**Cover Page for ClinicalTrials.gov**

Official Title of the Study:

Trauma-Focused Equine-Assisted Therapy (TF-EAT) for Veterans With PTSD

NCT Number:

NCT03068325

Principal Investigator:

Yuval Neria, PhD

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646-774-8041

Date of Document:

February 9, 2022

**Statistical Analysis Plan**

The Little MCAR (missing completely at random) test on total scores for the CAPS-5, PCL-5, HDRS, and BDI-II from each time point following the baseline assessment (i.e., midpoint, posttreatment, and follow-up analysis) will be used to test whether data is missing at random.

In line with previous open-trial studies exploring novel psychotherapies for different psychopathologies, we will use an intent-to-treat analysis, thereby enabling data analysis for all 63 patients. Provided that missing data is minimal and missing at random, we will conduct the intent-to-treat analysis with full information maximum likelihood (FIML), a gold standard approach to handling missing data. In addition, we will repeat analyses for patients who complete assessments at all four time points. Treatment effects will be explored using a repeated-measures analysis of variance (ANOVA) with time (pretreatment, midpoint, posttreatment, and follow-up) as a within-subjects factor. Post hoc tests using the Bonferroni correction will be used to compare the different time points. All statistical tests will be 2-sided, using $\alpha \leq .05$. Effect sizes will be reported using $\eta 2p$ and Cohen *d* when appropriate.

Protocol Title:
**Trauma-Focused Equine-Assisted Treatment (TF-EAT) for Veterans with PTSD**

Version Date:
**02/09/2022**

Protocol Number:
**7232**

First Approval:
**03/11/2016**

Expiration Date:
**02/21/2023**

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**John Markowitz, MD**
**Prudence Fisher, PHD**

Research Chief:
**Helen Simpson, MD**

## Cover Sheet

Choose ONE option from the following that is applicable to your study
If you are creating a new protocol, select "I am submitting a new protocol." As 5 Year Renewals are no longer required, this option remains for historical purposes.
I am submitting an annual continuation without modifications

## Department & Unaffiliated Personnel

### Department

What Department does the PI belong to?
Clinical Therapeutics
Within the department, what Center or group are you affiliated with, if any?
Anxiety Disorders Clinic

### Unaffiliated Personnel

List investigators, if any, who will be participating in this protocol but are not affiliated with New York

State Psychiatric Institute or Columbia University. Provide: Full Name, Degrees and Affiliation.

Allan Hamilton, MD
Jane Hamilton, PhD
Anna Gassib

## Application for Continuation of Research

### Status

Current Status of Study:
All research interventions were completed. Only data analysis is ongoing.

### Summary of Experiences to Date

Please provide a summary of scientific progress of the study and the experience of research participants, to date. This requirement is designed to allow for the investigator and the IRB to reassess the study's risks and benefits in terms of developments in the field, changing practice patterns, and new IRB policies and procedures.
71 patients with Posttraumatic Stress Disorder (25 females, 46 males) were enrolled. Of the enrolled patients, 8 were enrolled as part of the pilot phase, and 63 were enrolled as part of the trial, which has since concluded active enrollment. No serious adverse events occurred. One paper has been published since last year (Fisher, P. W., Lazarov, A., Lowell, A., Arnon, S., Turner, J. B., Bergman, M., Ryba, M., Such, S., Marohasy, C., Zhu, X., Suarez-Jimenez, B., Markowitz, J.C., & Neria, Y. (2021). Equine-Assisted Therapy for Posttraumatic Stress Disorder Among Military Veterans: An Open Trial. *The Journal of Clinical Psychiatry*, *82*(5), 36449.). Analysis of the data is ongoing.

### Funding

Have there been any changes in funding status since the prior approval?
No
Have the principal investigator and other investigators made all required disclosures of financial interest in the study sponsor/product?
Yes

### Summary

Have there been any study findings, recent literature, or untoward events occuring here or at other sites in the past year which might affect the analysis of the safety, risks or benefits of study participation?
No
Have there been any serious adverse events (serious and/or unanticipated problems involving risks to subjects or others at this site which occured in the past year)?
No

Have all study staff with a significant role in the design or implementation of the human subject components of this study received required training in human research subject protections?
Yes
Is the study covered by a certificate of confidentiality?
No

## Overall Progress

Approved sample size
73
Total number of participants enrolled to date
71
Number of participants who have completed the study to date
64
Have there been any significant deviations from the anticipated study recruitment, retention or completion estimates?
No
Comments / additional information

## Sample Demographics

Specify population
Veterans
Total number of participants enrolled from this population to date
71
Gender, Racial and Ethnic Breakdown

Gender:
Male: 36 (65%)
Female: 25 (35%)

Race:
Black/African American: 34 (48%)
White: 22 (31%)
Asian: 23 (32%)
American Indian/Alaskan: 2 (3%)
Mixed: 2 (3%)
Other: 5 (7%)
Unknown: 3 (4%)

Ethnicity:
Hispanic: 20 (28%)
Non-Hispanic: 51 (72%)

### Summary of Current Year's Enrollment and Drop-out

Number of participants who signed consent in the past year
0
Did the investigator withdraw participants from the study?
No
Did participants decide to discontinue study involvement?
No

## Procedures

**To create the protocol summary form, first indicate if this research will include any of the following procedures**

✓ Collection of Biological Specimens
✓ MRI
✓ Audio or Videotaping

## Population

**Indicate which of the following populations will be included in this research**

✓ Adults
✓ Adults over 50

## Research Support/Funding

Will an existing internal account be used to support the project?
No
Is the project externally funded or is external funding planned?
Yes
Select the number of external sources of funding that will be applicable to this study

### Funding Source #1

Is the PI of the grant/contract the same as the PI of the IRB protocol?
No
Who is the PI of the grant/contract?
Fisher, Prudence, PHD
Select one of the following
The grant/contract is currently funded
Source of Funding

Foundation
Sponsor
Mack Foundation
Select one of the following
Single Site
Business Office
RFMH
Does the grant/contract involve a subcontract?
No

## Study Location

Indicate if the research is/will be conducted at any of the following
✓ NYSPI
This protocol describes research conducted by the PI at other facilities/locations
Yes
✓ Other Facilities

### Other Facilities

Type in location(s)

Bergen Equestrian Center

## Lay Summary of Proposed Research

Lay Summary of Proposed Research
This pilot study seeks to examine feasibility, acceptability, safety, and preliminary efficacy of trauma-focused Equine-Assisted Therapy (EAT) for veterans and military servicemembers with posttraumatic stress disorder (PTSD). While several well-studied, validated treatments for PTSD exist, some individuals find these treatments ill-suited, ineffective, or undesirable. EAT is an alternative therapy widely used by organizations, such as PATH International Equine Services, that endorse its effectiveness for treating a variety of mental health issues. These claims have drawn criticism because the published research contains glaring methodological flaws, making it difficult to assess how effective these therapies actually are (Anestis et al., 2014). Equine-assisted therapies present a unique treatment modality that might effectively treat PTSD, particularly for individuals who have difficulty with other treatment modalities. In EAT, a psychotherapist and equine specialist work together to help the patients negotiate interactions with a horse using structured interventions or activities. EAT has only recently begun to be studied in populations with PTSD, but shows promise. In a six week open, non-manualized trial for 16 civilians with PTSD, Earles et al. (2015) examined a structured EAT approach called Equine Partnering Naturally© for treating PTSD, finding a significant reduction in PTSD symptoms post treatment. The authors propose that EAT may be an effective technique for treating PTSD symptoms. Other limitations aside, this study does not address a

significant proportion of the potential treatment population for treatment of PTSD with EAT, namely military veterans and servicemembers.

This pilot study aims: (1) to create and test a trauma-focused EAT manual; (2) to examine feasibility of EAT for military veterans with PTSD; (3) to examine the acceptability of and satisfaction with EAT for both patients and treatment providers; and (4) to examine both the physical safety (risk of injury from equine interactions) and psychological safety (potential adverse response) of a group equine-related treatment, 5) to explore the possibility of neural changes among treated patients by collecting pilot multimodal (structural, functional) magnetic resonance imaging (MRI) data before and after treatment.

The sample will consist of veterans and servicemembers with PTSD (n=48) who have been assessed through the Columbia Veterans Research Center (IRB #7218), or preferred to be screened directly as a response to advertisement. In Phase 1, aiming to finalize the EAT manual, 8 veterans and servicemembers will be treated in 2 groups of 4 veterans each. Participants will be evaluated at baseline, at treatment mid-point (week 4), and at the end of treatment.
In Phase 2, where the EAT manual will continue to be evaluated, the remainder of the sample (n=40) will be treated in 6-8 groups (4-6 veterans each). Participants will be evaluated at baseline, at treatment mid-point (week 4), at end of treatment (week 8), and at three-month follow-up by independent evaluators. Additionally, patients will be scanned at baseline and end of treatment. Structural MRI scans will be performed to quantify regional brain volumes and cortical thickness, and resting state fMRI will measure functional connectivity within hippocampal networks.

## Background, Significance and Rationale

Background, Significance and Rationale
Posttraumatic stress disorder (PTSD) is a debilitating disorder highly prevalent among military veterans and servicemembers. It is defined by a fearful response to traumatic events, and involves re-experiencing, hyperarousal, and avoidance of reminders of the traumatic events. While some widely practiced therapies have demonstrated efficacy for treating PTSD, for instance Prolonged Exposure therapy (PE), alternative treatment modalities offer opportunities for individuals who either do not wish to try or do not benefit from empirically validated therapies. However, alternative treatments often lack rigorous empirical justification of their treatment efficacy.

Equine-Assisted Therapy (EAT) is an alternative treatment practiced across the United States. EAT uses the horse as a therapeutic tool in an experientially-oriented therapy. Horses are thought to somewhat resemble humans in their behavior, particularly in social contexts (Schultz et al., 2007). In EAT, a psychotherapist and equine specialist work together to help the patient negotiate interactions with a horse using structured interventions or activities. Selby and Smith-Osborne (2013) note that horses bring specific attributes to the therapeutic environment including patience, receptiveness, and cooperation. A horse is a prey animal that is naturally skittish. Precisely because of their difference in size and strength, but similarity in sensitivity and reactivity to others, working with horses represents a holistic experience for patients who are themselves anxious.

EAT may offer some veterans and servicemembers with PTSD an opportunity to receive treatment in a less

traditional format, possibly decreasing treatment attrition relative to prevalent exposure-based treatments, while maintaining a treatment structure similar to established therapies (e.g., a regular schedule). While more traditional psychotherapies have demonstrated efficacy in treating PTSD, not all individuals respond well to these treatments. Although a small body of literature describes equine-related treatment (ERT), a recent review by Anestis et al. (2014) identified numerous critical methodological problems and conflicts of interest in prior ERT research. The current study hopes to address some of these limitations. No developed treatment manuals exist. Studies have not necessarily distinguished between EAT and therapeutic horse riding (THR). Treatment fidelity has been absent: there are no references to supervision, and there has been no clear manualization of the treatment being used. Further, most studies to date have used as outcome measures quality of life indices (sometimes only self-reported) rather than clinical measures such as the Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995). Thus despite claims of ERT effectiveness for PTSD, and some studies that have included individuals with PTSD, the extant research suffers from methodological flaws that confound interpretation of the data. Only very recently has any published research addressed EAT and PTSD, with the researchers claiming its "efficacy" based on a small open trial (Earles, Vernon, & Yetz, 2015). The current study will focus specifically on military veterans and servicemembers with PTSD, a group never studied in the context of ERT at all. The study aims to develop a trauma-specific, manualized treatment for EAT.

## Specific Aims and Hypotheses

Specific Aims and Hypotheses

In this pilot study we will further develop the TF-EAT intervention and determine whether research methods (evaluation interviews, assessment measures, videotaping procedures etc.) are acceptable to participants. An open trial of this intervention and the draft manual will be finalized in Phase 1 and evaluated in Phase 2. Specifically, we will focus on issues such as session length, appropriateness of the "content" for treatment of PTSD, ordering of session content, adherence to the intention of the manual of the equine therapeutic team (based on observations made during supervision and feedback from the consultants), and will detail logistics of data collection and how best to record the sessions (camera angles, etc.). We will conduct 2 groups of 4-6 participants for Phase 1 and 6 groups of 4-6 participants for Phase 2.

## Description of Subject Population

### Sample #1

Specify subject population
Veterans
Number of completers required to accomplish study aims
60
Projected number of subjects who will be enrolled to obtain required number of completers

70
Age range of subject population
18-75

Gender, Racial and Ethnic Breakdown

Gender:
10% female
90% male

Ethnicity:
15% Hispanic
60% White
15% African-American
10% Other.

Description of subject population
All patients will have DSM-5 diagnosis of PTSD. The expected sex and ethnicity distributions are based on population data drawn from the VA.

## Recruitment Procedures

Describe settings where recruitment will occur
Anxiety Disorders Clinic
How and by whom will subjects be approached and/or recruited?
Patients will respond to an advertisement (see below" study advertised/ publicized"). Patient will call the clinic and after verbal is obtained consent the research assistant (RA) will conduct a preliminary phone screen that is part of a preexisting screening protocol (IRB # 7094R). If the patient will be eligible for the study the RA will invite him for further screening at the clinic. Current or prospective patients of the Columbia Veterans Research Center (IRB #7218) may also be referred for this treatment study as appropriate.
How will the study be advertised/publicized?
Potential subjects will be informed of the study through: (a) referrals from the Department of Veteran Affairs, (b) word-of-mouth referrals from former subjects, (c) referrals from area medical and mental health professionals, (d) publicity about the study, including articles in local newspapers and magazines, our IRB-approved website (http://columbiapsychiatry.org/ptsd), IRB approved flyers, appearances on local radio and television shows, etc., leading to self-referral of prospective subjects, (e) advertisements placed in local media and on the Internet. (f) Attendance by study personnel at local veterans' events.
Do you have ads/recruitment material requiring review at this time?
Yes
Does this study involve a clinical trial?
No

## Concurrent Research Studies

Will subjects in this study participate in or be recruited from other studies?
Yes
Describe concurrent research involvement
Participants may be recruited from the Columbia Veterans Research Center (IRB #7218), as well as other studies concerning PTSD conducted through our department as appropriate, such as Neural Signature of Trauma (IRB #7136).

## Inclusion/Exclusion Criteria

Name the subject group/sub sample
Veterans
Create or insert table to describe the inclusion criteria and methods to ascertain them

| Inclusion criteria: | Method of Ascertainment: |
|---|---|
| 1. Between ages of 18 and 75 | History |
| 2. Current DSM-5 diagnosis of PTSD as determined by a) full criteria met on CAPS-4, and b) clinical assessment | SCID, CAPS-4, Clinical Assessment |
| 3. CAPS-4 score equal to or greater than 50 | CAPS-4 administration |
| 4. Able to give consent, fluent in English. | Clinical assessment, Clinical judgment |
| 5. Prior military experience | History, Columbia Veterans Research Center Background Information Questionnaire |
| 6. MMSE score equal to or greater than 24 (for participants over 60 years of age) | MMSE administration |

Create or insert table to describe the exclusion criteria and methods to ascertain them

| Exclusion criteria: | Method of Ascertainment: |
|---|---|
| 1. History of psychiatric diagnosis of psychotic disorder, unstable bipolar disorder. | SCID (including personality disorder modules) and clinical evaluation |
| 2. Elevated depression of clinical concern and/or score of >25 on the Hamilton Rating Scale for Depression (HAM-D-17-item). | Clinical assessment, HAM-D 17 and BDI-II. All cases of PTSD and comorbid depression will be reviewed by PI and clinician for exclusion |

| | |
|---|---|
| | determination. |
| 3. At elevated risk for suicide based on history and current mental state. | Psychiatric history; clinical assessment, Columbia Veterans Center Suicide Risk Assessment and Screener; score >2 on item 3 of Hamilton Depression Scale, and/or suicide item endorsed on BDI-II. |
| 4. History of substance/alcohol use disorder at severe level within the past six months, and current diagnosis of substance/alcohol use disorder at a moderate level within past two months | History, SCID |
| 5. Fear of horses or other large animals | Phone screen, clinical assessment |
| 6. Orthopedic or other physical conditions and/or limitations that prevent people from walking unassisted and/or walking freely in the ring | Phone screen, clinical assessment |
| 7. Having contraindication to magnetic resonance imaging (MRI) scanning (such as metal in body) or unable to tolerate the scanning procedures. (MRI only) | Phone screen, clinical assessment, MRI screening questionnaire |
| 8. Acute, unstable, or severe medical disorder. (MRI only) | Phone screen, clinical assessment |
| 9. Pregnancy, or plans to become pregnant during the period of the study. (MRI only) | Clinical assessment, Urine β- HCG for women of childbearing potential on each day of fMRI |
| 10. Significant claustrophobia that would preclude ability to remain calm within the MRI scanner | Phone screen, history |
| 11. Cardiovascular disease (e.g. congestive heart failure, heart arrhythmias, sinus bradycardia, and greater than a first degree block; for participants over 60 years of age) | EKG |

## Waiver of Consent/Authorization

Indicate if you are requesting any of the following consent waivers
Waiver of consent for use of records that include protected health information (a HIPAA waiver of Authorization)
No
Waiver or alteration of consent
No
Waiver of documentation of consent
No
Waiver of parental consent
No

## Consent Procedures

Is eligibility screening for this study conducted under a different IRB protocol?
Yes
Indicate NYSPI IRB #
7094R, 7218
Describe Study Consent Procedures
Patient will meet face to face with a person that is authorized to discuss and document consent (see "person designed to discuss and document consent"). After patient reads the consent the clinician will go over the consent with the patient and answer all the patient's questions. After answering all the patient's questions by the clinician patient will sign the study consent. Throughout this process, the patient will be told that they are free to refuse to participate in the research and that participation or non-participation in research has no effect on their ability to continue to receive clinical care or services. Patients who chose not to participate in this study are still eligible for treatment in the Columbia Veterans Research Center (IRB #7218). Patients will also be asked to sign a standard liability waiver provided by the Bergen Equestrian Center (Attached).
Indicate which of the following are employed as a part of screening or main study consent procedures
✓ Consent Form

## Persons designated to discuss and document consent

Select the names of persons designated to obtain consent/assent
Fisher, Prudence, PHD
Markowitz, John, MD
Neria, Yuval, PHD
Type in the name(s) not found in the above list
Maja Bergman, MA

## Study Procedures

Describe the procedures required for this study
As shown in the study overview flow chart below, the study comprises the following procedures: 1) eligibility assessment; 2) assessment visit; 3) treatment (during which there will a separate (additional) meeting with an IE at baseline and week 4); 4) end of treatment assessment; 5) follow up assessment (3 months after treatment end). As follows:

Flow Chart of Study Procedures

| | | | | |
|---|---|---|---|---|
| Visit 0: Eligibility Assessment | Visit 0.5: Assessment (and first MRI scan for eligible subjects) | Weeks 1-8: Once weekly Trauma-modified Equine-assisted therapy. These visits will last 90 minutes and take place at the equine facility. | Visit 8: End of treatment arm (and second MRI scan for eligible subjects) | Visit 10: 3 month follow up assessment |
| Clinical assessment, Informed Consent, SCID & CAPS 4 and CAPS-5, Patient Treatment Log MMSE for participants over 60 years of age, TBI ID for MRI subjects, EKG for MRI subjects over 60 years of age, Interview, self-report measures. | Informed consent, self-report measures. For MRI subjects:1.25 hr scan | Between treatment visits 4 and 5 participants will complete self-ratings and IE will administer clinical ratings at NYSPI (CAPS-4 and CAPS-5, HAM-D 17, CGI, Patient Treatment Log) | Independent evaluator and self-ratings (1.5 hrs.) For MRI subjects:1.25 hr scan | Independent evaluator and self-ratings (1.5 hrs.) |

Table 1. Flow Chart of Assessments for Study Participants

| | Wk 0 | Wk .5 | Wk 1 | Wk 2 | Wk 3 | Wk 4 | Wk 4.5 | Wk 5 | Wk 6 | Wk 7 | Wk 8 | Wk 8.5 | Wk 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clinical Assessment | x | | | | | | | | | | | | |
| SCID | x | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HAM-D 17 | x | | | | | | x | | | | | x | x |
| LEC-5 | x | | | | | | | | | | | | |
| CAPS-4 | x | | | | | | x | | | | | x | x |
| MMSE | x | | | | | | | | | | | | |
| TBI ID | x | | | | | | | | | | | | |
| Informed Consent | | x | | | | | | | | | | | |
| CAPS-5 | x | | | | | | x | | | | | x | x |
| Patient Treatment Log | x | | | | | | x | | | | | x | x |
| ADC Demographics | x | | | | | | | | | | | | |
| CVC Background Information Questionnaire | x | | | | | | | | | | | | |
| CGI-severity | x | x | x | x | x | x | x | x | x | x | x | x | x |
| CGI-change | x | x | x | x | x | x | x | x | x | x | x | x | x |
| PCL-5 | x | | | | | | x | | | | | x | x |
| BDI | x | x | | | | | x | | | | | x | x |
| SAS | | x | | | | | x | | | | | x | x |
| Q-LES-SF | | x | | | | | x | | | | | x | x |
| SF-12 | | x | | | | | x | | | | | x | x |
| FAD | | x | | | | | | | | | | | |
| M2C-Q | | x | | | | | | | | | | | |
| CSQ-8 | | | x | | | x | | | | | x | | |
| Credibility/Expectancy Q | | | x | | | x | | | | | x | | |
| POMS | | | x | x | x | x | | x | x | x | x | | x |
| CTQ | | x | | | | | | | | | | | |
| GAD-7 | x | | | | | | x | | | | | x | x |
| CVC Suicide Risk Assessment and Screener | x | | | | | | x | | | | | x | |
| DRII-2 | x | | | | | | | | | | | | |
| VATBIST | x | | | | | | | | | | | | |
| CAGE-AID | x | | | | | | | | | | | | |

4.A1. Preliminary Screening: Potential subjects will be screened by telephone by a research assistant after obtaining oral consent.
Eligibility Assessment: Potential participants deemed as likely study eligible following preliminary screening will sign the Anxiety Disorders Clinic informed written consent for the initial evaluation (IRB # 7049R) and undergo assessment as per the Columbia Veterans Research Center protocol (IRB#7218). As

part of this protocol, an experienced clinician will evaluate presenting symptoms, psychiatric history, treatment history, medical history, military history, trauma history, social and family history, and current medical status. Participants will also complete a battery of self-report measures, including measures utilized by the Columbia Veterans Research Center as part of diagnostic and history assessment (30 minutes). In addition, a trained research team member will administer the Clinician-Administered PTSD scale (CAPS-4 and 5), structured clinical interview for DSM-5 (SCID), HAM-D 17, Patient Treatment Log, the TBI ID for subjects considering MRI participation, and the Mini Mental State Exam for participants over 60 years of age. An EKG will be administered to participants over the age of 60 who are considering MRI participation. These interviews will determine whether individuals meet inclusion criteria have been met. Finally, a urine sample will be collected from female subjects who appear to be eligible to participate in the MRI scans to test for pregnancy.

4.A2. MRI Scanning: For the MRI procedures, the subject will be instructed to lie as still as possible within the magnet for approximately 45 minutes. When we position a subject in the scanner, head movement will be minimized through: (a) instructions to the participant; and (b) packing the head inside the head coil with a system of foam padding and pillows that we have found is well-tolerated by the participants, yet limits movement. All precautions and protections will be given to the participant to ensure that they are as safe and comfortable as possible. For the participant's comfort within the scanner, they will lie on a padded table with a pillow to rest their heads on. A blanket will also be provided to keep subjects warm during the procedure.

fMRI Scan
For all subjects eligible to undergo fMRI scanning, there will be two fMRI sessions. MRI scans will be performed in the NYSPI 3.0T GE scanner. The scanning session will last approximately 45 minutes, with an additional 30 minutes total for set-up . subjects will have a urine pregnancy test on the day of the MRI scan, before being scanned. Thus, the fMRI session lasts about 1 hr and 15 minutes .

MRI Results
If the neuroimaging studies reveal significant deficit or an emergent and previously undiagnosed medical condition, this information will be discussed with the participants and transmitted to their physician.

The same procedure will be used for Phase 1 (finalizing manual) and Phase 2 (evaluating manual).

4.A.3. Treatment:
Group treatment sessions will be carried out at the Bergen Equestrian Center, NJ (EAT). The research team will provide transportation to the equestrian center, although some participants may choose to provide their own transportation to the sites. Participants who choose to have the research team provide transportation will be driven to and from the site in an NYSPI van driven by one of the researchers involved in the protocol. Treatment sessions will be videotaped to ensure integrity to the treatment manual under development.

4.A.3.1 Trauma-focused equine-assisted therapy (TF-EAT)
Elements of the treatment include psychoeducation about PTSD and a variety of activities with the horses

such as Exposure & Disclosure, Support & Education, Stress inoculation, Cognitive processing & restructuring, Countering avoidance & distortions. Participants in the therapy DO NOT RIDE the horses**;** all work with the horse is done from the ground. In each session the group meets to discuss thoughts about the previous week, new issues, and issues to be worked on. Subjects then undertake a series of interactions with a horse as well as checking in with the therapist between activities**.** These activities include grooming the horse and moving the horse without forcing it to move. Each week the activities become more elaborate, terminating with the subject completing a series of maneuvers with the horse.
A manual is being drafted to provide clear structure for the course of treatment (this manual is under development with consultations from Allan Hamilton, MD and Jane Hamilton, PhD). The Drs. Hamilton direct the Rancho Bosque Equine Center, where they administer EAT among other therapy groups.
The first two groups to complete the treatment will be used to further specify the treatment protocol. The manual will be modified based on feedback received from patients and therapists regarding how well the manual captures the intended treatment. This will be a group treatment delivered by one licensed mental health therapist, one EAGALA*-certified "equine" trained person**,** and two (or three) horses that have been used for equine therapy. There will be one horse per two participants. For each horse, we will have one (or more) team members, experienced with horses. Thus, for a group of six participants, we will have an extra "horse" person ("wrangler") in the ring/pen to ensure safety. (We will forward a copy of the manual to the IRB when a more complete draft has been prepared). All sessions will be videotaped.
*EAGALA (Equine Assisted Growth and Learning Association) (www.EAGALA.org) is the leading international nonprofit association for professionals incorporating horses to address mental health and personal development needs. The organization provides guidelines, training and certification for equine therapists in the "EAGALA Model" which has four tenets: 1. Team approach (Licensed therapist and equine therapist and horse), 2. Focus on ground (NO RIDING), 3. Solution Oriented (problem solving): 4. Code of Ethics.

4.A.4. Feedback Protocol
Feedback will be gathered from participants through two methods. First, two self-report questionnaires, the Client Satisfaction Questionnaire (CSQ-8) and the Credibility/ Expectancy Questionnaire, will be administered during treatment sessions 1, 4, and 8 to ascertain whether participants feel the treatment meets their needs and if they believe it is helping to alleviate their symptoms. Second, upon completing the treatment, a researcher will interview participants to gather feedback on their overall experience in the treatment. These interviews will be audiotaped and used in combination with the CSQ-8 and Credibility/Expectancy Questionnaire to inform modifications to the treatment. Staff members will also interview therapists post treatment to gather feedback on their perceived efficacy of the intervention. These interviews will also be audiotaped and used to inform decisions on modifying the intervention.

4.A.5. Therapists and adherence to protocol:
For equine therapy, Therapists (MD or PhD level, or Masters level for social workers) will be trained and supervised weekly, by Drs.Prudence Fisher, Ari Lowell, and Jane Hamilton (consultant). Horse handlers will be trained and supervised by Dr. Allan Hamilton. Dr. Hamilton is an equine expert with significant experience in developing EAT exercises and training horses for use in EAT. Drs. Jane and Allan Hamilton will view videotapes of sessions and midway through the project make a quarterly farm visit in person to ensure adherence.

4.A.6. Termination Procedures

Drs Neria, Fisher and Markowitz, in consultation with treating clinicians, will review all currently enrolled patients in treatment in a weekly meeting. Patients may be removed from the study upon:
1. Requests to withdraw from the study.
2. Elevated level of distress, for PTSD patients demonstrated by a score of 6 or higher on the weekly CGI for two consecutive weeks, unless the distress is due to an acute transient event (to be evaluated by treating clinician, and the PI). The CGI will be administered to consider both PTSD and Depression symptomatology.
3. Non-improvement in PTSD at week 4, as measured by the CGI-I at the level of 4 (no improvement) or higher.
4. Significant suicidal ideation, as assessed by the clinician and/or by the HAM-D-Item 3 and/or the BDI suicide item and/or the CVC Suicide Risk Assessment and Screener.
5. Clear-cut deterioration in social or occupational functioning as assessed by the clinician.
6. Non-compliance with protocol requirements.
7. New or inter-current illness that prevents the patient from complying with the protocol.
Upon termination from this study, patients may be offered alternative treatment within the Columbia Veterans Research Center (IRB #7218). Patients removed from treatment due to elevated suicide risk will be assessed by Columbia Veterans Research Center MD/PhD clinicians and provided with immediate assistance as appropriate.

You can upload charts or diagrams if any

## Blood and other Biological Samples

Please create or insert a table describing the proposed collection of blood or other biological specimens
All labs will be collected under the screening protocol (IRB #7094R). A urine sample will be collected for pregnancy tests at the initial evaluation and prior to the MRI scans for female participants.

## Assessment Instruments

Create a table or give a brief description of the instruments that will be used for assessment
SCID (90 minutes at screening)
Beck Depression Inventory (10 minutes)
Clinical Global Impression – Severity Scale (CGI-S) (5 minutes)
Clinical Global Impression – Change Scale (CGI-S) (5 minutes)
Clinician Administered PTSD Scale (CAPS-4) (30 Minutes)
Clinician Administered PTSD Scale (CAPS-5) (30 Minutes)
PTSD Checklist (PCL-5)
Hamilton Rating Scale for Depression (Ham-D 17) (10 minutes)
Mini Mental State Exam (MMSE)
Quality of Life (SF-12) (10 minutes)
Family Assessment Device (FAD) (15 minutes)
Client Satisfaction Questionnaire (CSQ-18/CSQ-8)
Credibility/Expectancy Questionnaire

M2C-Q
Life Events Checklist (LEC-5)
POMS
Q-LES-Q-SF
SAS
Childhood Trauma Questionnaire (CTQ) (5 minutes)
CAGE-AID Questionnaire (CAGE-AID) (5 minutes)
Columbia Veterans Center Background Information Questionnaire (5 minutes)
Columbia Veterans Center Suicide Risk Assessment and Screener (10 minutes)
Deployment Risk and Resilience Inventory (DRRI-2) (20 minutes)
Generalized Anxiety Disorder 7-Item (GAD-7) (5 minutes)
VA Traumatic Brain Injury Screening Tool (VATBIST) (5 minutes)
Anxiety Disorders Clinic Demographic and Clinical Information (5 minutes)
Traumatic Brain Injury Identification Method (TBI ID) 5 minutes
Clinician Administered Patient Treatment Log (5 minutes)

Please attach copies, unless standard instruments are used

## Research Related Delay to Treatment

Will research procedures result in a delay to treatment?
Yes
Maximum duration of delay to any treatment
We are not excluding veterans who are currently in treatment, so for these there will be no delay in treatment. For veterans who are not in treatment, the maximum delay to treatment provided in the study is 6 weeks. This allows time to recruit enough participants to create groups. All patients will have access to treating clinicians through the Columbia Veterans Research Center (IRB #7218) for any emergent clinical issue. If a delay in treatment extends to four weeks we will offer alternative treatment within the Columbia Veterans Research Center (IRB #7218).
Maximum duration of delay to standard care or treatment of known efficacy
The maximum delay before active treatment of known efficacy is offered will be 10 weeks: two weeks for assessments and eight weeks for treatment visits.
Treatment to be provided at the end of the study
Treatment will be provided through the Columbia Veterans Research Center (IRB #7218). Participants will be referred for further treatment as needed.

## Risks/Discomforts/Inconveniences

Risks that could be encountered during the study period

Interviews/assessments: Some subjects may find the interviews and assessment anxiety provoking or upsetting.

Trauma-Focused Equine-Assisted Therapy: (1) Patients may become distressed by the discussion of sensitive or painful material or by the experience of strong emotions during treatment. Some patients may find psychotherapy embarrassing or anxiety-provoking, whether or not the treatment presses them to confront reminders of past traumas. A risk of this treatment is that it may be ineffective and that patients may not improve or even worsen. (2)Horses are physically strong and have the potential to cause bodily harm if safety precautions and instructions are not followed during equine encounters.

Videotaping: Some patients may feel uncomfortable about the treatments being videotaped (necessary for supervision and treatment integrity checks). However, this will be a required procedure.

Audiotaping: Some patients may feel uncomfortable about the treatment sessions being audiotaped (necessary for supervision, integrity checks, and feedback following completion of the study). However, this will be a required procedure.

MRI Scanning: MRI scanning is not associated with any known medical risks, except for persons who have a heart pacemaker or have metal in their body (e.g. shrapnel or surgical prostheses) which may be affected by the magnet. Some people have reported sensations during MRI scans with the 1.5T magnet, such as "tingling" or "twitching" (or, very rarely, a painful sensation), which are caused by changes in the magnetic field. The MRI scanner also produces a loud noise. Some subjects become anxious and feel claustrophobic in the MRI scanner. Women of child-bearing age will be required to have a pregnancy urine test at the time of medical screening and on the day of the MRI scan. For women of child-bearing age, it will also be asked and it will be documented that they responded negatively (or procedure will not occur) to questioning on the MRI day (before the procedure is initiated) whether it is possible they may have become pregnant in the prior two week period.

Describe procedures for minimizing risks

Interviews/assessments: Subjects will be informed that they may choose not to answer specific questions, and may stop the interview at any time if they are feeling uncomfortable. Trained evaluators will be sensitive to patient vulnerabilities, and every effort will be made to ensure patients' comfort.

All participants will be assessed with the HAM-D 17, and the BDI-II at intake, treatment mid-point (week 4), and end of treatment (week 8), and at a 3-month follow-up. Participants will be assessed with the BDI-II at baseline as well and with the Columbia Veterans Center Suicide Risk Assessment at intake, treatment mid-point (week 4), and end of treatment (week 8). Any indication of elevated suicide risk during treatment will prompt an immediate discussion between the clinical and therapeutic teams, and clinical evaluation. If a participant is deemed to be at greater than minimal risk at any point during treatment, the following steps will be considered:

- Provision of contact information for emergency services (911, Anxiety Disorders Clinic pager, Veterans Crisis Line, NYC Mobile Crisis Team)
- Scheduling with ADC MD as soon as possible
- Completion of Safety Plan, copy of which is kept by patient
- Discussion of removal of means, including firearms

• Removal from current protocol and enrollment within alternative treatment through the Columbia Veterans Research Center (IRB# 7218)
For those at high risk, the following will be considered based on clinical judgment:
• Referral to a high risk treatment program
• Emergency room (voluntary)
• Emergency room (involuntary)

HAM-D 17 Scores between 15-25 at the eligibility assessment will prompt a clinical evaluation to address whether or not the patient is sufficiently stable to delay treatment for depression in order to participate in the study. If it is determined by the clinician that it would not be appropriate for the patient to participate in the study due to elevated levels of distress that warrant more immediate attention, the patient will be referred for empirically-validated treatment for depression within the Columbia Veterans Research Center (IRB #7218) (e.g. SSRI). Patients who are referred for immediate treatment may be offered the opportunity to be re-evaluated for study participation at a later date as warranted.

Trauma-Focused Equine-Assisted Therapy: (1) Therapists experienced in treating PTSD patients will assess this distress continually as part of treatment and will ask for additional evaluations or PI intervention when clinically appropriate. Every effort will be made to insure patients' comfort during treatment, and patients will be withdrawn if needed. (2) Risk will be minimized in two ways: first, through careful monitoring and handling of horse behavior during treatment sessions by trained horse handlers and assistants. Second, horses will not be ridden at any point during the treatment, horse riding carries a greater risk of injury than interacting with horses on the ground.

Videotaping: The purpose of the videotaping will be explained, confidentiality will be respected, and tapes will be erased after the spot checks or following supervision. Informed consent for taping will be obtained.

Audiotaping: The purpose of the audiotaping will be explained, confidentiality will be respected, and tapes will be erased after the spot checks or following supervision. Informed consent for taping will be obtained.

MRI Scanning: Patients participating in the MRI scans will be screened by interview and questionnaire to determine the presence or absence of metallic objects, and informed that they cannot participate in the study if their body contains any paramagnetic metal other than standard dental work. Staff will be available for help and support if the subject feels anxious or claustrophobic in the MRI scanner and can stop the scan at the subject's request. To reduce noise discomfort earplugs will be provided.

Other Procedures for Minimizing Risk:
1) Careful medical and psychiatric screening to identify patients for whom risk for potential adverse effects are elevated. Such patients will be excluded from the study. In such cases clinicians will follow the protocol for minimizing risks during interviews and assessments described above.
2) Patients with any of the following will be removed from research and treated openly or as clinically indicated: a) the occurrence of assaultive or illegal behavior; b) the occurrence of active suicidal ideation at any point during the trial as assessed by clinical interview; c) behaviors while intoxicated that are a danger to self or others.
3) Inclusion of psychoeducation about PTSD, the treatment process and memory triggers within the therapeutic framework.

4) Careful monitoring of patients during pretreatment and study participation by experienced clinicians. Patients will see the same clinicians for each of their treatment visits.
6) Ability to remove any patient from the study who evidences significant clinical deterioration during treatment. Provisions will be made for appropriate clinical care of such patients at the Columbia Veterans Research Center (IRB #7218).
7) Patients failing to benefit from the study treatment will be discharged from the study and provided with appropriate clinical care based on weekly review with termination criteria
8) All data will be coded and stored in locked files to insure confidentiality.

## Methods to Protect Confidentiality

Describe methods to protect confidentiality
All data collected (including audio-and videotape data) will be kept confidential and used for research purposes only. Patient charts will be kept in locked file cabinets identified by number rather than by name. Access to research records is restricted to research staff and Federal, State, and Institutional regulatory authorities. Electronic data will be protected by password access. No names of subjects will be recorded on any audio or video-recordings or written in any research instrument or tape. No subject's identifying data will be published. Audio and video recordings will be stored for up to three years after which time they will be erased and properly destroyed.
*Will the study be conducted under a certificate of confidentiality?*
No

## Direct Benefits to Subjects

Direct Benefits to Subjects
All participants will receive a complete psychiatric evaluation, results of which will be communicated to the participants and their physician, at the participant's request. PTSD symptoms may improve as a result of the EAT treatment. Participants will receive no direct benefits from the fMRI scans.
A potential benefit to society of this research is that the knowledge gained may provide future benefits for individuals with PTSD in improving understanding of PTSD treatments, and may improve future treatments.

## Compensation and/or Reimbursement

Will compensation or reimbursement for expenses be offered to subjects?
Yes
Please describe and indicate total amount and schedule of payment(s).
Include justification for compensation amounts and indicate if there are bonus payments.

All subjects will receive $100 for each evaluation visit (Baseline, Week 4, End of treatment, and Follow-up**).** Compensation will be mailed to the subject in the form of a check within 6 weeks of the completion of the baseline, week 4, end of treatment, and three month follow-up. Patients participating in the MRI scans will be compensated $175 for each scan. At the final treatment sessions, participants will also be given the boots worn during the study. Participants will be compensated up to a total of 400$ for participation in the study if they complete all evaluations. If participants are eligible for MRIs they would be compensated up to 750$ (400$ for assessments, 350$ for both MRIs) for their participation in the study.

## References

References

1. Anestis, M.D., et al., Equine-Related Treatments For Mental Disorders Lack Empirical Support: A Systematic Review of Empirical Investigations. Journal of Clinical Psychology, 2014. 70(12): p. 1115-1132.
2. Blake, D.D., et al., The Development of a Clinician-Administered Ptsd Scale. Journal of Traumatic Stress, 1995. 8(1): p. 75-90.
3. Earles, J.L., L.L. Vernon, and J.P. Yetz, Equine-Assisted Therapy for Anxiety and Posttraumatic Stress Symptoms. Journal of Traumatic Stress, 2015. 28(2): p. 149-152.
4. Schultz, P.N., G.A. Remick-Barlow, and L. Robbins, Equine-assisted psychotherapy: a mental health promotion/intervention modality for children who have experienced intra-family violence. Health & Social Care in the Community, 2007. 15(3): p. 265-271.
5. Selby, A. and A. Smith-Osborne, A Systematic Review of Effectiveness of Complementary and Adjunct Therapies and Interventions Involving Equines. Health Psychology, 2013. 32(4): p. 418-432.

## Uploads

Upload copy(ies) of unbolded Consent Form(s)
Upload copy(ies) of bolded Consent Form(s)
Upload copy(ies) of recruitment materials/ads to be reviewed
Upload copy(ies) of the HIPAA form
HIPAA.pdf
Upload any additional documents that may be related to this study