



CASE HISTORY

No. 000191



WHO:

City of Pittsburgh PA, Bureau of Police.

WHAT:

Pilot Project. Working with a selected number of officers to validate claims regarding improved comfort, health and job performance by utilizing a Duckbill duty belt platform.

WHEN:

April through June 2008.

SUMMARY & OUTCOME:

1. The purpose of the trial was to:

- a. Work with selected officers to mitigate gear-induced pain and fatigue
- b. Validate claims regarding:
 - i. The stability of the duty platform.
 - ii. Reduction of back and joint pain.
 - iii. Reduction of chronic fatigue.
 - iv. Improvement of comfort.
 - v. Potential for improvement in safety and training practices.
 - vi. The ease with which users can control weight and position of modules.

2. Choosing candidates.

Ten participants were identified and screened by the Operations Branch and elected to participate. The ten included a representative mix of ages, genders, experience, build, etc. One of the ten was to be pain-free.

3. Eight of the ten participants completed the 60-day trial.

- One of the initial ten did not participate.
- One of the officers could not complete the trial due to an injury.
- Four participants were women of various ages, builds and experience levels.
- Four participants were men of various ages, builds and experience levels.



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4. One-on-one project initiation interviews were conducted to:

- Assess Duckbill's Duty Gear Situation Audit completed earlier.
- Document experience, duty, gender, etc.
- Updated Duty Gear Profile, gear selection and position preferences, etc.
- Document the Pain Profile of each participant.
- Assess how (or if) existing gear was causing pain, discomfort and fatigue, etc.

5. Follow-up interviews were conducted with each participant. Topics discussed:

- Fitting and review of Duckbill gear.
- Discussion of how to customize the Duckbill gear for personal productivity with emphasis on optimizing comfort, muscle memory, safety, etc.
- Review ways to minimize back pain, discomfort and fatigue caused by gear.
- Identify new gear requirements (if any) and discuss next steps.

6. After 60-90 days, additional interviews were conducted by phone or email:

- To monitor and begin assessing the degree of improved comfort (if any).
- To evaluate the performance of specific Duckbill modules.
- To discuss and assess any shortcomings and/or recommendations.

7. Outcome regarding back pain:

At the start of the pilot project every project participant was experiencing some degree of back pain. This pain was documented as precisely as possible and ranged between (a) very painful, (b) frequently painful, (c) noticeably painful, (d) occasionally painful and (e) not very painful.

- Each participant experienced some relief directly attributable to Duckbill gear.
- Those with the most pain experienced the most improvement.
- Those with the least pain can be expected to be even more comfortable.

8. Outcome regarding hip and thigh pain:

Most participants (but particularly women) experienced bruising or pain from the holster or radio riding on the hip and rubbing on the thigh.

- In each case the bruising and/or pain has been eliminated.
- This relief is directly attributable to Duckbill gear.

9. Statistical results:

Taken as an average, the participating officers experienced a collective 71.25% improvement in comfort from Duckbill Duty Gear as compared to the duty gear they were wearing prior to the pilot project.



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DETAILED RESULTS:

Subject 2008-220A/102

- Male.
- 33" waist x 5'9".
- Gear Profile:
 - Module count: 11.
 - Approximate weight carried before Duckbill: 16 lbs.
 - Approximate weight carried after Duckbill: 12.5 lbs.
- Pre-Duckbill Pain Profile:
 - Lower back pain.
 - Hip pain.
 - Leg and thigh numbness.
 - 1-5 years of pain.
 - Being treated for back pain.

• Post-Duckbill Pain Profile (Percentage of improvement):



• Verbatim Remarks:

- I am experiencing no pain to speak of.
- I like being able to get the gear off fast.
- I didn't have room for keepers on my old gear. My biggest complaint was with the weight constantly shifting and being unsupported.
- New gear is noticeably lighter.
- The glove module is too fat – prefer the slim one.



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DETAILED RESULTS:

Subject 2008-220A/103

- Male.
- 40" waist x 6'2".
- Gear Profile:
 - Module count: 9.
 - Approximate weight carried before Duckbill: 15 lbs.
 - Approximate weight carried after Duckbill: 12 lbs.
- Pre-Duckbill Pain Profile:
 - Lower back pain.
 - Hip pain.
 - Bruising on hips from holster.
 - Sciatic pain and numbness in one leg.
 - 1-5 years of pain.
 - Being treated for back pain.

• Post-Duckbill Pain Profile (Percentage of improvement):



• Verbatim Remarks:

- I wear a lot of gear, this is definitely more comfortable.
- The leather belt I was wearing before was far too heavy. Even unnecessary.
- I wouldn't go back to my old gear. Back pain is all but gone.
- Prefer a bikini style cuff module over a strap or full case.
- Bruising on hips is completely gone.



CASE HISTORY

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DETAILED RESULTS:

Subject 2008-220A/104

- Female.
- 28" waist x 5"6".
- Gear Profile:
 - Module count: 8.
 - Approximate weight carried before Duckbill: 12.75 lbs.
 - Approximate weight carried after Duckbill: 10.25 lbs.

• Pre-Duckbill Pain Profile:

- Lower back pain.
- Holster causes hip bruising.
- 6-12 months of pain.
- Being treated for back pain.

• Post-Duckbill Pain Profile (Percentage of improvement):



• Verbatim Remarks:

- I really appreciate the no-keepers design and how all the gear stays in place whenever I need to remove my belt.
- The Duckbill gear is far lighter than my old gear.



CASE HISTORY

No. 000191

DETAILED RESULTS:

Subject 2008-220A/105

- Male.
- 40" waist x 6'1".
- Gear Profile:
 - Module count: 8.
 - Approximate weight carried before Duckbill: 12.75 lbs.
 - Approximate weight carried after Duckbill: 9.5 lbs.

• Pre-Duckbill Pain Profile:

- Lower back pain.
- Shoulder pain.
- Holster causes hip bruising.
- 5+ years of pain.
- Being treated for back pain.
- Being treated for neck pain.

• Post-Duckbill Pain Profile (Percentage of improvement):



• Verbatim Remarks:

- The single mag case helps a lot.
- The bruising from the holster is completely gone.
- I'm far less aware of the gear that I'm carrying. The design makes the gear feel like it's a part of me.
- I am not constantly adjusting the weight and the position of the modules.
- I notice the biggest improvement on my 12-hour details. It's far lighter and far more comfortable than the gear I was wearing. I would never go back.
- My back problems will never go away, but this is the best solution I've ever come across.



CASE HISTORY

No. 000191

DETAILED RESULTS:

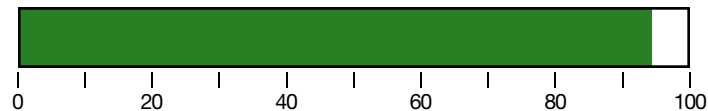
Subject 2008-220A/106

- Male.
- 36" waist x 5'10".
- Gear Profile:
 - Module count: 7.
 - Approximate weight carried before Duckbill: 12.25 lbs.
 - Approximate weight carried after Duckbill: 10 lbs.

• Pre-Duckbill Pain Profile:

- Lower back pain.
- Hip pain.
- 1-5 years of pain.
- Being treated for back pain.

• Post-Duckbill Pain Profile (Percentage of improvement):



• Verbatim Remarks:

- The back pain I had before is completely gone.
- The gear I had before used to push down on my hips and the pain was routine. I thought I had to live it because I didn't know there was a better solution. More keepers didn't help.
- This is an excellent design. The system keeps my gear in place without keepers. I feel safer and more alert.
- I really like the clamshell docking idea. I'm regularly fine-tuning the gear in the belt to achieve the most comfort.
- I'd like the docking on the ASP module to be moved if you can. As it's designed now, the module sits too low and is pushed up by the seat on my bike or the car.
- The improvement has been very noticeable. It's lightweight. I like it a lot.



CASE HISTORY

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DETAILED RESULTS:

Subject 2008-220A/108

- Female.
- 33" waist x 5'8".
- Gear Profile:
 - Module count: 7.
 - Approximate weight carried before Duckbill: 11 lbs.
 - Approximate weight carried after Duckbill: 8.5 lbs.
- Pre-Duckbill Pain Profile:
 - Lower back pain.
 - Holster causes hip and thigh bruising.

• Post-Duckbill Pain Profile (Percentage of improvement):



• Verbatim Remarks:

- I don't have a whole lot of back pain.
- The bruising on my hip and upper thigh from the holster is completely gone.
- The Duckbill gear is a huge time saver for women. I love how I can take the duty belt off and put it on again without the having to fool around with the keepers. All the modules stay in the right place.
- I really like it. It's also lighter. If I had a choice I wouldn't go back.



CASE HISTORY

No. 000191

DETAILED RESULTS:

Subject 2008-220A/109

- Female.
- 33" waist x 5'4".
- Gear Profile:
 - Module count: 8.
 - Approximate weight carried before Duckbill: 8.75 lbs.
 - Approximate weight carried after Duckbill: 8.25 lbs.
- Pre-Duckbill Pain Profile:
 - Major Lower back pain.
 - Hip pain.
 - Holster causes hip and thigh bruising.

• Post-Duckbill Pain Profile (Percentage of improvement):



• Verbatim Remarks:

- The Duckbill gear seems lighter and relieves the pressure on my back.
- With my old web belt – for which I received special permission to wear – I couldn't wear keepers and the weight of the gear on my hips was painful.
- The Duckbill system with the anchor belt, takes all the pressure off my hips. I hardly feel like I'm carrying any weight.
- The sense of freedom is really neat.
- And I really like how the modules all stay in place whenever I need to take the belt off for a bathroom break.



CASE HISTORY

No. 000191

DETAILED RESULTS:

Subject 2008-220A/110

- Female.
- 38" waist x 5'8".
- Gear Profile:
 - Module count: 8.
 - Approximate weight carried before Duckbill: 11.25 lbs.
 - Approximate weight carried after Duckbill: 9 lbs.

• Pre-Duckbill Pain Profile:

- Lower back pain.
- Shoulder pain.
- Hip pain.
- Neck pain.
- 5 years or more of pain.
- Being treated for back pain.
- Being treated for hip pain.

• Post-Duckbill Pain Profile (Percentage of improvement):



• Verbatim Remarks:

- The Duckbill gear is far lighter. It has taken all the pressure off my lower back and hips.
- I'm standing on a street corner a lot and the pain used to be constant. I don't feel any more pain – it really is amazing.
- I have written emails about how much the gear has helped me.
- I hope the city adopts this gear for anybody who needs it.
- It's been a huge improvement for me. I love it.
- I don't like how the supple anchor belt curls over and scrunches up in the back. But I don't think there's anything to be done about that. Maybe I'll just cut the middle belt loop off.
- I also like how all the gear stays in place whenever I need to take it off and put it back on throughout the day.
- I've been doing this for 27-1/2 years and this is the best duty belt I've ever worn.
- I'd like the keys module to have wider wings.



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CONCLUSIONS:

1. The threefold purpose of the pilot was achieved:

a. Work with selected officers to mitigate gear-induced pain and fatigue.

- i. Back pain was significantly reduced in all cases.
- ii. Back pain was eliminated in at least one case.
- iii. Hip bruising was eliminated in all cases.
- iv. Chronic fatigue was reduced (but only anecdotal evidence exists).

b. Validate claims regarding:

- i. The duty platform (especially the gun) is stable.
 - YES: The holster does not move vertically when the retention devices are manipulated and the gun drawn.
 - YES: The holster does not move horizontally on the belt and there is no possibility for other modules to bunch up behind the holster and impeding the draw.
- ii. Reduction of back (joint) pain:
 - YES (in two cases almost completely).
- iii. Reduction of chronic fatigue:
 - YES (anecdotally).
- iv. Improvement of comfort:
 - YES - By an average of 71.25%.

c. Be open to unintended consequences regarding morale, professionalism, improved productivity and other Operations issues.

- i. Because the Duckbill gear modules do not move on the duty belt, and, because the Duckbill gear does not require keepers to be manipulated each time the belt is removed...
 - Efficiency and productivity are empirically improved.
 - Especially among women.
- ii. Because the Duckbill gear is well-suited for offices with and without gear-induced pain...
 - Duckbill gear eliminates the need for muscular-skeletal disorder (MSD) exceptions to the uniform / dress code
 - Therefore Duckbill gear promotes and maintains a unified professional aesthetic



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CONCLUSIONS:

- iii. Because the Duckbill design promotes and preserves macro and micro adjustments to duty gear module positioning...
 - Officers can control and routinely adjust the weight they carry to match changes in task mix and duty gear requirements
- iv. Because the Duckbill Anchor and Duty belt + Duty Gear Modules are so easy to manipulate, revise and add to...
 - The system is scaleable
- v. Because Duckbill engineers innovate and customize regularly
 - New modules and new gear can be regularly added or upgraded.

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For more details on this or other case histories contact: Tom Wiersma. twiersma@duckbill-inc.com 616.456.9705
www.DuckbillLaw.com