ERIBA Arbo report

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Arbo report

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Abbreviations

European Research Institute for the Biology of Ageing	ERIBA
klachten aan de arm, nek en/of schouder	KANS
occupational safety and health	OHS
repetitive strain injury	RSI
musculoskeletal disorders	MSD

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Introduction

This Arbo report is about the situation at the European Research Institute for the Biology of Ageing (ERIBA)[1]. The ERIBA is a research institute dedicated to understanding the mechanisms and causes of ageing. The researchers at ERIBA tackle their questions with a collaborative and multidisciplinary approach.

There are thirteen research groups present at the ERIBA:

- Ageing Biology and Stem Cells
- Asymmetric Cell Division and Ageing
- Cellular Biochemistry
- Cellular senescence and age-related pathologies
- Gene Regulation In Ageing and Age-Related Diseases
- Genetic Instability and Ageing
- Genome Structure Ageing
- Genomic Instability in Development and Disease
- Molecular Neurobiology of Ageing
- Nucleic Acids Structures and Repair
- Quantitative Epigenetics
- Stem Cell Regulation and Mechanisms of Regeneration
- Telomeres and Genome Integrity

Each of these groups is led by a principal investigator and consists of a range of post-docs, PhD students and interns. During my work placement here I worked on a project provided by Victor Guryev of the Genome Structure Ageing group. This project involved looking at publicly available data and using bioinformatics tools to find ageing genes under positive selection in 50+ organisms. The work I did was all done in silico meaning I used data available on the internet and processed it on a computer, never having to set foot in the lab.

The Dutch Working Conditions Act (Arbo)

The Dutch Working Conditions Atc, or ARBO in dutch, is the dutch equivalent of occupational safety and health (OHS). The Arbo is divided into three different parts:

- The Working Conditions Act (Arbowet)
- The Working Conditions Decree (Arbobesluit)
- The Working Conditions Regulation (Arboregeling)

Arbo law alongside several other laws pertaining to working times, earning, equal treatment and health forms a set of laws in place to protect the health and wellbeing of employees.

The Working Conditions Act

The Working Conditions Act, or Arbowet in dutch, contains general rules for employers regarding employee health and safety.[2] The act also enables inspectors to force employers to shut down their work if rules are not followed or standards are not met.

The Act is a set of framework laws meaning there are no concrete rules in it.[3] Instead it involves general rules for all places where work is done including associations and foundations. The act contains several goal requirements rather than strict rules to allow the employers and employees to find their own ways to achieve those goals. The actual implementation of the rules is elaborated upon in the Working Conditions Decree and the Working Conditions Regulations.

The Working Conditions Decree

In the Working Conditions Decree, or Arbobesluit in dutch, the rules of the Working Conditions Act is elaborated upon. It contains concrete rules for employers to follow. The Decree is split up into nine parts.[4]

1. Definitions and scope
2. Health and safety management and organisation of work
3. Organisations of workplaces
4. Dangerous substances and biological agents
5. Physical load
6. Physical factors
7. Work equipment and specific activities
8. Personal protective equipment and safety signs
9. Obligations, offences, violations, administrative provisions and transitional and final provisions

Together these parts implement most of the EU-directives on safety and health. In addition to those nine categories the Decree also has rules implemented regarding workplace independent work e.g. working from home.

The Working Conditions Regulation

The Working Conditions Regulation entails very specific rules that change fairly often.[5] The main part of the regulation are exactly the same as the Decree. Over the years many annexes have been added to it containing mainly plans and certifications for specific situations or workplaces. Some of these certifications are mandatory like when dealing with asbestos.

Situation at ERIBA

The workplace at ERIBA consists of two parts; the laboratories and the open/flex offices, one for each floor. The desks are meant to be used by anyone as the need arises. In practice people always work at the same desk and keep their stuff there as well. The desks are large and provide enough room for three people to comfortably work on simultaneously. The desks and chairs are adjustable, however due to the desks being shared they often aren't the right height for everyone working on them. Every desk has power outlets, computers and internet connections.

Every floor also has a canteen where employees can have their lunch. There is a dishwasher, oven, refrigerator and a machine that provides the employees with free coffee and tea. There are also several tables with chairs or sofas where people can sit and socialize.

Aside from the canteen and the working areas there are rooms where meetings can be held as well as a seminar room.

Risk Inventarisation & Evaluation

An evaluation of different risks that can be encountered when working at ERIBA

RSI or KANS

Anyone working with computers for an extended amount of time has a high risk of getting a repetitive strain injury (RSI) or as it's called in dutch klachten aan de arm, nek en/of schouder (KANS). RSI does not necessarily have to do with highly repetitive actions but can also be the result of bad posture. An accident that results in pain in the shoulders, neck or arms is not RSI. There are three factors that elevate the change of RSI:

- Overall fitness, sex, personal factors
- Environmental factors e.g., bad workplace layout, high stress, controlling boss
- Activity factors e.g., repetitive work, computer work

The only real way to treat and recover from RSI is to eliminate the source of discomfort. If the source is removed physiotherapy can be effective in alleviating the complaints. The best way to prevent RSI is to look at the three factors that increase risk and try to minimize these where possible. This means ergonomic chairs and peripherals, adjustable (standing) desks, good posture and plenty of breaks.[6]

At the ERIBA there are adjustable desks but these are also shared with up to two others meaning that the desk height is never truly right. In addition to this the chairs are decent but the adjustments that can be made are not extensive enough for everyone. Some people use back supports to combat this. To complete the picture ideally the desks should be replaced with individually adjustable desks preferably ones that can be used while standing as well.

Sitting and computer work

Aside from a heightened risk of RSI people that work with computers for extended periods of time experience a lot of static load on their back, arms, shoulders and eyes. Posture is an independent risk factor for musculoskeletal disorders (MSDs).[7] Working on a computer where your fingers are positioned above your wrists can irritate the wrist and lead to carpal tunnel syndrome.

Aside from the risk of MSDs use of computers during work also stresses the eyes. When looking at a screen people tend to blink less leading to dry eyes and eye fatigue. Small or reflective monitors can also increase eye strain and lead to health issues.

Ways to minimize the risk of MSDs and eye strain are to take regular breaks, adjust your chair and desk and use keyboard shortcuts instead of using the mouse.

Contact with dangerous substances

During lab work it is a possibility that people come into contact with dangerous substances that are detrimental to health. To prevent accidents employees must work discreetly and pay attention to what they're doing. Not every accident can be prevented though. This is why employees wear lab coats, gloves and when necessary safety glasses.

Leaking windows

One of the windows on the third floor leaks during rain. This does not present immediate risks but if this is not fixed the wood could rot and present potentially dangerous situations.

References

1. » Research Statement. Available at: http://eriba.umcg.nl/about/. (Accessed: 24th November 2017)
2. Werkgelegenheid, M. van S. Z. en. Arbowetgeving - Onderwerp - Arboportaal. (2014). Available at: https://www.arboportaal.nl/onderwerpen/arbowetgeving. (Accessed: 24th November 2017)
3. Arbowet Archives. *Arbo*
4. Highlights and recent changes Working Conditions Decree. *Arbo in Europa*
5. Dutch Working Conditions Legislation. *Arbo in Europa*
6. Hierhebikpijn.nl. KANS (klachten aan de arm nek en/of schouder) | Hier Heb Ik Pijn. Available at: https://www.hierhebikpijn.nl/aandoening/122/kans-klachten-aan-de-arm-nek-en-of-schouder. (Accessed: 24th November 2017)
7. Gerr, F., Marcus, M. & Monteilh, C. Epidemiology of musculoskeletal disorders among computer users: lesson learned from the role of posture and keyboard use. *J. Electromyogr. Kinesiol.* **14,** 25–31 (2004).