and relaxation of muscles</td>
</tr>
<tr>
<td></td>
<td>overload</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muscular inactivity</td>
<td>Loss of functional capacity of muscles, tendons</td>
<td>Long-term sitting with low muscular demands</td>
<td>Repeated standing up, stretching of muscles, remedial gymnastics, sports activities</td>
</tr>
<tr>
<td></td>
<td>and bones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monotonous repetitive manipulations</td>
<td>Unspecific complaints in the upper extremities</td>
<td>Repeated activation of the same muscles without relaxation</td>
<td>Repeated interruption of activity and pauses alternating tasks</td>
</tr>
<tr>
<td></td>
<td>(RSI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application of vibration</td>
<td>Dysfunction of nerves reduced blood flow, degenerate disorders</td>
<td>Use of vibrating hand-tools, sitting on vibrating vehicles</td>
<td>Use of vibration-attenuating tools and seats</td>
</tr>
<tr>
<td>Physical environmental factors</td>
<td>Interaction with mechanical load and</td>
<td>Use of hand-held tools at low temperatures</td>
<td>Use gloves and heated tools at low temperatures</td>
</tr>
<tr>
<td></td>
<td>aggravation of risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychosocial factors</td>
<td>Augmentation of physical strain, increase in</td>
<td>High time pressure, low job decision latitude, low social support</td>
<td>Job rotation, job enrichment, reduction of negative social factors</td>
</tr>
<tr>
<td></td>
<td>absence from work</td>
<td></td>
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</tr>
</tbody>
</table>
Many interventions shown to be effective but not having a big impact on work loss

- Need a different proactive approach rather than reactive to problems
- Need to make the workplace a healthier environment and meet balance the needs of the employer with the needs of the employee for them to be productive throughout their (extending) working lives
Musculoskeletal Health and Work

• The workforce of the future is likely to be older and less healthy, and more people will be living and working in ill health.
• Healthy active ageing at work requires
  • people to maintain their physical capacity
  • balancing work capacity of the employee with the workload of the working environment;
  • identification and modification of risk factors for MSDs in the workplace;
  • early interventions for people developing MSDs; and
  • ways to reintegrate people into the workplace who have a musculoskeletal disorder (work-related) or condition (not work-related).
Musculoskeletal Health in the Workplace
A BONE AND JOINT DECADE INITIATIVE

1. Maintain physical capacity
2. Prevent MSDs and workloss associated with them
   – identification and modification of risk factors for MSDs in the workplace - ergonomic and psychological interventions
   – balancing work capacity of the employee with the workload of the working environment - work organisation and management attitudes
3. Preventing workloss due to musculoskeletal disorders (work-related) or conditions (not work-related).
   – access to early interventions
   – ways to reintegrate people into the workplace
Five Keys to Healthy Workplaces: No Business Wealth without Workers' Health

A healthy workplace is “one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of all workers and the sustainability of the workplace by considering the following, based on identified needs:

- health and safety concerns in the physical work environment;
- health, safety and well-being concerns in the psychosocial work environment including organization of work and workplace culture;
- personal health resources in the workplace (support and encouragement of healthy lifestyles by the employer);
- ways of participating in the community to improve the health of workers, their families and members of the community”.

World Health Organization
Musculoskeletal Health in the Workplace
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How often do you exercise or play sport?

- Regularly: 39%
- With some regularity: 31%
- Seldom: 21%
- Never: 9%

60% of adults seldom or never do exercise or play sport.

How often do you engage in physical activity outside sport such as cycling or walking ....

- Regularly: 38%
- With some regularity: 27%
- Seldom: 20%
- Never: 14%
Impact of physical inactivity on health

- Cardiovascular Diseases
  - Coronary heart disease
  - Hypertension
  - Atherosclerosis
  - Congestive heart failure
- Weight Management
- Obesity
- Diabetes
- Overweight
- Cancer
- Breast
- Colo
- Lung
- Prostate
- Pulmonary Diseases
  - Emphysema
  - Chronic Bronchitis
  - Asthma
- Psychological Disorders
  - Anxiety
  - Depression
- Musculoskeletal Disorders
  - Osteoarthritis
  - Osteoporosis
  - Back Pain
- Bone fractures & connective tissue

Keep people moving
Inventions lead to inactivity....

Something has to be done to get people moving using their own efforts!
Promoting musculoskeletal health in the workplace

• Promoting a bone and joint healthy lifestyle
  – Physical activity
  – Avoiding obesity

• Challenge
  – Getting recognition that musculoskeletal health can be improved through a lifestyle approach and that musculoskeletal conditions can limit the ability to keep physically fit

“Keep people moving”
Physical activity and function dependent on having a healthy musculoskeletal system
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- and ways of participating in the community to improve the health of workers, their families and other members of the community.
Cost benefit studies that support tackling musculoskeletal disorders

- Ergonomic interventions (e.g., designing task, the equipment, organisational context of work) reduce risks of MSD’s (specific case examples given in the report).
- To be implemented
  - Need to demonstrate that good practice in tackling MSD’s can prevent them and benefits business financially
  - Business owners, shareholders and managers need to be persuaded that business investment will provide a good return on investment and increasingly will form an integral part of meeting their social responsibility.
Balancing work capacity of the employee with the workload of the working environment - work organisation and management attitudes

Needs to make the workplace more amenable and supportive of the employees’ health so as to

- maintain and enhance musculoskeletal health,
- prevent MSK injury and disease through modification of risk factors, and
- enable early intervention and optimize early reintegration into the workplace for people with musculoskeletal disorders and conditions.

A method of achieving this is by educating managers and employees on the challenges and effective evidence-based interventions.
“Train the Managers“ Programme

- A Bone and Joint Decade initiative developed in partnership with the Work Foundation

- Identifying the educational needs of managers, developing and delivering a training programme to meet these.
Promoting Musculoskeletal Health in the Workplace

A “train the managers” programme

A Bone and Joint Decade Initiative

- a training programme for managers to enable them to understand and meet the needs of employees to enhance and extend working lives by reducing workloss from musculoskeletal disorders through absenteeism and presenteeism
- delivered to managers by a partnership of an occupational health professional and an employee who has had experience of a musculoskeletal problem that has affected their ability to work.
- programme developed to meet the needs of employers, managers and employees and evidence-based
- tailored to meet the needs of different workplaces.
Development of a draft framework for the learning objectives

• Carry out literature search to identify existing evidence on the role of managers in maintaining musculoskeletal health in the workplace and what training they need to carry out this role.

• Present findings to Expert Advisory Group composed of experts in musculoskeletal health, education, health promotion and occupational health.

• Develop a framework of learning themes and operational definitions from this evidence and from the expert opinion of the Expert Advisory Group.
Identifying the learning objectives

- Learning objectives – proposals are being developed by focus groups
  - discussions with employees and managers from different industries based around the framework and evidence from literature review.
  - discussions with experts in occupational health

- These groups
  - make proposals for learning objectives
  - identify the barriers and facilitators to maintaining musculoskeletal health in the workplace,
  - what role managers can play and
  - what training they need to help improve musculoskeletal health in the workplace.

- these discussions will use the draft framework and glossary as a launch pad for discussion to develop the proposals.
Reaching consensus on learning objectives

- A Delphi technique* will be used to consider all the proposals made by the different focus groups to reach consensus on what learning objectives should be included in the training. The outcome will be a set of learning objectives for managers.

* The Delphi method is a structured communication technique, originally developed as a systematic, interactive forecasting method which relies on a panel of experts.
Curriculum development and resources

- The Expert Advisory Group will translate the learning objectives into a curriculum. Resource materials will be developed so that the programme can be delivered in interactive sessions with web-based support.
Deliver pilot training

• The programme will be delivered at 4 sites as interactive sessions by a trained occupational health professional and a trained employee who has had experience of a musculoskeletal problem that has affected their ability to work.

• There will be web-based support
Evaluation

• The programme will be evaluated
  – feedback from participants at the end of the programme and
  – at 3 months to see if it has influenced working practice.

• The programme will be developed and piloted
  – in southwest England with 3 major public sector employers, Royal Cornwall Hospitals NHS Trust, Plymouth Hospitals NHS Trust; and Royal Cornwall Hospital
  – and major private sector employer in construction

• It will be revised according to feedback. The intention is that it will then be taken up by employers in any setting (type of work and geographic setting) as a programme to enhance and extend working lives.
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What is needed from healthcare

- Work needs to be a clinical outcome, a therapeutic goal
- Recognition that the longer off work, the greater the challenge to return to work.
- Inclusions of work in assessing cost-effectiveness of health interventions
- Early access to evidence based cost effective interventions
Reduction in sickleave with modern treatment of Rheumatoid Arthritis (antiTNF) in Sweden

Point prevalence of sick leave

-360 -300 -240 -180 -120 -60 0 60 120 180 240 300 360

Percentage of subjects on SL

RA cases

 Controls

n=365

n=1460

p<0.001 p<0.001

p=1.0 p=0.91

Point prevalence of sick leave

Reduction in sickleave with modern treatment of Rheumatoid Arthritis (antiTNF) in Sweden

Ann Rheum Dis published online August 6, 2010
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Musculoskeletal Health in the Workplace

Making the Case

• Main objective for the company
  – to make a profit
• The workers are
  – means to fulfil the objective

healthy workers staying in workplace are a major asset

CONCLUSION:

HEALTHY WORKERS AND COMPANY SUCCESS ARE STRONGLY CONNECTED
Cost savings and benefits to employers of preventing MSD’s
Two main forms: savings made by avoiding the costs of MSDs; and benefits accrued through increased productivity.

**Costs of MSD’s**

- Instances of musculoskeletal sick leave and their duration
- Ratio of personnel on sick leave because of MSDs before and after
- Staff turnover
- Compensation claims
- Reduced working time leading to reduced productivity on certain tasks because of the risk of MSDs or excessive fatigue

**Benefits to be considered**

- Greater output over a given time period
- Reduced wastage of raw materials (occurring for example when personnel were able to work more efficiently because the task had been designed around operator capabilities)
- Higher quality output – fewer mistakes in better designed jobs
- Savings in wage costs from jobs which were made less manually intensive

Research Report 491, 2006
The Bone and Joint Decade is a global alliance of professional, scientific and patient organisations working together promoting musculoskeletal health and musculoskeletal science worldwide

“Keep people moving”