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The purpose of this research was to evaluate the efficacy and acceptability of integrating holistic human performance (HHP) training into Basic Law Enforcement Training (BLET). Historical data from 37 police officer trainees (28 males, 9 females; M = 25.78 years) who completed BLET at a police department training academy in the southeastern United States were analyzed to determine the acceptability and efficacy of HHP training. Efficacy of HHP training was measured by comparing Connor Davidson Resilience Scale (CD-RISC) scores, resting Heart Rate Variability, and BLET performance scores of those trainees who received HHP training to those who did not. One-way between-groups Analysis of Variance (ANOVA) supported efficacy for trainee performance during the Practical Skills Unity of BLET instruction; there was a statistically significant difference in performance between trainees that received HHP training and those that did not. Additionally, acceptability of HHP training was supported based on trainee responses to 5-point Likert-scale and open-ended items on end-of-program evaluation surveys completed by the BLET trainees who received HHP training. Trainees reported that they enjoyed HHP training, it increased their knowledge, helped them feel more prepared for beginning a career in law enforcement, and they would recommend including it in future BLET classes. Overall, findings support the feasibility of integrating HHP training into BLET. Future research should build upon these findings to improve HHP training in BLET.

INTEGRATING HOLISTIC HUMAN PERFORMANCE TRAINING

INTO BASIC LAW ENFORCEMENT TRAINING

by

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APPROVAL PAGE

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CHAPTER I

PROJECT OVERVIEW

A growing number of law enforcement officers are experiencing acute and chronic stress associated with the high-risk nature of their profession. Police officers today are facing a greater number and wider variety of homeland threats. In a single shift, police officers may face motor vehicle violations, petty crimes, felony crimes, sexual assault cases, domestic violence, fatal drug over doses, and human and drug trafficking. In addition, they may witness natural disasters, vehicular and industrial incidents, bombings, riots, or other violent crimes (Holloway & Fullerton, 1994). Due to the high-risk, stressful nature of their occupation, police officers are more likely to develop adverse mental and physical health outcomes, such as adjustment disorder, acute stress disorder, anxiety, depression, posttraumatic stress disorder, substance use and abuse, stomach disorders, and heart disease (Arnetz, Arble, Backman, Lynch, & Lublin, 2013; Arnetz, Nevedal, Lumley, Backman, & Lublin, 2009).

Occupational stress impacts physical and mental health, family life, job performance and quality and longevity of service provided to the public (Hickman, Fricas, Strom, & Pope, 2011). It is imperative that police officers can effectively manage and regulate acute and chronic stress responses triggered by the duties and responsibilities of their profession. Police officers must have a high level of performance

readiness so they can address community concerns swiftly, efficiently, and accurately, as well as a high level of stress resilience to minimize the negative impacts of exposure to criminal threat and activity on their mind and body. The United States military is another high-risk occupational environment that contains a variety of acute and chronic stressors. Holistic human performance (HHP) training, which enhances individuals' stress resilience, readiness, and performance under pressure, is becoming common practice to improve the wellbeing and occupational longevity of soldiers (Brown, 2014; Brown & Dedrich, 2003; Cleveland, 2014; Kotch, 2010; Perkins, 2014). There is a strong need to take best-practices learned from military HHP training and apply them to law enforcement training. Basic Law Enforcement Training (BLET) is an ideal place to implement HHP training because it is the initial stage of indoctrination for future police officers, and it prepares individuals for the rigors of the duties and responsibilities of a law enforcement officer. Previous research has indicated that the psychological skills training component of HHP training can reduce physiological and psychological stress and build resilience in police officers (Arnetz et al., 2013; Arnetz et al., 2009; Bergman, Christopher, & Bowen, 2016; Christopher et al., 2016; McCraty, Tomasino, Atkinson, & Sundram, 1999; Page, Asken, Zwemer, & Guido, 2016; Ramey, Perkhounkova, Hein, Bohr, & Anderson, 2017); however, this type of proactive training is not yet widely implemented within the law enforcement community.

BLET prepares individuals for the rigors of the duties and responsibilities of a law enforcement officer by immersing trainees in a demanding training environment. In general, BLET consists of multiple instruction modules that are designed to prepare

entry-level individuals with the cognitive and physical skills needed to become certified law enforcement officers ("Basic Law Enforcement Training," 2017). BLET instruction includes topics such as motor vehicle law; law enforcement ethics; arrest, search, and seizure; firearms; and driver training. Hands-on training and practical application exercises are emphasized during the course, as well as physical fitness training. Upon completion of BLET, trainees take a comprehensive written exam, practical skills test, and physical fitness test prior to entering an additional period of field training before becoming a sworn law enforcement officer ("Basic Law Enforcement Training," 2017). Because of the broad spectrum of mental and physical requirements necessary to successfully complete BLET, additional support to trainees through HHP training could help strengthen individual resilience early in a police officer's career.

By evaluating the efficacy and acceptability of integrating HHP training into BLET, human performance practitioners will have a better understanding of how stress resilience and performance are impacted by this type of training and if HHP training is beneficial to police officer trainees. They can then identify best-practices which can be subsequently utilized to provide HHP training to law enforcement professionals. Additionally, human performance practitioners will gain insight into how police officer trainees view HHP training so the packaging, delivery, efficiency, and effectiveness of future HHP training can be improved.

Purpose and Research Questions

The purpose of this study was to evaluate the efficacy and acceptability integrating holistic human performance training (HHP) into Basic Law Enforcement Training (BLET). Research questions and hypotheses are as follows.

1. Do police officer trainees improve their stress resilience after receiving HHP training during BLET?

   Hypothesis: Police officer trainees' stress resilience improves after receiving HHP training during BLET.

2. Do police officer trainees have better performance after receiving HHP training in BLET compared to trainees who did not receive HHP training?

   Hypothesis: Police officer trainees who received HHP training during BLET perform better than those who did not receive HHP training.

3. What are police officer trainees' perceptions of HHP training?

Methods

A truncated pilot version of HHP training was developed to determine the efficacy and acceptability of offering HHP training within BLET at a police department training academy in the southeastern region of the United States. Because the curriculum was developed as a rudimentary pilot, the HHP training for this study included minimal components of physical fitness and nutrition curriculum and place the most emphasis on one specific component of HHP training: psychological skills training (PST). This component was chosen because previous research supports the implementation of psychological skills training within athlete and law enforcement populations as an

effective way to address performance-related issues (Arnetz et al., 2013; Arnetz et al., 2009; Bergman et al., 2016; Christopher et al., 2016; McCraty et al., 1999; Page et al., 2016; Ramey et al., 2017). Additionally, police academy training instructors had identified that the most common performance issues experienced by trainees during BLET were: 1) test and performance anxiety; 2) confidence; and 3) maintaining composure under pressure. All three of these performance issues could be immediately addressed with the inclusion of psychological skills training.

The truncated pilot HHP training consisted of three hours of instructor-led lecture followed by six self-paced online learning modules. The HHP training included both cognitive and somatic psychological skills training (Behncke, 2004). The cognitive components of HHP training included skills and techniques associated with performance-related mental capabilities, effort, and work: pre-performance routines, self-talk, motivation, confidence, goal setting, mental rehearsal, mental imagery, situational awareness, focus and concentration. The somatic components of HHP training included techniques that were more psychophysiological in nature: stress regulation, biofeedback, sleep and recovery optimization, and progressive muscle relaxation.

In addition to the instructor-led lecture and self-paced online modules, somatic psychological skills training was integrated into daily physical fitness training. Biofeedback information derived from daily Heart Rate Variability (HRV) readings was utilized to individually tailor daily physical fitness programming based on each trainees' physiological readiness, as indicated by their daily HRV reading.

Evaluation Model

One framework that has been proposed for evaluating the efficacy and acceptability of a program focuses on viewing the construct of *feasibility*—or the probability that the program will be successful in a specific environment—as a series of questions and methods to provide evidence for eight general areas addressed by feasibility studies. There areas include: acceptability, demand, implementation, practicality, adaptation, integration, expansion, and efficacy (Bowen et al., 2009). This study utilized this framework and addressed two areas of focus: 1) acceptability and 2) efficacy of HHP training within BLET (Bowen et al., 2009). Multiple criteria, including self-report surveys and performance scores, were used to evaluate overall acceptability and efficacy of the HHP training.

Participants

Historical data were acquired from 14 police officer trainees (10 males, 4 females; M = 26.79 years; see Appendix C) who received HHP training during their 20-week BLET course, at a police department training academy in the southeastern United States. Additional historical data were acquired from 23 police officer trainees (18 males, 5 females; M = 25.17 years; see Appendix C) who participated in BLET previously at the same police department training academy, but who did not receive HHP training. This evaluation utilized stratified sampling, where police officer trainees had been pre-selected and screened through an internal process at the police department.

Measures

Connor-Davidson Resilience Scale (CD-RISC). The CD-RISC has been developed and tested as: 1) a measure of degree of resilience; 2) as a predictor of outcome to treatment with stress management and resilience building; 3) as a marker of progress during treatment; and 4) as a marker of biological changes in the brain. The scale also shows promise as a method to screen people for high, intermediate, and low resilience (Connor & Davidson, n.d.). The CD-RISC is comprised of 25 items, each rated on a 5-point Likert scale (0-4), with higher scores indicating higher resilience (Connor & Davidson, 2003). The CD-RISC has been tested in both the general population and clinical samples, and it has demonstrated sound psychometric properties, with good internal consistency and test-retest reliability (Connor & Davidson, 2003). The scale reflects different levels of resilience in populations that are thought to be differentiated by their degree of resilience, and it also exhibits validity relative to other measures of stress and hardiness (Connor & Davidson, 2003).

Heart Rate Variability (HRV). Daily resting HRV data were collected for 14 police officer trainees who received HHP training. Utilizing a commercially available Polar H7 Heart Rate sensor (www.polar.com) (Polar, 2017), raw R-R interval electrocardiogram (ECG/EKG) data was collected, synthesized and analyzed using a commercially available smart phone application (Elite HRV; www.elitehrv.com) (Elliot & Moore, 2017). The smart phone application first synthesized the raw R-R interval data that was collected by the Polar H7 Heart Rate monitor via a wireless Bluetooth connection. Next, through a series of internal algorithms, the application analyzed the

raw R-R interval data using industry-standard time-domain analysis calculations, such as Root Mean Square of the Successive Differences of R-R intervals (RMSSD). RMSSD is considered to be a stable and valid time-domain measure of HRV (Li et al., 2009). RMSSD values can then be natural log transformed (lnRMSSD) to fit assumptions of linear analysis (Ellis, Sollers, Edelstein, & Thayer, 2008). It is suggested that an aggregation across at least two short term measurements be included when using parasympathetic HRV as a stable trait-like biomarker (Bertsch, Hagemann, Naumann, Schächinger, & Schulz, 2012). For BLET trainees who received HHP training, a 5-day aggregate measurement of lnRMSSD (natural log transformation of Root Mean Square of the Successive Differences of R-R intervals) was calculated at 11 time points, taken every two weeks, starting one week prior to BLET and lasting until the end of BLET (see Table 4 in Appendix E). Prior to taking daily measurements, trainees were instructed on and practiced taking HRV readings with training academy instructors present to help ensure that the trainees fully understood measurement protocols and could take consistent daily measurements. Trainees had the option of taking readings either supine (lying down on their backs) or sitting upright in a chair to ensure individual comfort and unrestricted breathing while readings were being taken. Trainees were instructed to take readings in the same position every time throughout BLET.

End-of-Program Evaluation Survey. The 14 police officer trainees who received HHP training provided their perceptions of the usefulness and relevance of the HHP training they received by completing an End-of-Program Evaluation Survey at the

end of BLET. The survey consisted of 5-point Likert-scale and open-ended items (see Appendix B).

BLET Performance Scores. Performance data for all participants were collected throughout BLET. A total of 27 academic and 5 practical application test scores were collected by police academy training instructors. The scores correspond with critical tasks necessary for success as a police officer and are aggregated and grouped into the following categories: 1) Legal Unit; 2) Patrol Duties Unit; 3) Law Enforcement Communication Unit; 4) Investigation Unit; 5) Practical Skills Unit. A final grade is also calculated by summing all the aggregate scores from all units.

Procedures

A mixed-methods approach was used for this evaluation, allowing for the integration of qualitative and quantitative measures to form a comprehensive view of the feasibility of incorporating HHP training into BLET, as well as the impact of HHP training on police officer trainee stress resilience and performance.

CD-RISC and End-of-Program Evaluation Survey data were collected for the 14 police officer trainees that received HHP training. The CD-RISC survey was completed by participants at three time points: 1) one week prior to BLET; 2) 10 weeks into BLET (mid-point); and 3) one week after the completion of BLET. End-of-Program Evaluation Surveys were completed by participants one week after the completion of BLET.

The 14 police officer trainees that received HHP training also took daily short-duration (2 minute, 30 second) HRV readings first thing each morning for the entire 20-

week duration of BLET. One week prior to the start of BLET, trainees were instructed on how to take their HRV measurements to ensure consistency of readings over time.

Data Analysis. Statistical analysis of the data was performed using IBM SPSS Statistics (version 25; released 2017). The data analysis sought to answer the following questions:

1. *Do police officer trainees improve their stress resilience after receiving HHP training during BLET?*

CD-RISC survey scores were analyzed using a one-way repeated-measures ANOVA, to determine differences in individual trainee stress resilience during BLET. It was expected that police officer trainee CD-RISC scores would be higher at the end of BLET compared to at the beginning of training.

Additionally, resting HRV data were also analyzed using a one-way repeated-measures ANOVA, to determine differences in trainee resting HRV during BLET. It was expected that police officer trainee resting HRV will be higher at the end of BLET compared to at the beginning of training.

2. *Do police officer trainees have better performance after receiving HHP training in BLET compared to trainees who did not receive HHP training?*

Police officer trainee scores on both academic and practical police officer-specific performance tasks were aggregated and analyzed using a one-way between groups ANOVA, to determine if there are differences between police officer trainees who received HHP training and those who did not. It was expected that police officer trainee

performance scores would be higher in the trainees who received HHP training compared to those in previous classes who did not.

3. *What are police officer trainees' perceptions of HHP training?*

Likert scale responses from the end-of-program evaluation surveys were analyzed using summary descriptive statistical methods. Responses from open-ended supporting questions were compiled in a Microsoft Excel spreadsheet and summary report.

Results

Results of data analysis for each research question are presented in the following sections.

1. *Do police officer trainees improve their stress resilience after receiving HHP training during BLET?*

A one-way repeated-measures ANOVA (n = 13) was conducted to compare the effect of HHP training on Connor Davidson Resilience Scale (CD-RISC) scores before (M = 82.85, SD = 11.25), during (M = 76.69, SD = 7.61), and after (M = 80.38, SD = 9.67) BLET. There was a significant effect of time on CD-RISC scores, F (2,24) = 4.957, p = 0.016, $\eta_p^2 = 0.415$. Post hoc tests using a Bonferroni correction indicated that CD-RISC scores during BLET were significantly reduced (Mean Difference = 6.15, p = 0.039) from CD-RISC scores at the beginning of BLET; however, there was no significant difference between CD-RISC scores before and after BLET (Mean Difference = 2.46, p = 0.577) or during and after BLET (Mean Difference = 3.69, p = 0.268) (see Table 3 in Appendix D).

Additionally, a one-way repeated-measures ANOVA (n = 11) was conducted to compare the effect of HHP training on resting HRV measured by lnRMSSD 5-day aggregate at 11 time points, taken every two weeks, starting one week prior to BLET and lasting until the end of BLET (see Table 4 in Appendix E). Mauchly's test of sphericity showed that the assumption of sphericity was not met, χ^2 (54) = 82.72, p = .028. Because the assumption of sphericity was violated, a Greenhouse-Geisser correction was applied and showed that there was there was not a significant effect of time on resting HRV measured by lnRMSSD 5-day aggregates, F (3.47, 34.79) = 1.59, p = 0.205. This suggests that HHP training did not influence police officer trainees' resting HRV. Taken together with CD-RISC score results, these results suggest that HHP training had a weak influence on the police officer trainees' stress resilience.

2. *Do police officer trainees have better performance after receiving HHP training in BLET compared to trainees who did not receive HHP training?*

A one-way between groups ANOVA (n = 37) was conducted to compare the academic and practical skills performance scores of trainees who received HHP training to those that did not receive HHP training. There was not a significant effect of HHP training on academic scores. However, there was a significant effect of HHP training on practical skills scores at the p < .05 level for the two conditions, F (1,35) = 4.90, p = 0.033 (see Table 6 in Appendix F). These results suggest that HHP training during BLET does not influence police officer trainees' academic performance during BLET but does have an impact on performance of practical skills.

3. What are police officer trainees' perceptions of HHP training?

Likert scale responses from the End-of-Program evaluation surveys were analyzed using descriptive statistical methods (see Table 7 in Appendix G). Seven trainees (50%) reported that they thought HHP training increased their knowledge (Strongly Agree = 21.4%; Somewhat Agree = 28.6%); five were neutral (Neither Agree nor Disagree = 35.7%); one strongly disagreed (7.1%); and one participant did not respond (7.1%). Six trainees (42.8%) reported that they enjoyed HHP training (Strongly Agree = 21.4%; Somewhat Agree = 21.4%); five were neutral (Neither Agree nor Disagree = 35.7%); two somewhat disagreed (14.3%); and one participant did not respond. Three trainees reported that HHP training helped them feel more prepared for beginning a career in law enforcement (Strongly Agree = 21.4%; Somewhat Agree = 28.6%); three were neutral (Neither Agree nor Disagree = 21.4%); three disagreed (Somewhat Disagree = 14.3%; Strongly Disagree = 4.1%); and one participant did not respond. Nine trainees (64.3%) reported that they would recommend HHP training for future BLET classes (Strongly Agree = 28.6%; Somewhat Agree = 35.7%); two were neutral (14.3%); two disagreed (Somewhat Disagree = 7.1%; Strongly Disagree = 7.1%); and one participant did not respond.

Responses from open-ended questions supported the Likert scale responses (see Table 8 in Appendix G). One police officer trainee reported that HHP training "increased my knowledge of how to better handle my stress," and another trainee indicated that they "learned quite a bit about how my mind holds a direct effect on how my body reacts." Of the specific psychological skills that were taught to trainees, it was indicated that

breathing techniques and visualization were the two most enjoyable parts of HHP training. In addition to breathing techniques and visualization, "using the mind to focus on controlling my body's stress response" was mentioned as a specific aspect of HHP that resonated most with trainees. Overall, HHP training was viewed as "a very great and rewarding experience." All responses to the open-ended questions were positive and no suggestions for improvement were made by the trainees.

Conclusions and Future Directions

The purpose of this study was to evaluate the efficacy and acceptability of integrating HHP training into BLET. Multiple criterion was used to accomplish this, including self-report surveys (CD-RISC and End-of-Program Evaluation), physiological measurement of trainees' Heart Rate Variability, and trainee BLET performance scores. Efficacy was supported for trainee performance during the Practical Skills Unit of BLET instruction; trainees who received HHP training performed better on law enforcement specific practical application tasks than those who did not receive HHP training. This supports the results from previous studies that have demonstrated the effectiveness of utilizing PST training to enhance performance in police populations (Arnetz et al., 2009; Page et al., 2016).

Efficacy was not supported in relation to trainee stress resilience, as measured by CD-RISC scores and resting HRV lnRMSSD; HHP training did not have a statistically significant effect on these measures. These non-significant results may be related to the small n, or because the HHP training was only a truncated pilot version with a primary focus on PST; results may have been different with a larger sample and a fully developed

HHP training curriculum. One interesting, unexpected finding was that there was a significant difference between police officer trainee self-reported resilience prior to BLET compared to halfway through BLET. This could indicate that trainees have overinflated views of their resilience prior to BLET, but that BLET itself provides an opportunity for trainees to gain more self-awareness and insight into their actual baseline levels of resilience.

Findings suggest that acceptability for HHP training in BLET was established. HHP training seemed to be well received by BLET trainees; they reported that it increased their knowledge and that it helped them helped them feel more prepared for beginning a career in law enforcement. Additionally, there was no negative comments about the training or suggestions for improvement, trainees indicated that they enjoyed it, and that they would recommend including it in future BLET classes. Future studies could include structured face-to-face interviews to gather more specific information about what parts of the HHP curriculum were effective or ineffective. This information could then be used to redesign and refine future HHP training within BLET.

In this study, there were notable limitations and additional outside factors that may have influenced the results. Possible confounding factors included, but are not limited to: 1) the mental and physical capabilities and limits of the individual police officer trainees; 2) the technical and tactical training they received during BLET; 3) and external factors such as weather and training schedule. Another anticipated limitation was the small sample size. Due to the historical nature of the data and the small sample size during the original collection of data, the repeated measures and between groups

analyses had a small n, and therefore low power for statistical tests. Future research should include data gathered from a larger number of participants. Although the sample size was small, the findings in this study provide support for continued larger studies of this nature in the future.

Overall, findings from this study suggest that integrating HHP training into BLET shows promise and follow-up studies could continue to inform the design and development of HHP training for police officers. Evidence for both efficacy for improved performance on law enforcement practical skills as well as the acceptability of this type of training by police officer trainees was gained from this study. Since the HHP training in this study was a rudimentary, truncated pilot version of HHP training that was primarily focused on PST, future research should evaluate the efficacy and acceptability of a more comprehensive, extended HHP training curriculum that includes stronger elements of physical fitness, nutrition, and other related human performance topics. Results from this study provide valuable information that can be used as a platform for expanding HHP training within law enforcement agencies, as well was improving the development of future HHP training for other first responder agencies.

CHAPTER II

DISSEMINATION

The target audience for the initial dissemination of the results from this study are individuals in leadership positions within the police department training academy where this research took place. These leaders are concerned with the health, wellness, safety, resilience, and performance under pressure of the police officers and trainees under their management and seek to providing innovative training to help mitigate the negative impact of chronic stress on the police officers within their department. By having a better understanding of the efficacy and acceptability of HHP training in their BLET course, leaders can work to improve quality of training and provide more robust support measures to police officer trainees who are the future of their department. Additionally, they can begin creating a culture of genuine caring and support for their officers' health, wellness, safety, resilience, and performance under pressure, as well as implement policy change within the larger department. Those policy changes can help to improve the quality and usefulness of police officer training across the board, not just HHP training.

The intention of initial dissemination of these results is so they can be immediately applied to help improve the quality of BLET training within this specific department, with the goal of increasing police officer trainee performance under pressure, stress resilience, retention, and career longevity. Initial dissemination will be a one-page After-Action Review (AAR) memorandum which will be provided to the training

Lieutenant at the police department training academy. Because law enforcement leaders within this department do not have time to read lengthy technical reports, a memorandum is the preferred method of brief and concise communication. It is assumed that the training Lieutenant will follow professional protocol and that this memorandum will get passed up through the chain-of-command to the Police Chief, and potentially to other law enforcement agencies outside the department. The AAR memorandum that will be distributed is in Appendix H.

Initial distribution of the memorandum will be followed up with face-to-face briefings as requested by the training Lieutenant or Police Chief to clarify and questions, concerns, or comments related to the pilot of HHP training in BLET. Face-to-face briefings will be conducted in typical AAR format and will include the following: 1) review of objections and intent; 2) discussion of key events, themes, and issues; and 3) discussion of other related issues, such as tasks to sustain/improve—all of which are discussed in the AAR memo (see Appendix H). The content of the briefing will be limited to the content presented in the memo in the AAR memo to keep meetings succinct (maximum 15 minutes) to respect the busy schedules of leadership personnel. Subsequent meetings will be set up if there is a need to discuss any issues in further depth that are outside the scope of the AAR memo.

The most significant influencing factor for dissemination of these research findings beyond the initial AAR memorandum will be the training Lieutenant at the police training academy where this research took place. He is highly invested in the quality of the training provided within the training academy, but also in the police officer

trainees themselves since he recognizes that they are the future of the police department. He is in a position that will ensure not only the uptake and application of these research results within his police department training academy, but also the discussion of these results with other individuals within his professional network which will bring credibility to the integration of HHP training into BLET.

CHAPTER III

ACTION PLAN

This dissertation project was designed to evaluate the feasibility of integrating holistic human performance (HHP) training into Basic Law Enforcement Training (BLET). Law enforcement is a high-risk, stressful occupation, and acute and chronic stress can have a negative impact on police officers' health, wellness, safety, resilience, and performance under pressure. Unregulated stress responses which are triggered by the high-risk nature of police work can decrease physical and mental performance and increase and officer's risk for adverse physiological, psychological, and behavioral health outcomes. It is imperative that police officers develop and maintain individual resilience to help them effectively regulate the human body's natural stress response.

HHP training programs—which include Psychological Skills Training (PST)—have emerged within the military to help individuals learn to regulate the Autonomic Nervous system and better adapt to stressful conditions. Previous research has shown that this type of training can also reduce physiological and psychological stress and build resilience in police officers. Because BLET is the initial stage of indoctrination for future police officers, implementing HHP training during this phase of police officer training could help proactively build individual resilience early in a police officer's career, increasing overall health, wellness, safety, performance, and career longevity.

By evaluating the integration of HHP training into BLET, human performance practitioners, law enforcement leaders, and BLET training leadership and staff can gain insight into whether an integrated, holistic approach to training human performance will assist in increasing performance and building resiliency to stress in police officer trainees. Based on the results of this study, HHP training shows promise that it can assist in better preparing trainees to perform at higher levels while under pressure, as well as adapt to the volatile, uncertain, complex, ambiguous, and stressful conditions that they will inevitably face during their careers. The integration of HHP training could also be effective in improving training for other first responder professionals (e.g., firefighters, emergency medical technicians, emergency call responders and dispatchers, etc.).

The long-term goal of this research is to increase information about and interest in the value of HHP training within law enforcement agencies, and to improve the development of future HHP training for law enforcement and other first responder agencies nationwide. Because stress negatively impacts physical and mental health, family life, job performance, and quality of service to the public, integrated HHP training could prove to be an efficient, effective way to increase the overall health, wellness, safety, performance, and career longevity of the service professionals that play such a critical role in our Nation's communities.

The first step towards this long-term goal is to continue to refine the HHP training offered within BLET at the police department where this research took place, and to determine the best methods of packaging and delivery to help make HHP training as impactful and useful as possible for new police officer trainees. Future iterations of HHP

training will include a more robust classroom portion of training that will include both lecture and practical application exercises. Additionally, the self-paced online portion of the training will be improved and expanded to include a wider variety of topics and more interactive activities to increase trainee engagement in the learning content. Engagement in the online portion of training will be tracked using a Learning Management System (LMS) so training iterations can continue to be improved. The police department found value in the pilot HHP training and has requested that a beta test of a more robust curriculum be tested in future iterations of their BLET course. Ongoing evaluation will be conducted during the beta test process and necessary revisions will be made based on the police department's desired end state.

To improve the development and delivery of future HHP training in other law enforcement and first responder training environments, the results from this study will also be disseminated to human performance practitioners who are closely involved in improving police officer and first responder health, wellness, safety, resilience, and performance. These human performance practitioners include individuals that play a role in supporting police officers in any of the following four areas: 1) Physical training (e.g., strength and conditioning, athletic training and physical therapy, nutrition, etc.); 2) Mental training (e.g., psychological skills training, psychosocial development, etc.); 3) Technical training (e.g., coaching, etc.); and 4) Management and operational support within the law enforcement agency. Conference presentations and workshops will be developed and presented at professional organization meetings where these individuals are likely to be members (e.g., Association of Applied Sport Psychology, National

Strength and Conditioning Association, National Tactical Officers Association, International Association of Chiefs of Police, etc.). Initial presentations will focus on the results obtained through this research, and future interactive workshops will be developed to disseminate information and methods related to the specific HHP training being conducted within this police department so best practices can be presented and adopted by professionals working with other law enforcement and first responder agencies.

Human performance practitioners can utilize this information to develop integrated HHP training to supplement traditional law enforcement and first responder training curriculum without detracting from the technical and tactical knowledge and skills that need to be acquired by trainees. Law enforcement and other first responder leadership can easily begin providing a foundation of human performance knowledge and skills to help improve health, wellness, safety, resilience, and performance within their organizations, giving their personnel the knowledge and skills to enhance performance, improve readiness and resilience, and increase career longevity.

As law enforcement organizations experience reduced training budgets and become under ever-increasing scrutiny for their appropriate use of force, HHP training could also provide a viable, cost-effective solution to address the issues of programmatic fragmentation as law enforcement agencies tackle health, wellness, safety, resilience, and performance issues separately. By including HHP training in their traditional training programs, these organizations can increase the performance and stress resilience capabilities of trainees and sworn officers, which may help to reduce liability and training costs to the department long-term. By utilizing an integrated approach to training—

rather than tackling each issue individually—law enforcement and first responder leadership and staff could potentially save valuable training time and resources.

Additionally, bringing together human performance professionals from diverse fields of study (e.g. strength and conditioning specialists, athletic trainers, dieticians, performance psychology consultants, mental health counselors, tactical law enforcement trainers, etc.), could provide much more robust and complete support for police officers. This would have a more immediate and longer lasting impact on individuals, their families, and their communities. As a growing number of law enforcement officers are experiencing the negative impact of stress on their personal and professional lives, HHP training could help to provide them with the skills necessary to maintain a high level of performance readiness and stress resilience to help them protect our Nation's communities.

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APPENDIX A

DEFINITION OF TERMS

Allostasis: Fundamental process of energy regulation that occurs in the face of both predictable and unpredictable events, with the underlying principle that efficiency of the human body system requires reciprocal trade-offs, prediction of future energy needs, and adaptation of energy output to meet demands (Schulkin, 2004; Wingfield, 2003)

Chronic Stress: The overstimulation of the stress response over a long period of time, which has been associated with an increased risk of stress-related disease and pathology (Romero, Dickens, & Cyr, 2009)

Heart Rate Variability (HRV): A measurement of the variation in the time intervals between adjacent heartbeats that has been shown to be the most accurate, non-invasive measure of the stress response by way of the functionality of the Autonomic Nervous System (Aubert, Seps, & Beckers, 2003; Cote & Ivey, 2010)

Holistic Human Performance (HHP) Training: A comprehensive model of human performance training that accounts for the complex mix of cognitive, affective, behavioral, and physiological factors which contribute to individual differences in health, disease, and performance, which includes the application of knowledge, skills, and emerging technologies to improve and preserve the capabilities of individuals and organizations (Nindl et al., 2015; Thayer, Hansen, Saus-Rose, & Johnsen, 2009)

Homeostasis: An immensely complex, dynamic, and harmonious equilibrium within the human body system (Cannon, 1935, 1939; Chrousos & Gold, 1992)

Psychological Skills Training (PST): Techniques and strategies designed to enhance mental skills that facilitate performance, which include interventions that are developed by identifying psychological qualities related to performance success and wellbeing, then teaching individuals psychological strategies and skills to regulate those psychological qualities (Vealey, 1988; Zakrajsek & Blanton, 2017)

Resilience: An individual's stability or quick recovery (or even growth) under significant adverse conditions, while maintaining relatively stable, healthy levels of psychological and physical functioning (Bonanno, 2004; Leipold & Greve, 2009)

Stress: The relationship and interaction between 1) the internal and external stimuli that cause stress (stressors); 2) the emergency physiological and behavioral responses activated in response to those stimuli (the stress response); and 3) the pathological consequences of over-stimulation of emergency responses (chronic stress) (Le Moal, 2007)

Stressor: Unpredictable and/or uncontrollable stimuli that disrupt or threaten to disrupt homeostasis (Chrousos & Gold, 1992)

Stress Response: The emergency physiological and behavioral responses activated in response to stressors (Romero et al., 2009)

APPENDIX B

PARTICIPANT DEMOGRAPHIC INFORMATION

Table 1

Descriptive Statistics for Age (Years) of BLET Trainees

	Minimum	Maximum	Mean	SD
No HHP Training (N = 23)	20	35	25.17	4.37
HHP Training (N = 14)	21	34	26.79	4.10
Total (N = 37)	20	35	25.78	4.283

Table 2

Descriptive Statistics for Gender of BLET Trainees

	Frequency	Percent
No HHP Training	N = 23	
Male	18	78.3
Female	5	21.7
HHP Training	N = 14	71.4
Male	10	28.6
Female	4	
Total	N = 37	
Male	28	75.7
Female	9	24.3

APPENDIX C

END-OF-PROGRAM EVALUATION SURVEY

Please take a moment to provide feedback related to the holistic human performance (HHP) training you received during BLET (mental skills training, stress resilience training, Heart Rate Variability training, physical fitness and nutrition training, etc.). Your feedback will help improve training for future recruits.

1. The HHP training I received increased my knowledge.
    a. Strongly agree
    b. Somewhat agree
    c. Neither agree or disagree
    d. Somewhat disagree
    e. Strongly disagree
2. In what ways did HHP training increase your knowledge?

3. I enjoyed the HHP training.
    a. Strongly agree
    b. Somewhat agree
    c. Neither agree or disagree
    d. Somewhat disagree
    e. Strongly disagree
4. What specific parts of HHP training did you enjoy?

5. The HHP training helped me to feel more prepared for beginning a career in law enforcement.
    a. Strongly agree
    b. Somewhat agree
    c. Neither agree or disagree
    d. Somewhat disagree
    e. Strongly disagree

6. I would recommend HHP training for future BLET classes.
    a. Strongly agree
    b. Somewhat agree
    c. Neither agree or disagree
    d. Somewhat disagree
    e. Strongly disagree
7. What specific aspects of HHP training resonated most with you?

8. What parts of HHP training would you change or omit?

9. Please provide any additional comments you have related to your overall experience with HHP training.

APPENDIX D

RESULTS OF STATISTICAL ANALYSIS FOR CD-RISC

Table 3

Descriptive Statistics for CD-RISC Scores

			95% Confidence Interval for Mean	
	Mean	SD	Lower	Upper
CD-RISC Pre-Test (1 week prior to BLET)	82.85[a]	3.12	76.05	89.68
CD-RISC Mid-Test (10 weeks into BLET)	76.69[a]	2.11	72.09	81.29
CD-RISC Post-Test (1 week after BLET)	80.39	2.68	74.54	86.23

[a] Difference significant at $p < .05$

APPENDIX E

RESULTS OF STATISTICAL ANALYSIS FOR HRV

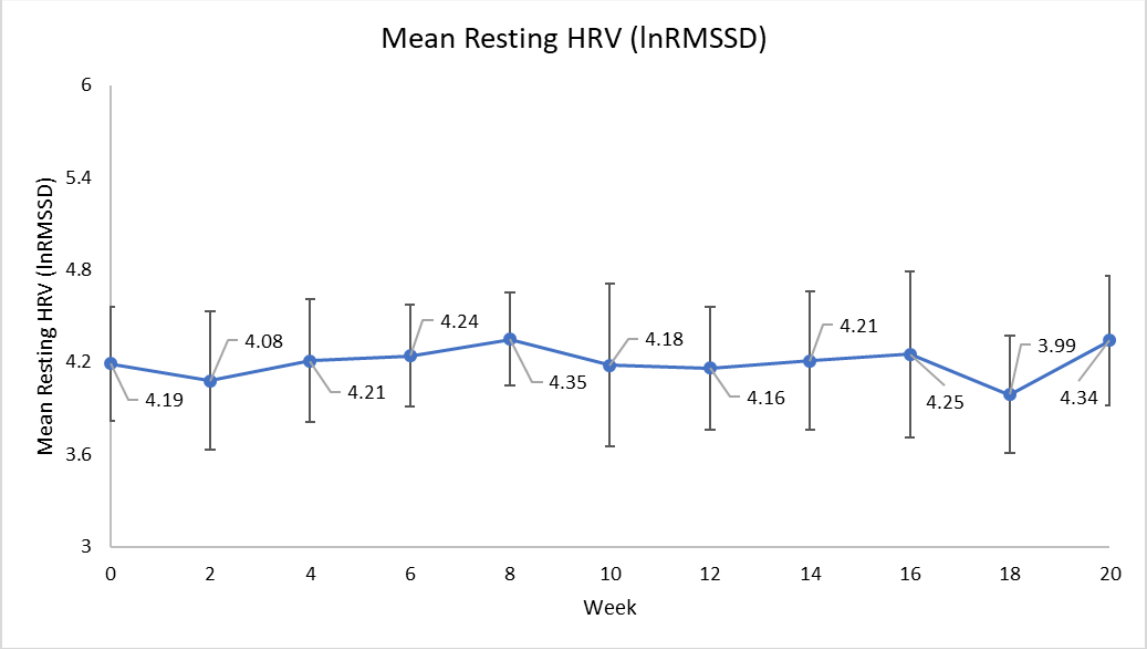
Table 4

Descriptive Statistics for Resting HRV (lnRMSSD)

	Mean	SD	95% Confidence Interval for Mean	
			Lower	Upper
lnRMSSD Week 0 (1 week prior to BLET)	4.19	0.37	3.94	4.44
lnRMSSD Week 2 (2 weeks into BLET)	4.08	0.45	3.77	4.38
lnRMSSD Week 4 (4 weeks into BLET)	4.21	0.40	3.94	4.48
lnRMSSD Week 6 (6 week into BLET)	4.24	0.33	4.02	4.47
lnRMSSD Week 8 (8 weeks into BLET)	4.35	0.30	4.15	4.56
lnRMSSD Week 10 (10 weeks into BLET)	4.18	0.53	3.82	4.53
lnRMSSD Week 12 (12 weeks into BLET)	4.16	0.40	3.90	4.43
lnRMSSD Week 14 (14 weeks into BLET)	4.21	0.45	3.91	4.51
lnRMSSD Week 16 (16 weeks into BLET)	4.25	0.54	3.89	4.61
lnRMSSD Week 18 (18 weeks into BLET)	3.99	0.38	3.74	4.25
lnRMSSD Week 20 (20 weeks into BLET)	4.34	0.42	4.06	4.63

Figure 1

Mean Resting HRV (lnRMSSD) for BLET Trainees



APPENDIX F

RESULTS OF STATISTICAL ANALYSIS FOR PERFORMANCE SCORES

Table 5

Descriptive Statistics for BLET Performance Scores

			95% Confidence Interval for Mean	
	Mean	SD	Lower	Upper
Legal Unit				
No HHP Training	88.93	3.39	87.46	90.39
HHP Training	89.98	3.87	87.84	92.21
Patrol Duties Unit				
No HHP Training	90.86	2.06	89.98	91.75
HHP Training	92.18	2.99	90.46	93.91
Communication Unit				
No HHP Training	89.96	3.21	88.58	91.35
HHP Training	88.54	3.65	86.43	90.64
Investigation Unit				
No HHP Training	92.71	2.35	91.70	93.72
HHP Training	93.89	2.30	92.57	95.22
Practical Skills Unit				
No HHP Training	89.02	3.11	87.67	90.36
HHP Training	91.44	3.44	88.80	93.43
Final Grade				
No HHP Training	90.82	1.92	89.99	91.65
HHP Training	91.69	2.37	90.32	93.05

Table 6

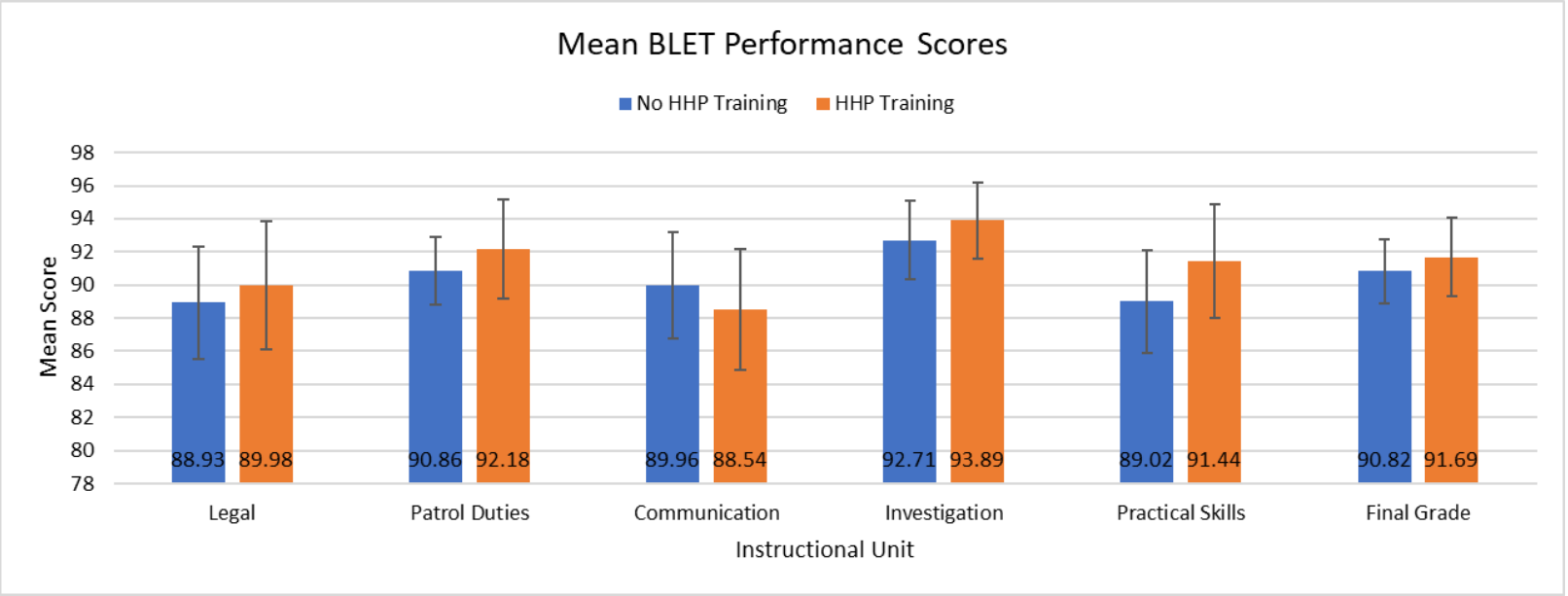
ANOVA Results for BLET Performance Scores

	F	Sig.
Legal Unit	0.749	0.393
Patrol Duties Unit	2.530	0.121
Communication Unit	1.555	0.221
Investigation Unit	2.246	0.143
Practical Skills Unit	4.901	0.033*
Final Grade	1.477	0.232

*Significant at $p < .05$

Figure 2

Mean Performance Scores for BLET Trainees



APPENDIX G

RESULTS OF ANALYSIS OF END-OF-PROGRAM EVALUATION SURVEY

Table 7

Frequencies of Responses on End-of-Program Evaluation Survey Likert-Scale Items

Survey Item	Frequency	Percent
The HHP training I received increased my knowledge.		
Strongly Agree	3	21.4
Somewhat Agree	4	28.6
Neither Agree nor Disagree	5	35.7
Somewhat Disagree	0	0
Strongly Disagree	1	7.1
Missing Response	1	7.1
I enjoyed the HHP training.		
Strongly Agree	3	21.4
Somewhat Agree	3	21.4
Neither Agree nor Disagree	5	35.7
Somewhat Disagree	2	14.3
Strongly Disagree	0	0
Missing Response	1	7.1
The HHP training helped me to feel more prepared for beginning a career in law enforcement.		
Strongly Agree	3	21.4
Somewhat Agree	4	28.6
Neither Agree nor Disagree	3	21.4
Somewhat Disagree	2	14.3
Strongly Disagree	1	4.1
Missing Response	1	7.1
I would recommend HHP training for future BLET classes.		
Strongly Agree	4	28.6
Somewhat Agree	5	35.7
Neither Agree nor Disagree	2	14.3
Somewhat Disagree	1	7.1
Strongly Disagree	1	7.1
Missing Response	1	7.1

Table 8

Responses on End-of-Program Evaluation Survey Open-Ended Questions

Item	Responses
In what ways did HHP increase your knowledge?	1. It increased my knowledge of how to better handle my stress. 2. I learned quite a bit about how my mind holds a direct effect on how my body reacts to things.
What specific parts of HHP training did you enjoy?	1. I enjoyed the breathing and visualization techniques.
What specific aspects of HHP training resonated most with you?	1. Visualization. 2. Breathing. 3. Using my mind to focus on controlling my body's stress responses.
What parts of HHP training would you change or omit?	1. Nothing comes to mind. 2. No comments.
Please provide any additional comments you have related to your overall experience with HHP training.	1. This was a very great and rewarding experience. 2. No additional comments.

APPENDIX H

AAR MEMORANDUM TO POLICE DEPARTMENT

April 4, 2018

MEMORANDUM FOR: Police Department Training Academy

SUBJECT: Integration of Holistic Human Performance (HHP) Training into Basic Law Enforcement Training (BLET)

Historically, HHP has not been incorporated into BLET. An initial pilot of HHP training was conducted that provided evidence that trainees who received HHP training outperformed those in previous BLET classes who did not receive HHP training.

1. ***Issue:*** The integration of HHP training in BLET.
   Discussion: Based on the results from the integration of HHP training into BLET, there is reason to believe HHP training has a positive impact on BLET trainee performance. BLET trainees who received pilot HHP training performed better in all BLET units except Law Enforcement Communication compared to trainees who did not receive the training, with a statistically significant increase in Practical Unit scores and no remedial training necessary.
   Recommendation: Include HHP training into future BLET classes.

2. ***Issue:*** The potential use of pre-training assessment tools related to specific high-performance domains to objectively determine the HHP training needs of individual BLET trainees.
   Discussion: Trainees completed the Connor Davidson Resilience Scale (CD-RISC) to assess their individual resilience before, during, and after BLET. Analysis of these data indicated that it is likely that there were errors in self-reported perceptions of personal resilience. Trainees significantly overestimated their resilience (Average CD-RISC Score = 83) before BLET compared to during BLET (Average CD-RISC Score = 77). These data indicate additional pre-training screening tools may be helpful in considering the focus, tailoring, and coaching support of HHP topics to assist all trainees in maximizing their performance in BLET and as sworn officers.
   Recommendation: The use of pre-training assessment tools (e.g., self-awareness, coachability, mindset, etc.) to determine a baseline for individual trainees, as well as their specific training needs.

3. The Point of Contact for questions related to this memorandum is: Ms. Kathryn Thompson, kasween2@uncg.edu.