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Guidelines on Best Practices
Preventing Eye Strain in the Examination of Screens

October 2018

Introduction

Employees who examine screens for blemishes under bright lights in large electronics suppliers have reported to Electronics Watch that their eyesight declines within a short period of time. Their only recourse, some of them have told researchers, is to resign from their jobs. These Guidelines to mitigate, prevent and remedy eye strain are intended to ensure these workers and others who work under similar conditions do not need to resign in order to protect their health.

Summary

These Guidelines are designed for electronics suppliers and brand buyers to help them protect the eyesight of workers who inspect screens of electronic equipment for imperfections and blemishes. They include recommendations to:

- Identify the cause of eye strain from inspection screens.
- Prevent further eye strain among workers in these job roles.
- Provide remedial action and support to those already impacted.

The Guidelines suggest strategies to mitigate, prevent and remedy eye strain by involving those most impacted by this problem, the workers themselves. Respecting workers' right to information and participation in developing, assessing and reviewing Occupational Safety and Health (OSH) practices is key.

The Guidelines require identification of risks through hazard analysis and risk assessment that includes understanding the source, intensity, exposure situation and duration of exposure. This process should also include a baseline eyesight clinical measurements of the workforce. By publishing and discussing assessments with workers and representatives, suppliers will provide the opportunity for workers to voice their concerns about their eyesight. An OSH programme should be established with an OSH Committee that includes specialist advisors and workers who will have oversight on the implementation of an action plan addressing the root causes of eye strain. Regular medical examinations of workers with monthly clinical and eyesight measurements, provision of medical treatment, involvement of workers in designing programmes to prevent injuries, training workers to recognize symptoms of eye strain, and use of Personal Protective Equipment (PPE) will ensure efficacy and long-term sustainability of the programme. Finally, involving workers in evaluation and review of the OSH programme is key to ensuring aims and objectives are being met.

Guidelines

1. Identification of hazards

1.1. Comply with international guidance[i], national[ii] [iii], regional and local legislation and consensus guidelines (such as ANSI Z10[iv]) to protect worker health and safety[v].

1.2. Ensure Occupational Safety and Health Policy that is specific to the size of the plants and activities[vi] and takes into account duration of exposure to risks.[vii]

1.3. Identify purchasing practice and related production practices that contribute to or cause eye strain.

1.4. Perform risk assessment before the plant is established to understand impact on worker eyesight from manufacturing methods[viii], including risk to eyesight of workers from symptoms and clinical signs of dry eye disease and inflammation.[ix]

1.5. Conduct hazard analysis where screens are tested for accuracy, including identification of illumination levels within factory departments to prevent retinal and corneal damage. Illumination levels should start with understanding the configuration of sources, their intensity and wavelengths, a description of the exposure situation and the duration of exposure.[x] [xi]

2. Evaluation of hazards

2.1. Measure and calculate level of exposure to visual strain[xii] [xiii] to which employees are exposed such as High, Medium or Low Risk[xiv] based on requirements of job tasks[xv] and illumination within the factory site.[xvi]

2.2. Assess severity of dry eye symptoms by conducting clinical measurements for dry eye disease, tests for visual deterioration, and dry eye surveys with workers.[xvii] [xviii]

2.3. Document and publish full, accurate, and easily understandable results of initial assessments for workers.

2.4. Ensure results of initial assessment provide baseline from which continual improvement of the organization's OSH management system, particularly the eye strain programme, can be measured[xix].

2.5. Support workers to provide their concerns about their eyesight and include those concerns in the assessment of the cause of eye strain.

3. Corrective Action Plans

3.1. Seek specialist advice from OSH specialists, including ophthalmologists, to devise mitigation factors on eye strain.

3.2. Inform workers of risk and offer alternative work placement if they chose not to work in that role.

3.3. Devise and implement an action plan designed by competent persons that includes treatment of dry eye so as to improve Tear Film Breakup Time (TFBUT) and functional visual perception.[xx]

3.4. Use technical and operational measures that address root causes of eye strain, including causes outside the workplace itself, such as purchasing practices, and resolve individual issues with those already impacted.[xxi]
3.5. Ensure participation of workers and their representatives in the action plan.[xxii]
3.6. Ensure appropriate Personal Protective Equipment (PPE) is consistently and correctly used.[xxiii] [xxiv]
3.7. Ensure workers are trained to recognise signs and symptoms of eye strain, how to use PPE, and seek support for symptoms of eye strain.
3.8. Ensure the OSH Committee includes workers and OSH specialists.
3.9. Ensure effective worker participation checklists are used in OSH.[xxv]

4. Verification of corrective actions

4.1. Ensure there are regular reviews of processes and procedures with workers impacted.
4.2. Provide workers opportunity to comment, query and adjust the remedial programme to better suit working methods as per workers' experience.
4.3. Measure impact and publish outcomes of corrective action plans to workers and to the OSH Committee.

5. Worker medical surveillance

5.1. Provide workers with medical examination regularly, including clinical measurements for dry eye disease, tests for visual deterioration, and dry eye surveys with workers.[xxvi] [xxvii] Increased risk of exposure to bright light may occur for individuals particularly sensitive to light: those on medications (including common non-steroidal anti-inflammatory drugs such as ibuprofen and some antibiotics) which increase light sensitivity; those in which the lens of the eye has been removed in cataract surgery, and those with pre-existing retinal disease[xxviii].
5.2. Ensure good records are maintained of health surveillance, monthly eyesight measurements, clinical tests, and surveys.
5.3. Ensure outcome of monthly eyesight measurement, clinical test reports, and surveys are recorded and shared with workers impacted.[xxix]
5.4. Provide follow-up health surveillance for those negatively impacted before remedial measures were implemented.[xxx]
5.5. Provide for medical treatment of dry eye disease, specifically Tear Film Oriented Therapy, and inflammation treatment.[xxxi]
5.6. Ensure that workers are given additional breaks, preferably outdoors, to protect against the development of myopia.[xxxii]
5.7. Ensure workers are paid during the additional breaks needed for health surveillance or remedial actions to support health improvements.
5.8. Ensure that remedial measures are working[xxxiii] and proactively avoid negative health impacts by regular reviews conducted by OHS committee.

6. Worker training and information

6.1. Ensure workers participate in designing training programme on preventing injuries, recognising signs and symptoms of dry eye disease, eye strain and mental fatigue, protecting health and use of PPE.

6.2. Ensure OSH communication is available in plain language in worker's primary language throughout the term of their employment.

6.3. Ensure OSH information is clearly displayed onsite in the workplace.

7. Program implementation and review

7.1. Ensure workers evaluate training and communication on OSH to ensure it meets purpose of the job role and their needs.[xxxiv]

7.2. Implement the programme, including medical surveillance and medical treatment.

7.3. Ensure regular auditing, both scheduled and random, by internal worker-led OSH Committee and external OSH specialists.[xxxv]

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[i] Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (MNE Declaration) - 5th Edition (2017), https://www.ilo.org/empent/areas/mne-declaration/lang--en/index.htm

[ii] NATLEX http://www.ilo.org/dyn/natlex/natlex4.home?p_lang=en on-line data bases maintained on the ILO on national legislation on labor and social rights.

[iii] LEGOSH http://www.ilo.org/dyn/legosh/en/f?p=14100:1000:0::NO:::# on-line data base maintained on the ILO on occupational health and safety legislation.

[iv] American National Standards Institute: https://www.osha.gov/dte/grant_materials/fy09/sh-19494-09/ansi_z10_session_2r_c2.pptx

[v] Electronics Watch Code of Labour Standards, http://electronicswatch.org/code-of-labour-standards_2460399.pdf specifically 1. Domestic Labour Standards

[vi] ILO-OSH 2001 Guidelines on Occupational Health and Safety and Management Systems, Pg.. 17, 3.1 & 3.1.1 a Occupational Health and Safety Policy

[vii] Health hazards in electronics – a handbook, Thomas Gassert, Asia Monitor Resource Centre, Pg. 195

[viii] Article B, Section 4 1, Directive 2006/25/EC of the European Parliament and of the Council of 5 April 2006 on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation) (19th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC).

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[x] Frank Rosenthal, PhD, Professor Emeritus of Occupational and Environmental Health Sciences, Purdue University School of Health Sciences, via email 18 June 2018.

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[xvii] Kazuo Tsubota, et al, New Perspectives on Dry Eye Definition and Diagnosis: A Consensus report by the Asia Dry Eye Society, The Ocular Surfce, January 2017, Vol 15 No.1, Pg. 70.
[xviii] Motoko Kawashima, et al, Screening of dry eye disease in visual display terminal workers during occupational health examinations, Journal of Occupational Health 2015, 57: Pg. 253–258
[xix] International Labour Organisation, Guidelines on occupational safety and health management systems, Pg. 10, http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/normativeinstrument/wcms_107727.pdf.
[xx] Kazuo Tsubota, et al, New Perspectives on Dry Eye Definition and Diagnosis: A Consensus report by the Asia Dry Eye Society, The Ocular Surfce, January 2017, Vol 15 No.1, Pg. 72.
[xxi] Irish Statute Book, S.I. No. 176/2010 - Safety, Health and Welfare at Work (General Application) (Amendment) Regulations, 2010, http://www.irishstatutebook.ie/eli/2010/si/176/made/en/print.
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[xxiv] US Department for Industrial Relations, Subchapter 7. General Industry Safety Orders, Group 2. Safe Practices and Personal Protection, Article 10. Personal Safety Devices and Safeguards, §3382. Eye and Face Protection, https://www.dir.ca.gov/title8/3382.html. .
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