

**Implementation of a MSD Prevention Program, including a Micro-
Stretching Program, in Manufacturing Work Settings:
A Multi-Case Report.**

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Study Design: Multiple-case report

Background and Purpose: Worker Compensation claims for musculoskeletal disorders (MSD) are widespread in today's workplace, resulting in extensive human suffering, costs and lost workdays. Despite controversy over effectiveness, workplace stretching exercises is one intervention utilized by many workplaces. This report describes an on-site training and education program on ergonomics and MSD prevention, including a "micro-stretching" program, encompassing 4200 manufacturing workers at 11 workplaces provided by four physical therapists in five states. Stretching is introduced as an adjunct to traditional ergonomic work design modifications and job task rotation, particularly where such interventions are not available or have been ineffective.

Case Description: 11 manufacturing workplaces experiencing high rates of MSD claims and lost workdays employed physical therapists to provide an on-site MSD School training program on MSD prevention, including a structured stretching program seeking to reduce incidence, severity and costs of work-related MSD. These workplaces had a predominance of jobs requiring repetitive tasks performed in fixed postures (sustained standing or sitting). It was assumed that these work demands led to high rates of claims for MSD.

Intervention: Physical therapists designed a "MSD School" workplace education program on ergonomics and MSD prevention tactics, including a "micro-stretching" program of brief but frequent stretching to neuromusculoskeletal structures at the neck, upper extremity and lower back. This program was implemented via a structured training process provided first to company leadership to gain implementation commitment, followed by employee training on how and why to perform these exercises. Micro-stretching was performed over a two-minute period every two hours during the workday, seeking to restore nutrient pathway and perfusion to neuromusculoskeletal tissues under posture, movement and loading demands.

Outcomes: MSD claims and lost days were measured from workplace injury records for the year prior to implementation and compared to the year following implementation. MSD claims declined 37 percent. Lost-time claims declined 59 percent. Lost workdays declined 78 percent. See Table One.

Discussion: Preventive stretching in the workplace is a controversial issue. Although evidence is variable, stretching offers potential value to MSD prevention, particularly where ergonomics controls may not be viable options. Key prerequisites to an effective preventive stretching program include proper exercise design by qualified experts such as physical therapists who understand pathomechanics of MSD, management commitment to making the exercises happen, and effective employee education to foster motivation and skills to perform the stretching exercises.

Table One:

Outcomes: changes in MSD clams, MSD lost-time claims, MSD lost workdays

Workplace	MSD Claims Before	MSD Claims After		Lost-time claims Before	Lost-time claims After		Lost days Before	Lost days After	
PETV	96	59		16	6		288	66	
DEXM	22	15		6	3		201	24	
DEXD	114	47		38	11		913	319	
DEXS	36	16		11	1		298	1	
BARB	40	20		17	9		338	137	
FELT	6	7		4	3		462	47	
VAND	29	16		12	8		944	272	
GENE	54	26		16	2		757	9	
HYDR	47	64		6	9		142	71	
RANO	12	13		6	1		85	3	
HARD	26	19		3	2		98	42	
TOTAL	482	302	37%	135	55	59%	4526	991	78%