

# Cincinnati Police Department

Colonel Eliot K. Isaac, Police Chief



## External/Load-Bearing Vests

*Sergeant Matthew Latzy  
Planning Section*

# PURPOSE & JUSTIFICATION

- Reduce hip/back injuries and pain through the redistribution of gun belt weight and pressure from the hips to the shoulders.
  - Removes gear from the back and places it in the front.
  - Injury and/or pain results from sitting in the car with equipment pressing against the officers' back and spine. i.e. handcuffs, flashlight, gloves, baton and radio.
- Decreased sick time usage as a result of musculoskeletal pain or injuries.
- Increased officer comfort.
  - External vest pockets can be modified for user comfort.
  - Provides better cooling and air movement.
- External Vest carriers provide ease of application and removal.

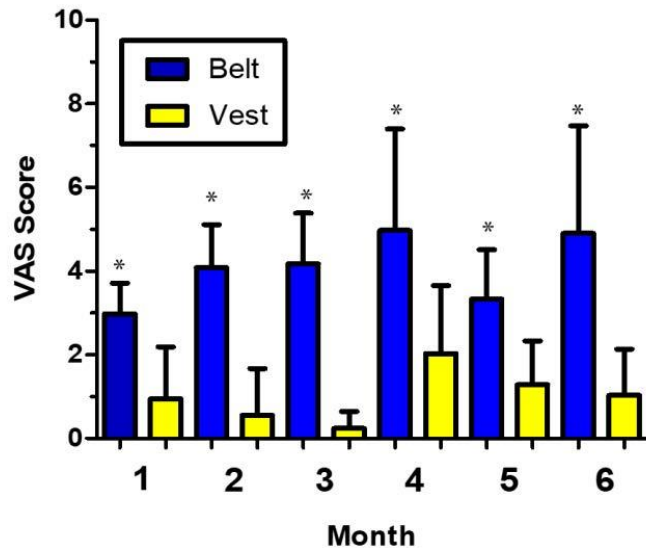
# SCIENTIFIC RESEARCH

## University of Wisconsin, 2018

- Scientific study with a control group
- 15 Officers volunteered to participate
- Two groups. (1) With and (1) without.
- 3 Month study
- Utilized the Oswestry Low Back Pain Disability questionnaire which is the gold standard of lower back pain, functional outcome questionnaires. The score is calculated as a percentage based on ratings out of a total possible score of 50.

# STUDY RESULTS

Figure 1. Average ratings of low-back discomfort across the 6-month study period for both vest and belt groups. \*\*\*



“The results demonstrated that a load bearing vest produced significantly lower VAS scores compared to the duty belt. Additionally, there were no significant relationships between physical measures and VAS scores indicating that the load bearing devices were most responsible for eliciting the VAS results reported. Thus, to **decrease discomfort, we recommended that officers use a load bearing vest system while on duty.** Future studies should explore the potential role of sitting time while on duty in eliciting low back discomfort.”\*\*

\*\*Berthiaume, Judy (2018, Nov 12) “Load-bearing vest vs. duty belt: Ergonomic researchers determine the winner.” Retrieved from *PoliceOne.com*

\*\*\* VAS stands for **Visual-Analog Scale**. Officers completed a daily journal, self-reporting of the level of lower-back and overall discomfort and this data was presented in the above scale. 0 = No pain vs 10 = Worst Pain imaginable.

## Custom Made Load Bearing Vest Carrier for Eau Claire PD



*This particular vest was chosen by the Eau Clair, Wisconsin Police Department. There is no standard vest arrangement. All items and equipment can be moved or taken off the vest.*

# Medical Research

*International Archives of Occupational and Environmental Health* (2018) 91:425–433

*Multi-site musculoskeletal pain in Swedish police: associations with discomfort from wearing mandatory equipment and prolonged sitting*

*Louise Bæk Larsen , Elisabeth Elgmark Andersson , Roy Tranberg , Nerrolyn Ramstrand*

- **The primary aim of this study was to document the prevalence of multi-site musculoskeletal pain among Swedish police.** A secondary aim was to explore the association between discomfort experienced from mandatory equipment, prolonged sitting in fleet vehicles and multi-site musculoskeletal pain.
- Musculoskeletal disorders are a major problem in the general working population, **leading to sickness absence and limited work ability** (Bevan et al. 2015; Hoy et al. 2010; Lidgren 2003; Monnier et al. 2015)
- **Results to date have linked musculoskeletal disorders in police** to; discomfort from wearing mandatory equipment such as duty belts and body armour (Filtner et al. 2014; Ramstrand and Larsen 2012; Ramstrand et al. 2016) **Prolonged periods of sitting in fleet vehicles** (Filtner et al. 2014; Gyi and Porter 1998; Holmes et al. 2013; Ramstrand and Larsen 2012)

# Medical Continued

- Group comprised of approximately 7,400 individuals.
- This study represents the largest study sample of investigating musculoskeletal pain in police.
- While discomfort from wearing duty belt and body armor were both strongly associated to multi-site musculoskeletal pain, the duty belt was found to have the greatest association.
- Multi-site musculoskeletal pain is a considerable problem among Swedish police and modifying mandatory equipment to decrease discomfort is suggested as a potential means of decreasing the musculoskeletal pain experienced by many police officers.
- Results of this study have identified discomfort experienced from wearing mandatory equipment as an important variable when addressing the high prevalence of multi-site musculoskeletal pain among Swedish police.

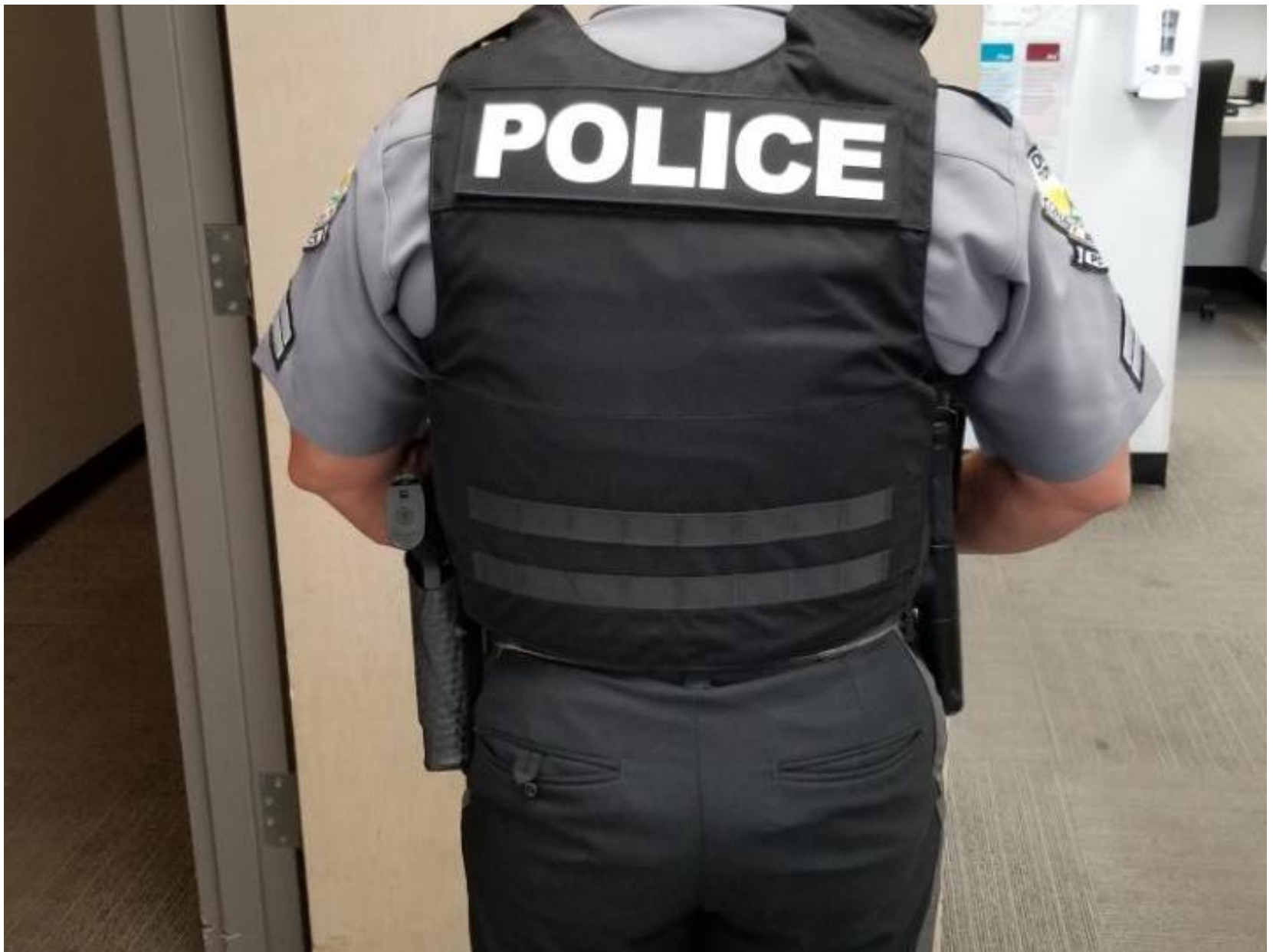


**Delhi Police Department Testing**





**Delhi Police Department Testing**



**Delhi Police Department Testing**

# SUMMARY

## ➤ Load-bearing vests work

- ✓ Reduced back pain and injury.
- ✓ Reduced sick time usage as result of back and hip injuries.
- ✓ Increases officer sitting and standing comfort by moving equipment from the duty belt to the vest.
- ✓ Vest are easily worn and removed.
- ✓ Vests do not limit mobility or flexibility.
- ✓ Will Not appear militaristic if designed properly.
- ✓ Will fit within standard uniform policy.
- ✓ Can be utilized universally across various law enforcement positions.
- ✓ Low cost of purchase vs high cost of medical treatment.

# Final Thoughts

- There is a sufficient amount of published, scientific and medical research that exists on the efficacy of load-bearing vest carriers.
- Medical research suggests, there are no health consequences from utilizing load-bearing vests.
- Load-bearing vests are consistent with Department uniform standards.
- Load-bearing vests will not be militaristic in appearance, conforming to community expectations.