

# AN EQUINE-ASSISTED SERVICES INTERVENTION FOR VETERANS WITH POSTTRAUMATIC STRESS DISORDER

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BY

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# IT TAKES A VILLAGE...

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- Judy Smith, MS Utah State University
- Karl H Hoopes, DVM Utah State University
- Makenna Osborne, BS Utah State University
- Sarah J Andersen, BS Utah State University
- Kylie Bell, BS Utah State University
- Elena Nazarenko, MS VA Salt Lake City Health Care System
- Rachel Macneill, BS VA Salt Lake City Health Care System
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# AGENDA

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- *Horses Helping Veterans* Program at the VA Salt Lake City Health Care System
- Study aims, design, and methods
- Study results, discussion, and conclusions
- Questions and discussion

# VA SALT LAKE CITY HEALTH CARE SYSTEM

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**HORSES  
HELPING  
VETERANS**





# HORSES HELPING VETERANS

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- EAS program created as a collaboration between:
  - VA Salt Lake City Whole Health Service
  - VA Salt Lake City Mental Health Service
  - Utah State University Equine and Human Sciences Program
  - Utah State University Extension, Ride Utah!
  - National Ability Center
  - A Helping Hoof
  - Rebel Soul Wranglers Horse Ranch and Training School

# HORSES HELPING VETERANS

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- Mission:
  - Provide PIH/EAL, horsemanship skills training and recreational riding to Veterans in the VA Salt Lake City Healthcare System catchment area
  - Focus PIH on suicide prevention, PTSD and substance use disorders
  - Conduct and publish research regarding the benefits of EAS for Veterans

# HORSES HELPING VETERANS

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- Staffing
  - Six part-time VA staff representing the disciplines of social work, recreation therapy, psychology and psychiatry
  - Five E gala trained – one is also an ESMHL
- Primary locations
  - Utah State University equine facility in Wellsville, Utah
  - National Ability Center
  - Rebel Soul Wranglers Horse Ranch and Training School in Sandy, Utah

# HORSES HELPING VETERANS

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- Current/past offerings:
  - Individual and group PIH for Veteran outpatients – mindfulness and self-compassion skills taught in the context of a developing horse – human relationship
  - Group PIH/EAL sessions for Veteran residential substance abuse patients
  - Eegala model sessions for outpatient Veterans with addictive disorders
  - PIH/EAL sessions for Veterans who have experienced military sexual trauma
  - Group Horsemanship Skills Training for Veterans at Utah State University
  - Group Trail Rides for Veterans through Utah State University Extension, Ride Utah!
  - Staff resiliency EAL one-half day retreats with A Helping Hoof



# EAS STUDY

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- This study was approved by the University of Utah IRB and the VA Salt Lake City Health Care System Research and Development Committee.
- By agreement with Utah State University, the University of Utah served as the single IRB for the study.
- All equine care and procedures were approved by the Institutional Animal Care and Use Committee of Utah State University.

# EAS STUDY - DESIGN

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- Prospective
- Uncontrolled
- Feasibility pilot study

# EAS STUDY - AIMS

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- Assess feasibility, safety and acceptability of a novel EAS intervention for Veterans with PTSD
- Obtain preliminary outcomes
- Address gaps in the EAS for Veterans literature

# EAS STUDY - SUBJECTS

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- Eighteen Veterans with posttraumatic stress disorder (PTSD)
- Twenty-one Veterans were initially enrolled but three dropped out before completing session one.
- The participants included in this report all attended at least one session.
- The mean age was 46.33 (SD=13.32) with a range of 28 - 69 years-old.
- All participants had a military-related disability.



# EAS STUDY - SUBJECTS

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- Most subjects had psychiatric and medical comorbidity in addition to PTSD.
- Over half had a co-occurring mood disorder.
- The most common medical conditions were chronic pain 72.2%, hypertension 44.4% and sleep apnea 38.9%.

# EAS STUDY - INTERVENTION

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- Horsemanship skills training program developed at Utah State University (USU) by Judy Smith and Dr. Karl Hoopes
- Designed to be replicable for additional studies and dissemination
- Four sessions conducted over four consecutive weeks
- Sessions one and two were conducted at the USU equine facility in indoor and outdoor arenas.
- Sessions three and four were conducted at a nearby mountain riding trail.

# EAS STUDY - INTERVENTION

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- Sessions one and two were experiential and focused on participants learning basic equine ground and mounted skills.
- In addition to skill building, the initial sessions had a strong focus on equine behavior and horse-human relationships.
- The final two sessions lasted approximately two hours and included a 45-minute trail ride.

# EAS STUDY - INTERVENTION

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- Numerous processes were utilized to mitigate risk to participants, staff, and equines.
- All ground and mounted activities were conducted according to PATH, Intl. safety standards.



# EAS STUDY – OUTCOME MEASURES

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- Safety, feasibility and acceptability to Veterans with PTSD
- PTSD Checklist for DSM 5 (PCL-V)
- Beck Depression Inventory (BDI-II)
- Quality-of-Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q-SF)
- Acceptance and Action Questionnaire II (AAQ-II)
- Positive and Negative Affect Scale (PANAS)
- Physical Activity Enjoyment Scale (PACES)

# EAS STUDY - STATISTICS

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- Two tailed exact sign tests, paired t-tests, and Friedman tests were used to determine whether there were significant short (pre- post-session) and/or long-term (pre- to immediate and one-month post-intervention) changes to scores on any of the outcome measures.
- The  $PS_{dep}$  and Cohen's  $d$  were used to calculate effect size.
- The Reliable Change Index (RCI) was calculated for PCL and BDI measures.

# EAS STUDY - RESULTS

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- Feasibility and acceptability:
  - Challenges to implementation included significant amounts of staff time required and weather.
  - The mean number of sessions attended was 3.06 (SD=0.938) out of three or four possible.
  - Eleven Veterans (61.1%) attended all sessions offered and 17 (94.4 %) attended at least two.
  - The mean PACES score for all sessions was 109.87 (SD=12.48), indicating participants generally enjoyed the activity.

# EAS STUDY - RESULTS

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- Safety:
  - There were no injuries or close calls for participants, staff, or equines.
  - There was no evidence of group pre- to post-intervention increased negative affect or decreased positive affect.
  - One Veteran became visibly upset on the first trail ride and shared that she was experiencing significant anxiety.



# EAS STUDY – RESULTS: SHORT-TERM OUTCOMES

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- Pre – to post-session:
  - Increased psychological flexibility (AAQII)
  - Increased positive affect (PANAS)
  - Decreased negative affect (PANAS)
- All with large effect size

# EAS STUDY - RESULTS – SHORT-TERM OUTCOMES

	Session 1	Session 2	Session 3	Session 4
<b>Mean PACES post-session score</b>	108.5 (SD=12.98)	110.69 (SD=12.19)	106.68 (SD=19.02)	113.75 (SD=7.80)
<b>AAQII</b>	↓ 3.24 (p=0.004) <sup>s</sup> PS <sub>dep</sub> =0.78	↓ 2.44 (p=0.049) <sup>s</sup> PS <sub>dep</sub> =0.72	↓ 3 (p=0.013) <sup>s</sup> PS <sub>dep</sub> =0.78	↓ 5.85(p<0.001) <sup>t</sup> Cohen's d <sub>z</sub> =1.61
<b>PANAS positive score</b>	↑5.102 (p<0.001) <sup>s</sup> PS <sub>dep</sub> =0.94	↑6 (p = 0.031) <sup>s</sup> PS <sub>dep</sub> =0.78	↑4.5 (p = 0.007) <sup>s</sup> PS <sub>dep</sub> =0.72	↓ 0.319(p = 0.804) <sup>s</sup> PS <sub>dep</sub> =0.5
<b>PANAS negative score</b>	↓ 4 (p = 0.001) <sup>s</sup> PS <sub>dep</sub> =0.78	↓ 4.93 (p<0.001) <sup>s</sup> PS <sub>dep</sub> =0.89	↓ 5 (p<0.001) <sup>s</sup> PS <sub>dep</sub> =0.72	↓ 7.02 (p<0.001) <sup>t</sup> Cohen's d <sub>z</sub> =1.44

# EAS STUDY – RESULTS: MEDIUM-TERM OUTCOMES

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- Pre – to post-intervention:
  - Increased psychological flexibility (AAQII)
  - Decreased PTSD symptoms (PCL-V)
  - Improved affect (PANAS)
  - No change in depressive symptoms (BDI-II)
  - No change in quality of life (Q-LES-Q-SF)
- Medium to large effect sizes

# EAS STUDY – RESULTS: LONG-TERM OUTCOMES

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- Pre – to 30 days post-intervention:
  - Increased psychological flexibility (AAQII)
  - Decreased PTSD symptoms (PCL-V)
  - Decreased depressive symptoms (BDI-II)
  - No change in quality of life (Q-LES-Q-SF)
  - No persistent change in affective symptoms (PANAS)
- 50% experienced reliable reduction in PCL-V and BDI-II scores. Four Veterans (22.2%) were classified as recovered based on the PCL-V and six (33.3%) based on BDI-II measure.



# EAS STUDY – MEDIUM/LONG-TERM OUTCOMES

	Immediate pre- to immediate post-intervention	Immediate pre- to one-month post-intervention	Immediate post- to one-month post-intervention
<b>AAQII</b>	↓ 8.16 (p < 0.001) <sup>s</sup> PS <sub>dep</sub> = 0.94	↓ 6.33 (p = 0.008) <sup>s</sup> PS <sub>dep</sub> = 0.83	↑ 2.26 (p = 0.096) <sup>s</sup> PS <sub>dep</sub> = 0.72
<b>PANAS positive</b>	↑ 7.60 (p = 0.001) <sup>s</sup> PS <sub>dep</sub> = 0.89	↓ 2.41 (p = 0.008) <sup>s</sup> PS <sub>dep</sub> = 0.83	↓ 12.89 (p < 0.001) <sup>s</sup> PS <sub>dep</sub> = 1
<b>PANAS negative</b>	↓ 6 (p < 0.001) <sup>s</sup> PS <sub>dep</sub> = 0.89	↓ 0.77 (p = 0.707) <sup>t</sup> Cohen's d <sub>z</sub> = 0.09	↑ 2.66 (p = 0.008) <sup>s</sup> PS <sub>dep</sub> = 0.83
<b>PCL - V</b>	↓ 9.41 (p = 0.005) <sup>t</sup> Cohen's d <sub>z</sub> = 0.77	↓ 15.82 (p = 0.001) <sup>s</sup> PS <sub>dep</sub> = 0.89	↓ 7.33 (p = 0.143) <sup>s</sup> PS <sub>dep</sub> = 0.67
<b>BDI - II</b>	↓ 5.62 (p = 0.068) <sup>t</sup> Cohen's d <sub>z</sub> = 0.46	↓ 8.79 (p = 0.017) <sup>t</sup> Cohen's d <sub>z</sub> = 0.62	↓ 2.79 (p = 0.096) <sup>s</sup> PS <sub>dep</sub> = 0.72
<b>Q-LES-Q-SF</b>	↓ 0.27 (p = 0.883) <sup>t</sup> Cohen's d <sub>z</sub> = 0.04	↓ 0.08 (p = 1) <sup>s</sup> PS <sub>dep</sub> = 0.5	↓ 1.03 (p = 0.332) <sup>s</sup> PS <sub>dep</sub> = 0.61

# EAS STUDY – DISCUSSION AND CONCLUSIONS

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- The intervention was generally feasible, acceptable, and safe to implement, however:
- It is likely that it would not be feasible to utilize in some settings due to climate, lack of availability of appropriately trained staff and equines and/or not having access to an adequate equine facility and riding trails.
- May not be acceptable to Veterans in other geographic locations.
- Safety risks can be mitigated.

# EAS STUDY – DISCUSSION AND CONCLUSIONS

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- Preliminary evidence of increased psychological flexibility as well as improvement in affect and symptoms of depression and PTSD.
- Cause and effect were not demonstrated.
- Rigorous studies of EAS for Veterans are warranted.

# EAS STUDY – DISCUSSION AND CONCLUSIONS

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- Implications for the field of EAS for Veterans:
  - Equine interactions without a component of psychotherapy incorporating horses may be beneficial for mental health.
  - Four-session interventions may be adequate to provide healing
  - Mounted work might provide benefits at least equal to groundwork

# EAS STUDY – DISCUSSION AND CONCLUSIONS

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- This was a pilot study and has many limitations:
  - Uncontrolled study – cannot prove cause and effect
  - Nonrandomized = selection bias
  - Small sample size = low power to detect changes



# EAS STUDY – DISCUSSION AND CONCLUSIONS

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- Conclusions:
  - Further studies of this, and other, EAS interventions for Veterans are warranted
  - Additional investigations of brief ( $\leq$  four session) EAS interventions are suggested
  - Studied comparing groundwork versus groundwork + mounted versus mounted only may advance the field

# QUESTIONS AND DISCUSSION

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# THE END

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