



ergonomics
SOCIETY OF
SOUTH AFRICA

IMPLEMENTING AN ERGONOMICS PROGRAMME

Presenter: Dr Jessica Hutchings

ESSA President

www.ergonomicssa.com

OVERVIEW

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GOVERNMENT NOTICES • GOEWERMENTSKENNISGEWINGS

DEPARTMENT OF LABOUR

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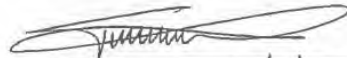
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DEPARTMENT OF EMPLOYMENT AND LABOUR

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993

ERGONOMICS REGULATIONS, 2019

The Minister of Employment and Labour has, under section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), after consultation with the Advisory Council for Occupational Health and Safety, made the regulations in the Schedule.


TW NXESI, MP 20/11/2019
MINISTER OF EMPLOYMENT AND LABOUR

What is Ergonomics?



- The International Ergonomics Association (IEA) defines Ergonomics as:
 - ❑ *Ergonomics is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system – IEA (2018)*
 - ❑ *The profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance – IEA (2018)*
- Ergonomics assists in optimising or creating a balance between humans and systems/things with which they interact

What is Ergonomics?

- People who apply Ergonomics must have a broad understanding of the **full scope** of the discipline.
- Ergonomics promotes a **holistic approach** – it considers factors such as:
 - Physical
 - Cognitive
 - Social
 - Organisational
 - Environmental
 - Other
- Ergonomics is an approach or solution to workplace problems
- 3 Domains of specialisation within the discipline of Ergonomics:

3 Domains of Ergonomics

1. Physical Ergonomics:

- Human anatomy
- Anthropometry
- Physiology
- Biomechanics



Topics:

working postures, materials handling, repetitive movements, work related musculoskeletal disorders, workplace layout, safety and health

3 Domains of Ergonomics



2. Cognitive Ergonomics:

- Mental processes - perception, memory, reasoning, and motor response
- How this affects interactions among humans and other elements of a system

Topics:

mental workload, decision-making, skilled performance, human-computer interaction, human reliability, work stress and training as these may relate to human-system design

3 Domains of Ergonomics

3. Organisational Ergonomics:

- Optimisation of systems
- Organisational structures, policies, and processes



Topics:

communication, crew resource management, work design, design of working times, teamwork, participatory design, community ergonomics, cooperative work, virtual organisations, and quality management

3 Domains of Ergonomics

... HOWEVER ...

Domains of Ergonomics

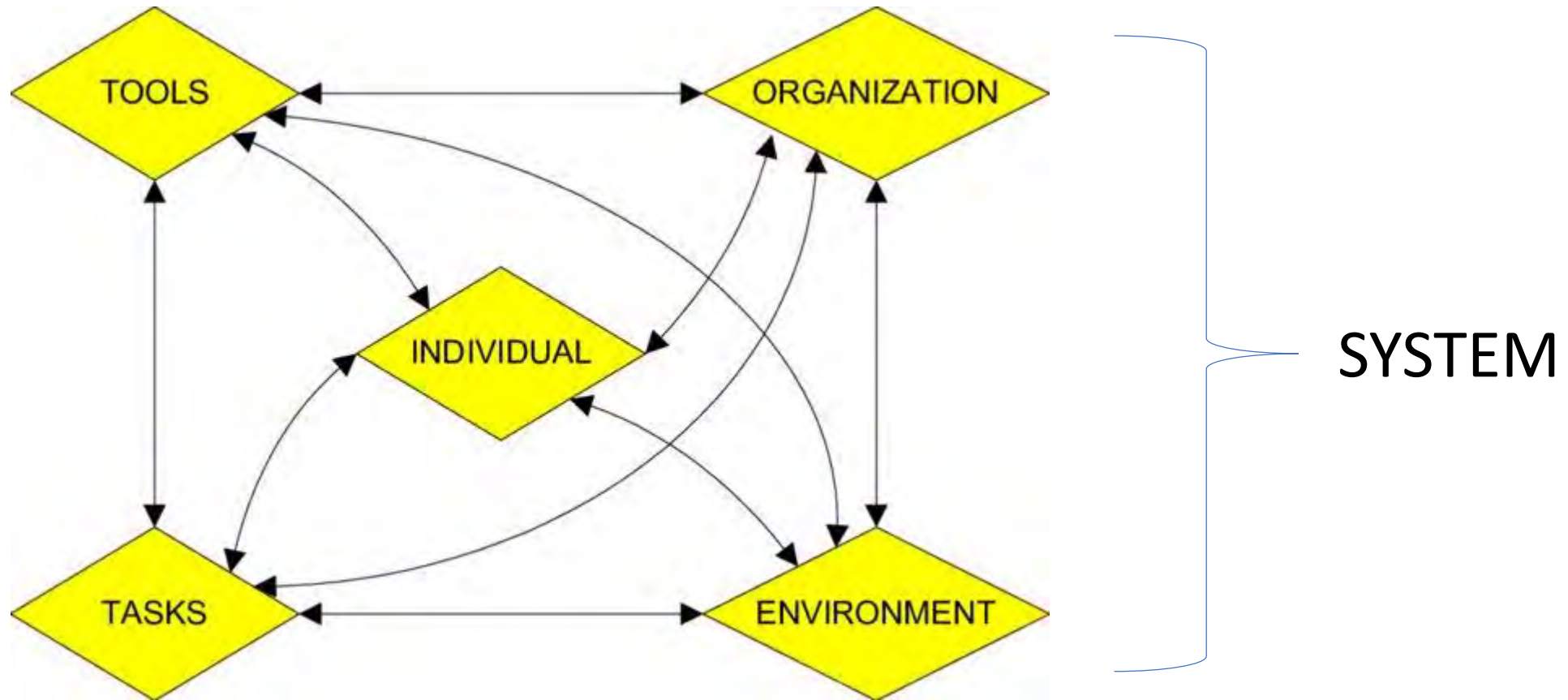
- Although there are 3 domains, the VALUE of Ergonomics is that a **SYSTEMS** approach must be taking at all times

This means...

- We cannot look at each of the domains in isolation

Ergonomics is about a holistic view of human beings and their interaction within a system that includes tools, tasks and environments

Ergonomics – Focus on the SYSTEM



Reference: Work System Model (Carayon & Smith, 2000; Smith & Carayon-Sainfort, 1989)

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What is an Ergonomics programme?

- It is a holistic multidisciplinary systems approach for anticipating, identifying, analysing, mitigating and reviewing Ergonomic risks
- Engages the 3 domains but the primary focus is the **SYSTEM**
 - Physical
 - Cognitive
 - Organisational
- Integrated into existing Occupational Health and Safety (OH&S) Management Systems
- It is the proactive management of Ergonomics
- Must be viewed as a strategic continuous improvement process
- Makes a positive impact on the entire business



What is an Ergonomics programme?

- An Ergonomics programme needs to be built on a strong safety foundation for it to be successful
- There needs to be a clear understanding of:
 - What Ergonomics is
 - How Ergonomics transforms an organisation
 - How organisations can audit their Ergonomics practices
 - The importance of an Ergonomics Management System

The value of an Ergonomics programme

- Matching the job demands to the capabilities and needs of your workforce
 - this is good for the well-being of your staff and therefore good for your business
- Staff work more safely and efficiently leading to fewer injuries and accidents
- Ergonomic risks (which can impair human well-being & overall system performance) are controlled & managed effectively & continuously
- Better experience for the user = good for business
- Good for people = better lives and a better workplace
- Value of Ergonomics lies in investing and developing a strong practice

The value of an Ergonomics programme

Jobs designed to match capabilities of people = better work done & better experience for the person doing it

Good for People	Good for Business
Job tasks are easier to accomplish	Enhances company brand
Reduced fatigue and discomfort	Lower costs
Fewer injuries	Improved productivity
Improves work experience	Better product quality
Enhances job satisfaction and quality of life	Better business performance

- An Ergonomics programme needs to be as effective as OH&S Management practices
- It must be effective, efficient and sustainable – not just a once off!

Developing an Ergonomics programme

- Everyone in the organisation from top down AND bottom up needs to know what Ergonomics is and how it is beneficial!
- 4 characteristics of companies who have successfully empowered Ergonomics programmes
 1. Ergonomics is implemented as part of a comprehensive OH&S approach
 2. Ergonomics is managed as a continuous improvement process
 3. Ergonomics is given the support and resources it needs to succeed
 4. Ergonomics engages the organisation top down AND bottom up

Developing an Ergonomics programme

- Ergonomics should not be compartmentalised
- Ergonomics should form part of your OH&S Management System
- Plan, Do, Check, Act (PDCA) concept applies in an Ergonomics programme for continuous improvement
- Genuine leadership, accountability and support is needed for an Ergonomics programme to succeed – more than just “doing” Ergonomics
- Use existing management systems for ergonomics data
- Commitment is needed from the entire workforce to build a better workplace – **participatory approach**

Developing an Ergonomics programme

- Appropriate policies and procedures on the management of ergonomics within the organisation must be developed
- Education and awareness on ergonomics and existing ergonomic risks to everyone in an organisation is required
- Medical surveillance programmes need to adequately identify and manage the effects of ergonomic risk exposure
- A culture of managing ergonomic risks needs to be inculcated by all stakeholders within the organisation
- The programme must become self sustaining

Implementing an Ergonomics programme

- For an Ergonomics programme to be successful and sustainable, organisations need to know where they are today and where they want to be tomorrow
 - ✓ Observe the current conditions – establish before you do PDCA
 - ISO 19011 guidance for conducting an audit
 - ✓ Seek clarity and alignment for all stakeholders
 - ✓ Identify actionable improvement opportunities
 - ✓ Thereafter – create a customised Ergonomics Management System (EMS) – this defines your ergonomics process

Implementing an Ergonomics programme

- Actionable information from the audit is used to create an EMS
- As per OH&S processes, Ergonomics should be managed in a well defined system
- EMS should be documented with policies “why”, standards “what” and guidance documents “how” to reduce ergonomics risks
- EMS Policy – goals & vision of the Ergonomics programme (for the organisation and employees)
- Engineering / Design / Manufacturing departments are part of, and involved in, the EMS (prevention and improvement)
- Proactive AND Participatory approach to drive ergonomic risks reduction
- Ergonomics programme must make a positive impact on the entire business

Elements of an effective Ergonomics programme

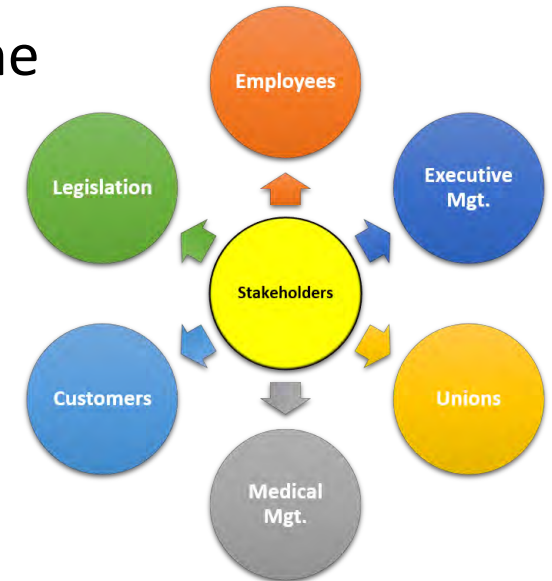
1. Leadership and Stakeholder Engagement – a **Participatory Approach**
2. Planning
3. Hazard Identification & Prevention
4. Education and Awareness
5. Continuous Improvement



Elements of an effective Ergonomics programme

1. Leadership and Stakeholder engagement

- Leading organisational change requires a clear understanding of the relevant stakeholders
 - Defined roles and responsibilities communicated to everyone
 - Cross functional team
 - Requires the support of top leadership
 - Communicate management commitment through written policies, participation in committees etc.
 - Allocate appropriate resources



Without this commitment, resources for workplace and workstation improvements, training, and holding people accountable for results – the program will not succeed.

Elements of an effective Ergonomics programme

2. Planning

- If it cannot be measured, it cannot be managed
- Identify objectives and goals e.g.
 - Reduce Musculoskeletal Disorders
 - Improve Safety and Productivity
 - Increase Training on Ergonomics
- Establish Key Performance Areas (KPA's) & Key Performance Indicators (KPI's)
- Set S.M.A.R.T. Goals



Elements of an effective Ergonomics programme

3. Hazard Identification and Prevention

- Ergonomic Risk Assessment - Understand the ergonomic workplace risk
 - ✓ TASK/ACTIVITY-RELATED PHYSICAL RISK FACTORS
 - ✓ TASK/ACTIVITY-RELATED COGNITIVE RISK FACTORS
 - ✓ ENVIRONMENT-RELATED (PHYSICAL AND SOCIAL) RISK FACTORS
 - ✓ TECHNOLOGY / TOOL-RELATED RISK FACTORS
 - ✓ ORGANISATIONAL RISK FACTORS
- Easy reporting of potential ergonomic risks by employees to employer
- Risk map and priority listing
- Develop countermeasures
- Monitor & review

Elements of an effective Ergonomics programme.

4. Training and Awareness

- Establish training matrix i.e. who, what, and when to be trained
- Training on:
 - What are Ergonomic hazards and risks
 - Where are the potential sources of exposure to ergonomic risks
 - What are the potential risks to health associated with ergonomic risks
 - What is the procedure for reporting ergonomic risks to the employer
 - What precautions to take to ensure protection against ergonomic risks
 - What are mitigation methods & the hierarchy of controls
- Classroom and/or on the job training
- Provide an assessment of understanding
- Store training records

Elements of an effective Ergonomics programme

5. Continuous Improvement

- Monitor objectives
 - Review performance KPI's
- Revise
 - Annual Plan
 - 5 year plan
- Continuously seek new ways of improving

Examples:

1. Ergonomic opportunities identified and corrected
2. Reduction of MSD risk factors or cognitive risks e.g. burnout
3. Employee perception surveys
4. Training



BEFORE: Using an incorrect tool to perform job tasks can lead to awkward postures and excessive exertions.



ERGONOMIC IMPROVEMENT: Using improved techniques and correct tools leads to less exertion and fatigue.

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Conclusions

- Ergonomics is a **SYSTEMS** discipline
- An Ergonomics programme needs to ensure that the **holistic** view of the organisation is considered
- Focus of an Ergonomics programme needs to be on the **interactions** of people with tools/tasks/technology within the environment
- An Ergonomics programme must follow a **participatory process** – everyone needs to be involved from a top down and bottom up
- An Ergonomics programme is not a once off, but a **strategic continuous improvement process**
- It makes a **positive impact** on the entire business

Acknowledgments

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THANK YOU

CONTACT DETAILS

Dr Jessica Hutchings

President Ergonomics Society of South Africa (ESSA)

www.ergonomicssa.com

ergonomicssa@gmail.com