

Horses and Humans Research Foundation
Midway grant reporting

HHRF research funded project “Psychophysiological effects of Equine-assisted therapy on horses and in veterans diagnosed with post-traumatic stress disorder (PTSD)”

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Midway Report May 17, 2021

1. Summary of research project progress.

Scientific Abstract

As a necessary step in demonstrating the benefits of equine facilitated psychotherapy (EFP) as a positive treatment for veterans with PTSD, while eschewing the development of an adverse environment for either humans or horses, this study aims to obtain objective and subjective data from selected tests on the human-horse dyad. Efficacy of EFP on human-horse dyads will be determined through changes in measures of stress hormones: cortisol and oxytocin, and changes in heartrate variability in horse and human participants, concomitantly. Cortisol and oxytocin will be obtained in humans from passive drool, and from saliva and blood samples in horses. HRV measures will be obtained from Polar HR monitors worn by horses and humans. PTSD symptoms based on the Beck Depression Inventory (BDI 2), the State Anger Scale (STAXI 2), and the Checklist: PCL-5 will be used to provide trait-based psychometric estimates, while behavioral indicators of stress in horses will be based on expert ratings using the BORIS system. The proposed analysis is novel in the representation of paired data from the human-horse dyad. Evaluation of entrainment, which we define operationally as the synchronization of selected physiological measures between the human-horse dyad during EFP will be assessed through Bland-Altman measures of agreement.

Research Progress

All required permits (Animal User Protocol, Research Ethics Board, Biosafety) were approved in January 2020. Renewals have been approved for 2021.

Data collection from Equine Facilitated Psychotherapy sessions from all 4 cohorts has been collected. This was delayed due to COVID related health and safety protocols put in place by PEI's CPHO and Premier. Data collection was finalized in January 2021.

Data analysis is ongoing. This includes analysis of heart rate variability measures for all horses and human; cortisol and oxytocin data for all horses and humans; psychological assessment scores from humans; and behavior scores for horses. All data has to be synchronized as well. Veterinary students have been hired to assist in organization and analysis of data during the months of May-August 2021.

2. Time line, both completed items and planned project completion, with any changes from original application noted and explained.

Original Proposed Timeline: January 1, 2020 - August 31, 2020

- Group 1: Four Veterans and horses undergo 8 week EEA/T at Serene View Ranch.
- Group 2: Four Veterans and horses undergo 8 week EEA/T at Serene View Ranch.
- Group 3: Four Veterans and horses undergo 8 week EEA/T at Serene View Ranch.
- Group 4: Four Veterans and horses undergo 8 week EEA/T at Serene View Ranch.
- Data collection will be ongoing, with data analysis to take place from September 2020 until February 2021. Manuscript writing and the presentation of findings is anticipated to take place from March to June 2021.

Revised timeline (extension approved by HHRF in June 2020):

January 1, 2020 – January 31, 2021- all data obtained during EFP sessions has been completed.

- Group 1: Four Veterans and horses undergo 8 week EEA/T at Serene View Ranch.
- Group 2: Four Veterans and horses undergo 8 week EEA/T at Serene View Ranch.
- Group 3: Four Veterans and horses undergo 8 week EEA/T at Serene View Ranch.
- Group 4: Four Veterans and horses undergo 8 week EEA/T at Serene View Ranch.
- Data analysis is ongoing, with data analysis to take place from January 2021 until January 2022.

Manuscript writing and the presentation of findings is anticipated to take place from February to June 2022.

3. Budget: budget expenditures to date and remaining budget items listed, with any changes from the original application noted and explained. Variance of more than 5% needs HHRF approval

Budget expenditures to date (see response to #5)

Remaining budget items:

Personnel salaries: Students have been hired this summer to assist in further data analysis; therefore, funds will be used for their assistance. The laboratory technician is continuing to submit hours.

Laboratory supplies -ongoing analysis of biological samples

Equipment: Speed Vac vacuum concentrator

Changes from original application: On June 6, 2020 I submitted a proposed update on the project timeline as a result of disruption due to COVID 19, and an update on the changes to the budget (both are attached). These changes were approved. Since then, we were very fortunate to have a student interested in being involved in the research project as an Honours' Thesis project and a student interested in volunteering to assist in data collection in order to gain research experience. These students provided much needed hands on help collecting data and initiated data analysis of two cohorts. This resulted in some savings which will be reflected in the budget update from accounting. Due to the fact that there were no Animal Health Technologists available to hire on PEI as indicated in the previous update, I did much of the equine data collection myself. This also resulted in unexpected savings. Because of our frugal approach to this project, we would like to use spare funds to purchase a vacuum concentrator device which will enable us to expedite the processes related to analysis of biological samples (quote attached). I propose to use \$7500 from personnel and \$7500 from consumables. This equipment will substantially decrease technician time due to improved efficiency of laboratory techniques.

4. Summary of any complications or challenges that have been encountered and how they have been or are being addressed.

The major challenge was interruption of in person EFP sessions and data collection due to COVID 19 restrictions in the province. At the time I submitted a letter (attached) as an update of the HHRF project and considering this major interruption requested an extension to the timeline which was granted.

5. Invoice signed by grant manager for expenses incurred (up to 50% of grant award) (attached)