

The value of participatory ergonomics in reducing work related pain in sonographers?



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Background

Work related musculoskeletal disease (WMSD) has a high prevalence in sonographers globally. In the Western New South Wales Local Health District, Australia (WNSWLHD), sonographers reported a musculoskeletal pain prevalence of 95%. Sonographers in five departments across the district collaborated to identify high risk practices in the workplace and implement potential solutions.

Objectives

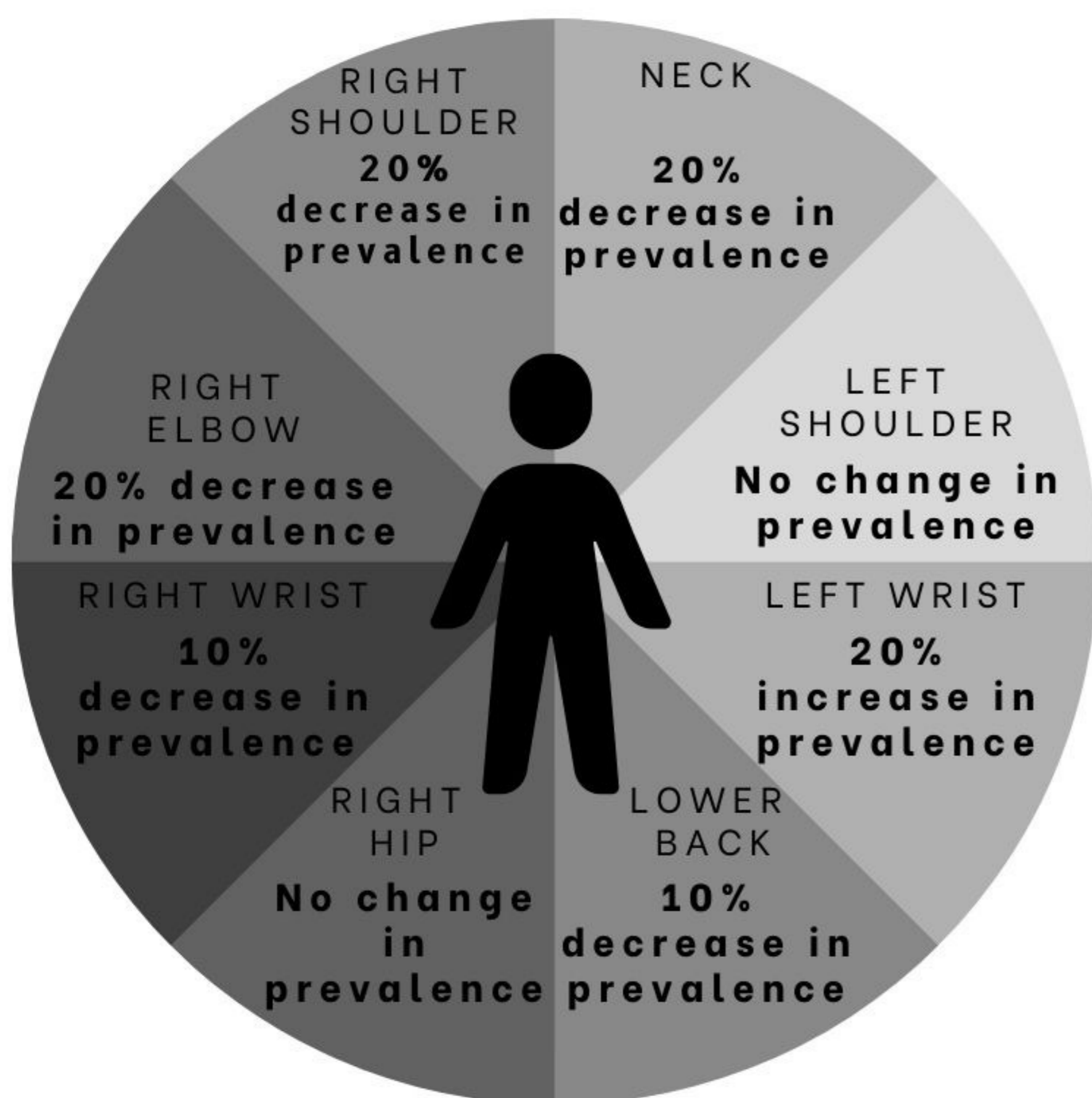
The aim of this study was to compare the prevalence of WMSD in a cohort of sonographers before and after implementation of ergonomic changes that were driven by recommendations from the sonographers themselves, using a participatory ergonomics approach.

Methods

This observational mixed methods study analysed the impact of ergonomic changes on musculoskeletal pain in a small cohort of sonographers employed within the WNSWLHD. Ergonomic changes were made in five workplaces based on identified risks. Pre and post intervention musculoskeletal pain surveys were completed by ten sonographers over a period of 18 months and short interviews were conducted to ascertain their perception of the changes in their musculoskeletal pain.

Results

Several interventions including installation of patient monitors and use of ergonomic scanning techniques were perceived responsible for reported decreases in musculoskeletal pain in the right shoulder and the neck. No interventions were believed responsible for reported increases in pain in the wrists; this was attributed to several work practices including increasing workload and scanning immobile and obese patients.



Conclusion

The use of participatory ergonomics is a worthwhile process to identify high risk work practices and possible solutions. Use of ergonomic scanning techniques is a change which sonographers can implement individually, whereas purchases of equipment such as patient monitors requires management support. Participatory ergonomics is a valuable tool that departments should consider to create a safer work environment for sonographers.

High risk work practices identified by participatory ergonomics	Solutions trialled	Perceptions of intervention
Mobile examinations	Two sonographers to perform mobile examinations	Not feasible due to lack of staff
Pushing of beds by one sonographer	Two staff to push beds or beds collected outside scanning room	Not fully implemented due to lack of staff
Seat type	Saddle and flat chair types available	Useful intervention for hip and back pain
Transvaginal scanning	Triangle pad to reduce wrist flexion and deviation	No change
Scanning left side of patients in ward bed	Turn beds around to facilitate left side of patient being closer to the sonographer	Useful intervention for neck and right upper limb pain
Standing on hard floors	Anti-fatigue mats	Considered impractical due to difficulty in moving them as chairs were not easily accommodated
Poor ergonomic practices	Conscious effort to reset posture during scan and consider swapping between standing and sitting	Useful intervention for neck and upper limb pain
Neck rotation when sharing ultrasound monitor with patient for obstetric scanning	Installation of patient monitor	Useful intervention for neck pain
Scanning multiple obstetric patients consecutively	Change in booking procedure	Not fully implemented due to lack of staff
Increased workload	Enforced morning tea and lunch breaks. Use of microbreaks.	Not fully implemented due to lack of staff