Correction Officers: Rapid Onset of Musculoskeletal Symptoms with Job Tenure

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CPH-NEW Team

11/29/12

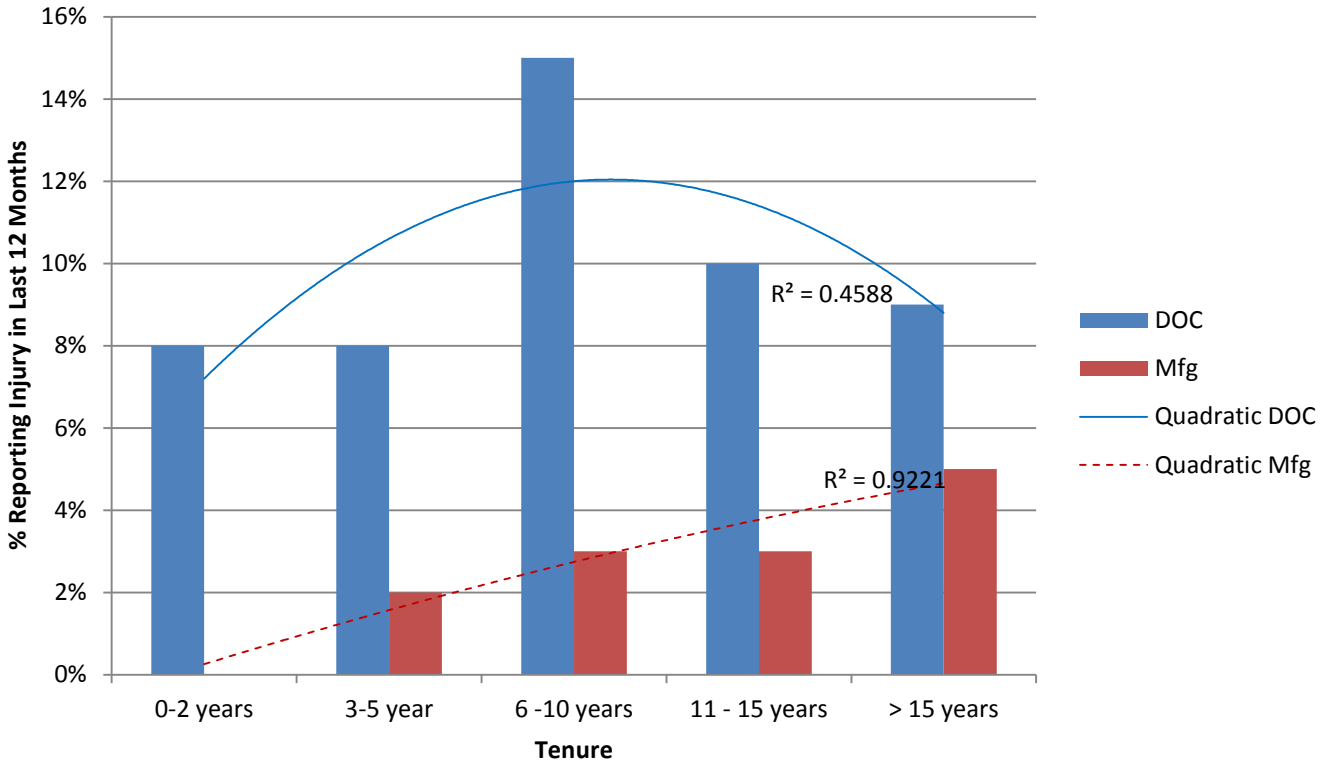
Professional vs Participatory Interventions -- HITEC

- Department of Correction
  - 862 eligible, 333 participated (39%)
  - All employees: admin, support, lieutenants, captains, COs
- Manufacturing
  - 1412 eligible, 430 participated (30%)
  - All employees: administrative, line workers
- **This study:** compared COs to manufacturing line workers.

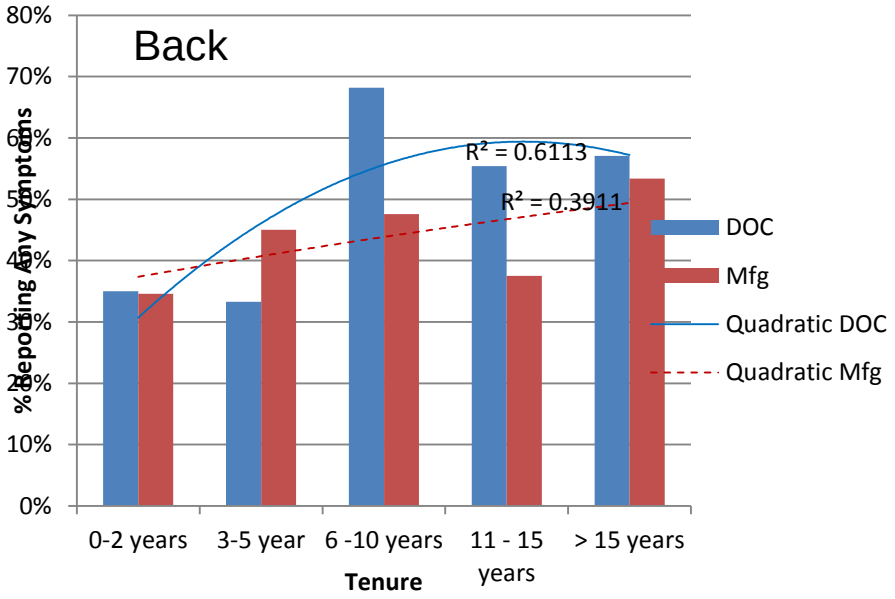
Assessment Instruments

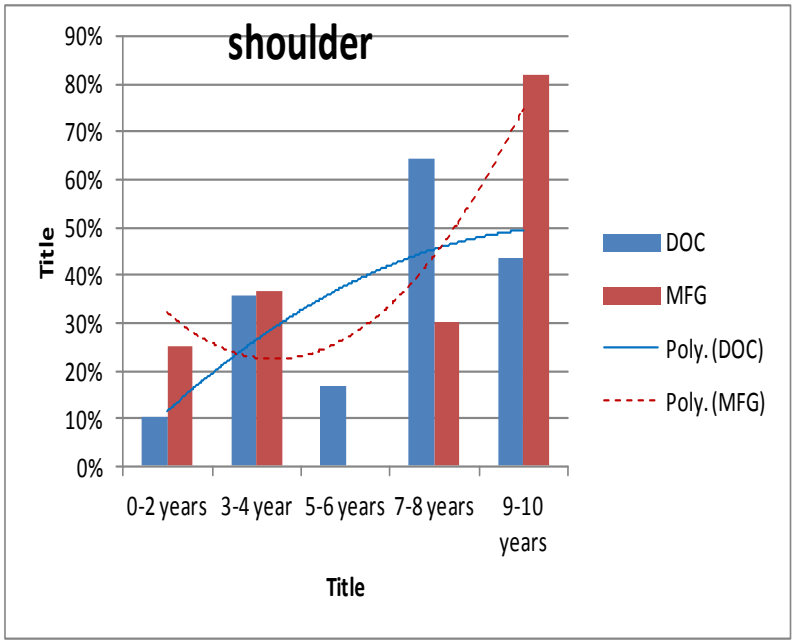
- Long Surveys
- Intervention Specific (DT) short surveys
- Exposure assessment
- Physical testing
  - Strength, mobility, BIA, exercise tolerance

Neck Injury


16%
14%
12%
10%
8%
6%
4%
2%
0%
% Reporting Injury in Last 12 Months
R² = 0.4588
R² = 0.9221
0-2 years
3-5 year
6 -10 years
11 - 15 years
> 15 years
Tenure
DOC
Mfg
Quadratic DOC
Quadratic Mfg

Site and Symptom Rate of Developm,ent





Body Fat (BIA) and Tenure in Corrections Officers

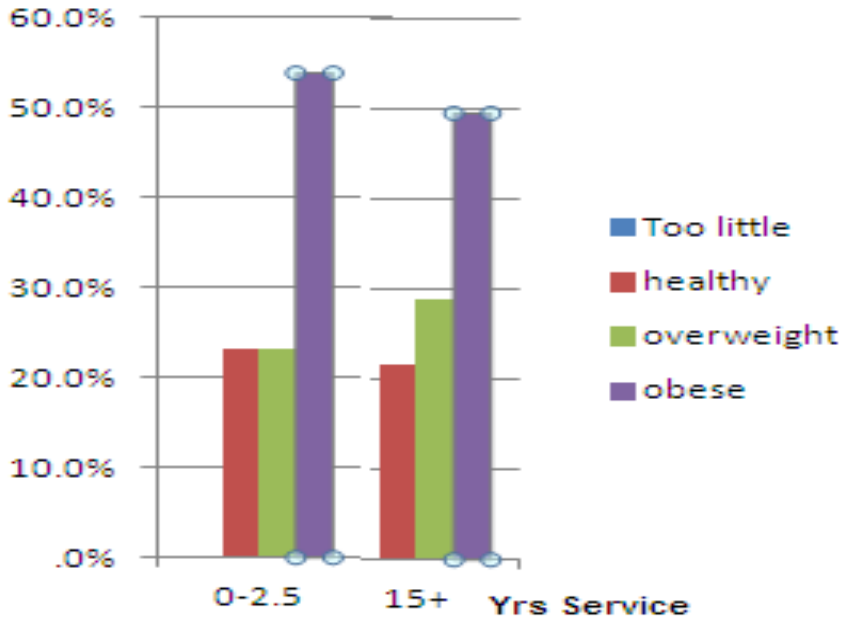


Table 1: Baseline Health Findings DOC		
	Site A	**Site B**
# Participants	153	**157**
Average age (yr)	42.5	**42.2**
% Overweight/obese	83	**83**
% HBP	20	**18**
% No exercise	56	**55**
%Clinically depressed	**30**	**31**

Conclusions

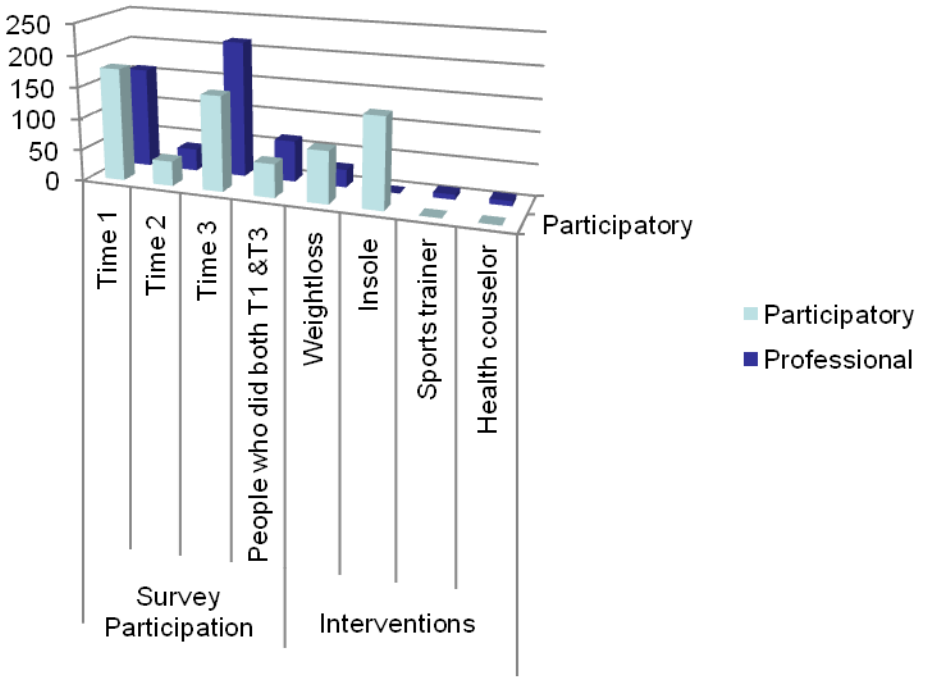
- Prevalence
  - UE injury and symptoms are higher in MFG
  - Back and LE injury and symptoms higher in DOC
    - These differences relate to PATH-identified exposures
  - Differences between long and short tenure are inconsistent
- Rate of development
  - For most body areas, COs develop faster in the first 10 years
- After 1st 10 years: same patterns but slower

Conclusions

- COs
  - Biomechanical exposures do not change with tenure, age, gender
  - Psychosocial exposures worsen with tenure, only. Association stronger in short tenure
- MFG (full sample, only)
  - Biomechanical exposures decrease with age
  - Psychosocial exposures improve with age (only demands and job strain)

1. **Musculoskeletal status degrades more rapidly in COs than MFG over first 10 years**
2. **Tenure is the primary, consistent driver of this change in COs. Irrelevant to MFG**

	Survey Participation				Interventions			
	Time 1	Time 2	Time 3	People who did both T1 &T3	Weightloss	Insole	Sports trainer	Health couselor
Participatory	178	39	150	53	82	142	N/A	N/A
Professional	159	35	215	65	28	N/A	8	8



Weight Loss: Participatory vs Professional Results

Facility	Professional Site	Participatory Site
Participants 0 weeks	32	70
Baseline Avg weight lbs.	*220.8*	*234.5*
Participants 12 weeks	20	26
Avg Weight Loss lbs	*6.5*	*13.1*
Participants 20 weeks	20	16
Avg Weight Loss lbs	*7.3*	*18.2*

Interventions

New Recruits

- Mentored versus electronic transition to work
- 6 and 12 month evaluations
- Release time for training and evaluation
- Incorporate fitness and health into safety/security related certification

Established Workforce

- 4 integrated interventions
- Design Team versus Kaizen – labor-management team

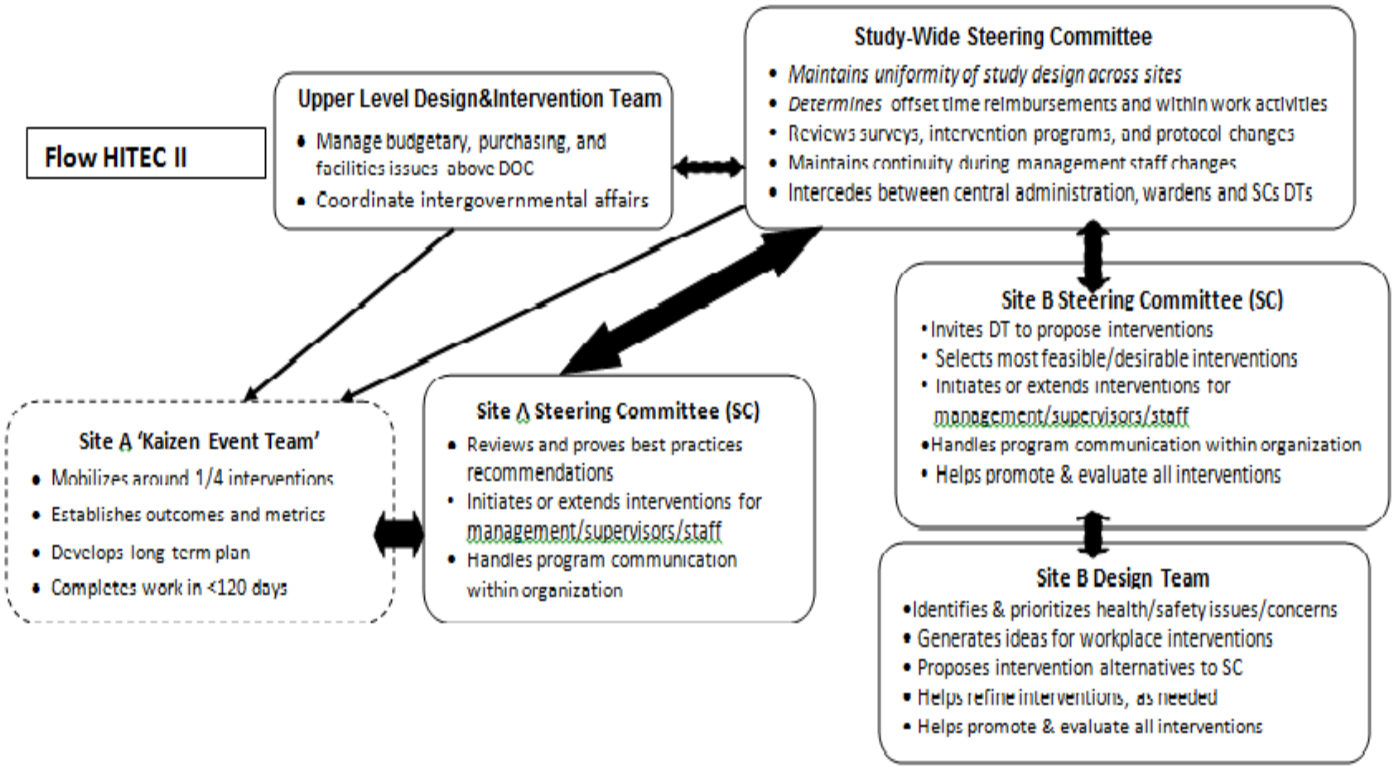
Kaizen and Participatory Approaches to Interventions

Name of Intervention	Description
Building Improvement Linked to Design (BILD)	An ergonomic intervention addressedto 1) procurement policies , and 2) building design to support exercise and relaxation
Work to be Fit (W-2 BFIT)	A CO-developed program for fitness for duty
Better Food through Education and Design (BFED)	A weight loss program aimed at improved nutrition and changed eating patterns at work
Structured Work-related Injury Prevention through Ergonomics (SWIPE)	A safety intervention addressing CO injury related to inmate incidents.

Comparison of the Kaizen and Design Team Approaches

Activity	Site A/KET	Site B/DT
Design Teams	4 separate KETs	1 Design Team
Duration of Interventions	<120 days	Determined by DT
Sequence of Interventions	Predetermined by SWSC	Determined by DT
Composition of Teams	COs, wardens, administrators, specialists	CO directed
Upper Level DIT	Integrated with KET	Consultative/separate
Facility SC	YES	YES
Survey/Physical Assessment	YES	YES
BILD, W-2 BFIT, BFED, SWIPE	YES	YES

PAR Management



PAR Team and Study Metrics

Work to be Fit (W-2 BFIT).

Team metrics': To be defined by the DT and KET, these are likely to include attendance in voluntary onsite conditioning programs and satisfaction of interim success thresholds, as in the weight loss programs. Final Site A vs. Site B comparison will likely include the percentage of participants reaching age- and gender-specific fitness standards.

*'**Study metrics'**:* The following metrics are proposed: BIA↓ 5% of total body fat for those completing fitness program compared with baseline; a 15% reduction in the MSD symptom prevalence rate compared to non-participating COs; and 10kcal↑ in exercise tolerance compared to baseline on the modified stress test.