



# U.S. Army Research Institute of Environmental Medicine

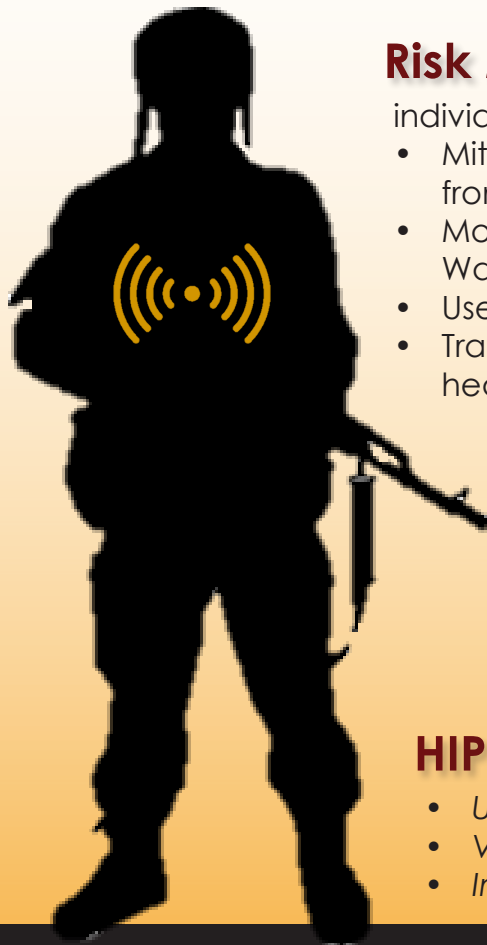
## Heat Illness Prevention System

### Capabilities

- Measurements: heart rate, skin temperature, 3-axis accelerometry
- View heart rate, skin temperature, heat injury algorithms in real-time
- Sends biometric information via Bluetooth for monitoring high risk events
- Saves heat strain data locally

### Algorithms

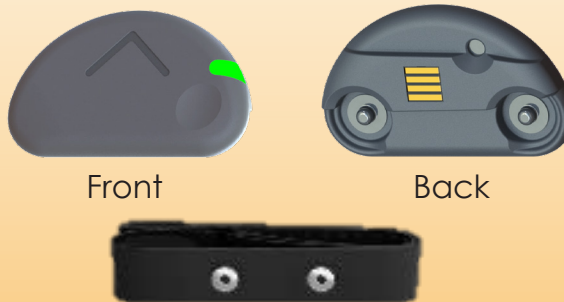
- Estimated Core Temperature (ECT) *Estimated core body temperature based on heart rate*
- Gait Instability Index (GINI) *Analyzes gait of individual to provide heat stroke risk ~3 minutes prior to collapse*
- Adaptive Physiological Index (aPSI) *Individualized heat injury risk using heart rate, skin temperature and ECT*



### Risk Mitigation

individual Heat Optimization Training Tool (iHOTT)

- Mitigate heat illness risk using real-time data from HIPS
- Monitor individuals or teams (1,500+ Warfighters)
- Use group information to pace training
- Train harder and safer by integrating HIPS into heat risk mitigation plan



### HIPS + GPS

- Use any Bluetooth capable device and pair with HIPS
- View real-time biometrics and location of individuals
- Integrated with PEO STRI Solder Monitoring System (SMS) tracker

iHOTT				
All				
<b>11 - AGUILAR</b> * PSI 8.2± 8.6 ♥ HR 194 ♣ ECT 101.5°F ♠ ST 90.9°F % TAT 0s 0s	<b>2 - JONES</b> * PSI 3.3± 3.2 ♥ HR 107 ♣ ECT 100.0°F ♠ ST 86.4°F % TAT 0s 0s	<b>4 - MILLER</b> * PSI 2.9± 3.0 ♥ HR 105 ♣ ECT 99.5°F ♠ ST 90.5°F % TAT 0s 0s		
<b>6 - JOHNSON</b> * PSI 5.3± 5.3 ♥ HR 128 ♣ ECT 100.9°F ♠ ST 91.9°F % TAT 0s 0s	<b>8 - PARRIS</b> * PSI 3.7± 3.7 ♥ HR 113 ♣ ECT 100.2°F ♠ ST 88.2°F % TAT 0s 0s	<b>9 - DAVIS</b> * PSI 3.7± 3.4 ♥ HR 93 ♣ ECT 100.9°F ♠ ST 89.8°F % TAT 0s 0s		
<b>12 - JACKS</b> * PSI 3.4± 3.4 ♥ HR 110 ♣ ECT 100.0°F ♠ ST 86.7°F % TAT 0s 0s	<b>14 - MOORE</b> * PSI 5.6± 5.6 ♥ HR 137 ♣ ECT 100.9°F ♠ ST 91.2°F % TAT 0s 0s	<b>16 - HORNO</b> * PSI 5.7± 6.5 ♥ HR 181 ♣ ECT 99.3°F ♠ ST 89.6°F % TAT 0s 0s		
<b>18 - PULGAS</b> * PSI 4.1± 4.1 ♥ HR 113 ♣ ECT 100.2°F ♠ ST 92.1°F % TAT 0s 0s	<b>20 - CHRIS...</b> * PSI 5.9± 6.5 ♥ HR 175 ♣ ECT 99.7°F ♠ ST 91.0°F % TAT 0s 0s	<b>22 - PATTE...</b> * PSI 5.7± 5.6 ♥ HR 129 ♣ ECT 101.3°F ♠ ST 92.1°F % TAT 0s 0s		
42	0%	80%	2%	18%



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