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Workplace interventions to prevent musculoskeletal and visual symptoms and disorders among computer users: A systematic review

Regulations provide very clear guidance as to the types of interventions required to protect workers from injury or adverse symptoms caused through the use of display screen equipment. This review examines all the literature related to assessing the benefits of these and other interventions. No clear benefits could be found for any interventions, save for a possibility that alternative pointing devices could be beneficial. The accuracy of the DSE regulations could be called into question.

A literature review based on the question:

“Do office interventions among computer users have an effect on musculoskeletal or visual health?”

31 papers were of sufficient quality and relevance for analysis (7313 papers were initially considered). Nine were considered high quality research.

Outcomes of interest were mostly of an objective nature though symptom syndromes and symptoms were also admitted into the review.

The most common interventions were training and workstation adjustments. There were four assessments of rest breaks.

The findings:

- Exercise training: No effect on any outcome, but very few studies.
- Stress Management Training: No effect, but very few studies.
- Ergonomics Training: The highest quality study found no effect on MSD but a proportion of other studies found a benefit of this intervention.
- Ergonomics Training and Workstation Adjustment: positive benefit on MSD, but very few studies.
- New Chair: one study only, but found a benefit on MSD.
- Workstation Adjustments: No effect on MSD or visual outcomes.
- Lighting, workstation adjustment and special glasses: mixed effects observed, but only one study.
- Arm supports: one high quality study found a benefit for MSD.
- Alternative pointing devices: mixed effects of use of trackballs but overall, moderate support for their effect on MSD.
- Alternative keyboards: views on effectiveness remain mixed.
- Rest breaks: the best studies found **no** effect of rest breaks and overall the support for rest breaks was less common than finding of no effect.
- Rest breaks and exercise: moderate confidence in there being **no** benefit of this combination.

The authors were able to say that there was no evidence of harm being done by making ergonomic interventions.

The **strongest** findings were that there is no benefit to be had from rest breaks or workstation adjustments and there is a positive benefit to be had from alternative pointing devices (mainly for the left side of the body).

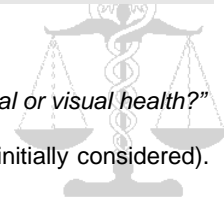
Comment

Support for any of the key prospective interventions provided in guidance accompanying the Display Screen Equipment (DSE) Regulations (1992) was not available, except that alternative pointing devices might be worth trying out.

Failure to intervene according to the plan described in the DSE regulations has not been shown to increase the risk of MSD or visual impairment. The evidence base used to support the DSE regulations [if indeed there was one] might not have been reviewed with same rigour as applied in the present report.

Alternatively it could be argued that all the workplaces involved in these research studies were already appropriately designed, hence no benefit from making DSE type interventions. What would constitute an appropriate design remains to be discovered.

Another view would be that these were the right interventions but that implementation had somehow been faulty. There is evidence from psychology literature that interventions have to be made in the right circumstances if they are to be accepted and sustained.



It would be interesting to see if another group of reviewers would come to the same conclusions given the same evidence.

The most positive finding here was possibly that DSE style interventions had not been shown to do harm.

