Creighton University IRB # XXXX

Study Title: Randomized Clinical Trials of Attention Control Training for PTSD Related to Combat or Interpersonal Violence

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Sponsor: At Ease USA

Attention Control Training for PTSD

Rationale

Posttraumatic stress disorder (PTSD) is a serious psychiatric diagnosis marked by re-experiencing, avoidance, mood, cognitive, and hyperarousal symptoms (American Psychiatric Association, 2013). PTSD affects 7-8% of the population of the United States in their lifetimes (National Center for PTSD), and is more prevalent among those exposed to intense traumas. For example, a quarter of veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) qualify for a diagnosis of PTSD (Bagalman, 2013).

Psychological therapies exist for the treatment of PTSD (e.g. Bradley, Greene, Russ, Dutra, & Westen, 2005, meta-analysis; Cloitre, 2009, review; IOM, 2007; Yoder, et al., 2012, meta-analysis), but even with therapy, many patients do not see a complete remission of their symptoms. At this time, only prolonged exposure therapy and cognitive processing therapy have enough clinical research support to qualify as strong empirically supported therapies (American Psychological Association, Division 12). Importantly, such trauma-focused therapies require patients to intensely re-experience their traumatic events in the name of therapy. As a result, trauma-focused therapy is difficult for clients, and many sufferers avoid treatment because they do not want to directly confront their traumatic life events. Finally, some antidepressant medications (SSRIs and NSRIs) are supported (VA/DoD, 2010), but again, medication offers only partial benefit. Because current psychological and psychiatric treatments for PTSD are only partly effective (Forbes et al., 2010), and because the most effective interventions are emotionally taxing, new treatments that target perturbed cognitive function in PTSD are highly desirable. Technology-based and assisted interventions have been recently promoted as ways to improve treatment access for patients with PTSD (Foa et al., 2013; Olthuis et al., 2016; Rosen et al., 2017), which coincides nicely with our interest in computerized attention training for PTSD.

Attention bias modification is a newer therapy for anxiety disorders that involves completing a simple computerized task devised to retrain threat-related attention (Bar-Haim, 2010). Meta-analyses suggest that training attention away from threat reduces threat-related attention biases in various samples (Hakamata et al., 2010; Hallion and Ruscio, 2011), including in patients with social phobia (Schmidt et al., 2009) and generalized anxiety disorder (Amir et al., 2009).

However, PTSD presents a more complicated symptom picture than the previously mentioned anxiety disorders, because PTSD involves anxious symptoms such as re-experiencing and hypervigilance, as well as avoidant and cognitive numbing symptoms. This separation of PTSD from other anxiety disorders is important, and in fact, the *Diagnostic and Statistical Manual for Mental Disorders* (5^{th} edition) DSM-5; APA, 2013)

moved PTSD into a new category of stress-related disorders, emphasizing its separation from the anxiety disorders.

Consistent with this dialectic of symptoms in PTSD that reflect both over-attending to and avoiding trauma-related reminders, reaction time studies of threat bias in PTSD have not found a consistent pattern of attention toward or away from threatening information in PTSD patients. Results of such studies indicate either threat-related avoidance (Buckley et al., 2000; Fani et al., 2012) or vigilance (Beevers et al., 2011; Constans et al., 2004; Bar-Haim et al., 2010; Wald et al., 2011), but not a consistent pattern. Recently, the field has been converging to conclude that the threat-related attention patterns in PTSD are marked by moment-to-moment fluctuations in attention bias. These momentary fluctuations in bias toward and away from threat have been termed "attention-bias variability". This variability seems most indicative of the perturbed attention patterns in PTSD (Iacoviello et al., 2014; Naim et al., 2015).

To our knowledge, only a few randomized controlled trials have used attention training to attempt to treat PTSD. Schoorl et al. (2013) compared attention bias modification (training away from threatening information) and attention control training (designed to remove threat-related contingencies on task performance) and found that the two regimens induced comparable reductions in PTSD symptoms. Kuckertz and colleagues (2014) administered training away from threat or attention control training in conjunction with cognitive-behavioral therapy and medication to military personnel with PTSD. Participants in both training groups improved; however this study favored training away from threat. An important caveat to the Kuckertz et al. (2014) study is that, after each training session, all participants also received an assessment of threat bias, which may have inadvertently served as weekly doses of attention control training, potentially confounding their results.

We recently demonstrated attention control training (ACT) is more effective than attention bias modification (ABMT) in reducing PTSD symptoms, possibly by normalizing attention bias variability (Badura-Brack et al., 2015). Our clinical trials compared attention control training to training away from threat, and we found significant symptom improvement in both groups that favored attention control training. This paper, published in the *American Journal of Psychiatry*, reports on the results of two separate studies: Study 1 utilized 4 sessions of word-based attention training with Israel Defense Force veterans, and Study 2 - conducted at Creighton University - utilized 8 sessions of face-based training with U.S. Military veterans involved in recent conflicts in Iraq or Afghanistan. Again, both studies found reductions in symptoms of PTSD with both forms of attention training; however, both studies favored attention control training, which teaches participants that the emotional salience of cues (i.e., threatening or neutral) is not related to successful completion of the computerized task, and thus, teaches participants to ignore irrelevant threat-related contingencies (Badura-Brack et al., 2015).

Importantly, we also found (Badura-Brack, et al., 2015) a likely mechanism driving treatment response to attention control training in PTSD. Specifically, reductions in attention bias variability partially mediated improvement in PTSD symptoms suggesting that reducing variability in fluctuations of attention toward and away from threat may be an important mechanism in treatment efficacy. No relationship was observed between attention bias modification training (i.e., training attention away from threat) and reductions in this attention bias variability. Understanding the relationship between attention bias variability and treatment efficacy is important because attention bias variability appears to be a cognitive marker for PTSD that reliably correlates with PTSD symptoms reflecting a loss of attentional control and aberrant buffering of attention among participants with PTSD symptoms. Attention control training appears to reduce these fluctuations in PTSD and reduce PTSD symptoms (Badura-Brack et al., 2015), as well as regulate other measures of threat related attention (Khanna et al., 2015). Thus, we are ready to proceed with the next round of clinical trials to test this promising intervention, which Paulus and Aupperle (2015) suggested should challenge the field to reconceptualize the fundamental processing problems in PTSD and seek out new ways of improving the lives of those who have been affected by combat-related trauma.

With this in mind, we are now prepared to conduct a larger set of clinical trials in an attempt to replicate these findings as well as extend them to other groups of people with PTSD including women and children.

Method

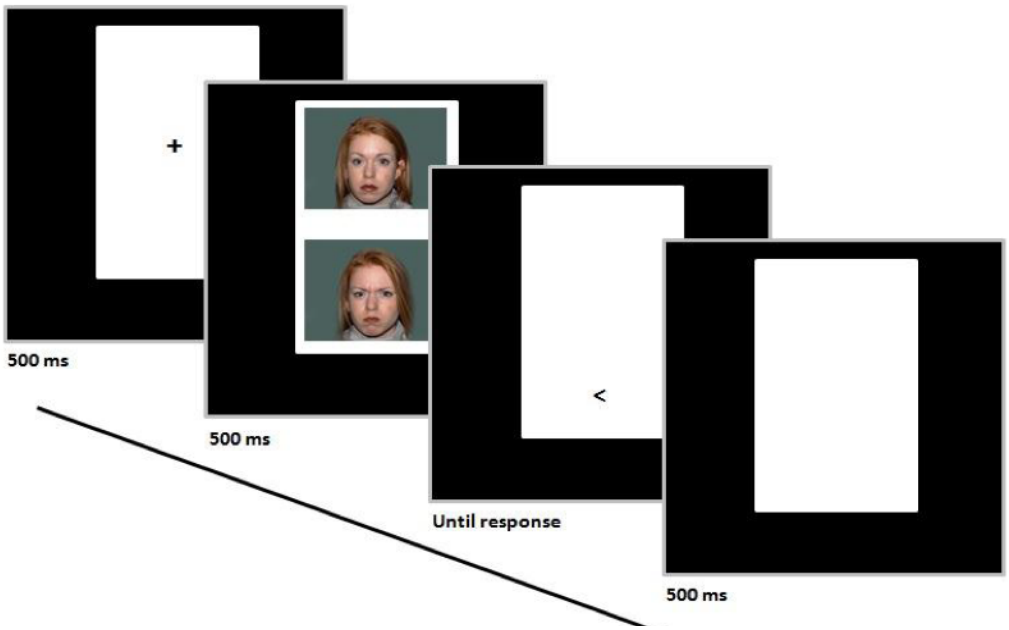
Attention Control Training versus Comparison Attention Task

The dot-probe task forms the basis for both threat bias assessment and attention control treatment. Threat-related attention bias and attention bias variability will be measured before and after the attention training sessions using a computerized measure of reaction time. See the measures section for specific methods of calculation.

Participants will be assigned to attention control training or the comparison stimuli computer task in a double-blind randomized control trial design. Both computerized dot probe tasks display two stimuli on a computer screen, one above the other, followed by a small right or left arrow appearing in the location vacated by one of the faces (see figure below). Participants are required to respond as quickly as they can by pressing the indicated right or left arrow on their computer keyboard without compromising accuracy.

In all trials, attention control training will present one neutral and one threatening stimulus on the screen. In most aspects of the study, the stimuli will be pictures of facial expressions. Specifically, in attention training, the participant will view one neutral face and one angry face on the screen at the same time. In the comparison condition, the

stimuli will always be two neutral faces presented before responding to the arrow.



Our investigational intervention = Attention Control Training will consist of:

- 6 sessions lasting approximately 10 minutes each.
- Each session will consist of 128 presentations of pairs of neutral and threatening stimuli, followed by the presentation of a response cue (right or left arrow to be clicked on a computer keyboard).
- Ideally participants will complete 2 sessions per week, allowing them to complete the trial in less than one month's time

Our comparison task will consist of:

- 6 sessions of a presumably inactive neutral-neutral intervention lasting approximately 10 minutes each.
- Each session will consist of 128 presentations of pairs of faces, followed by the presentation of a response cue (right or left arrow to be clicked on a computer keyboard).
- Ideally participants will complete 2 sessions per week, allowing them to complete the trial in less than one month's time.

IMPORTANTLY, after completing this inactive intervention and post assessment, all of these participants whose PTSD symptoms have not improved will be invited to return for a full trial of attention control training as described above to mitigate any concerns about a theoretically inactive intervention.

Aims for Clinical Trials

The major aims of the trials are straightforward:

(1) Evaluate whether attention control training (ACT) is an effective therapy for reducing PTSD symptoms in combat veterans and/or women who have experienced interpersonal violence in comparison to a presumably inactive computer task.
(2) Evaluate whether ACT is an effective therapy for reducing associated symptoms of PTSD including anxiety, depression, emotion regulation difficulties, and substance use in comparison to a presumably inactive computer task in individuals with PTSD.
(3) Compare the effectiveness of an online version of ACT delivered at a distance compared to in the clinic as well as a presumably inactive computer task for combat veterans with PTSD.

This study will be entered on ClinicalTrials.gov to formally register the project. We will add study number once approved by the registry.

Study Participants

Study 1: Recent combat veterans with symptoms of PTSD.

- We have a goal to recruit 100 veterans and active duty personnel serving in the U.S. Military since March 20, 2003 as potential participants for this aspect of the study.
- This sample will be randomly assigned to one of three study arms:
  - Attention control training at the clinic using faces as stimuli
  - Attention control training at the veteran's home via the internet using faces as stimuli
  - Comparison neutral-neutral task at the clinic using faces as stimuli
- Combat veterans with PTSD will be recruited from the community.
- Advertising on TV, with university veteran groups, with Lutheran Family Services, and from other groups serving veterans.

Study 2: Women exposed to interpersonal violence with symptoms of PTSD.

- Attention control training versus comparison task with a total of 60 women who have been exposed to interpersonal violence.
- We will use the faces version of the task with women.
- Participants will be randomly assigned to study condition.
- For safety, we will only include women who are not living with their abuser.
- We will ask about current safety before every session.
- Recruitment and sessions will occur at the Women's Center for Advancement (WCA) or at Creighton University if community women call to participate.

Measures

Demographics. All participants will answer standard demographic questions including age, gender, years of education, and marital status.

Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). The AUDIT is a brief 10-item questionnaire that was developed to measure severity of hazardous or harmful alcohol consumption. Utilizing a 5-point Likert scale, the measure includes questions pertaining to amount and frequency of drinking, symptoms of alcohol dependence, and alcohol-related problems. Example items include "How often during the last year have you been unable to remember what happened the night before because of your drinking?" Higher scores are indicative of more severe alcohol use. The AUDIT has evidenced strong reliability including internal consistency and test-retest reliability, as well as construct validity across a variety of clinical and non-clinical samples (Reinert & Allen, 2002; 2007).

Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988). The BAI is a 21-item questionnaire designed to measure common anxiety symptoms across somatic and subjective factors. Participants rate to what degree they have experienced items such as "feeling hot", "numbness or tingling", and "fear of the worst happening" in the last month. Responses occur on a 4-point Likert scale, ranging from 0 (*not at all*) to 3 (*severely-it bothered me a lot*). Total scores range from 0 to 63 with higher values indicative of more severe anxiety symptoms. The BAI is a commonly used measure of anxiety. A recent meta-analysis examining the psychometric properties of the BAI reported high internal consistency and good test-retest reliability. Convergent validity is strong with typically large correlations between the BAI and other indices of anxiety (Bardhoshi, Duncan, & Erford, 2016)

Clinician Administered PTSD Scale for DSM-5 (CAPS-5; Weathers et al., 2017). The CAPS-5 is a 30-item, structured interview designed to fully assess PTSD, consistent with the DSM-5. Specifically, the CAPS-5 provides the clinician standardized questions and probes, and enables a determination of the participant's diagnostic status, symptom characteristics, and symptom severity. It takes approximately 45-60 minutes, and will be administered only by trained researchers who are supervised by PhD-level psychologists or the by the psychologists themselves. The CAPS is considered the gold standard for PTSD assessment. Previous versions have shown impressive reliability and validity (e.g., Blake et al., 1995). Modified to adhere to DSM-5 changes, the CAPS-5 shows psychometric properties consistent with its predecessor. PTSD diagnosis and symptom severity scores have shown strong inter-rater and test-retest reliability, as well as high internal consistency and convergent validity with the CAPS for DSM-IV (Weathers et al., 2017).

Deployment Risk and Resilience Inventory-2 (DRRI-2) Combat Exposure Scale (Vogt et al., 2013). This 17 item scale measures combat-related circumstances during deployment such as firing a weapon, being fired on, being attacked or witnessing an attack (e.g., encountering an explosive device), encountering friendly fire, and going on special missions and patrols that involve such experiences. This war-zone factor refers to objective events and circumstances and does not include personal interpretations or subjective judgments of the events or circumstances. Participants rate items such as "I personally witnessed someone from my unit or an ally unit being seriously wounded or killed." On a 6-point Likert scale ranging from (1 = "Never" to 6 = "Daily or almost daily").

Difficulties in Emotion Regulation Scale -16 (DERS-16; Bjureberg et al., 2016). Comprised of 16 items, the DERS-16 provides a brief, yet comprehensive measure of emotion regulation abilities. The DERS-16 assesses five of the original six domains of emotion regulation including, for example, lack of emotional clarity, difficulty controlling impulsive behaviors when distressed, and limited access to emotion regulations strategies perceived as effective. Participants rate items such as "I have difficulty making sense out of my feelings" and "When I am upset, I become out of control" on a 5-point Likert scale (1=*almost never*; 5=*almost always*). The brief measure evidenced strong internal consistency, good test-retest reliability, as well as good convergent and discriminant validity in clinical and community samples. In addition, there were minimal differences in validity between the DERS-16 and the original, 36-item DERS (Bjureberg et al., 2016).

Drug Abuse Screening Test – 10 (DAST-10; Bohn, Babor, & Kranzler, 1991; Skinner, 1982). The DAST-10 is designed to provide a brief, self-report measure of substance abuse in the last 12 months. Specifically, participants are asked to consider their use of drugs such as cannabis, cocaine, hallucinogens, and narcotics, while excluding their use of alcohol and tobacco. Composed of 10-items, participants respond 'yes' or 'no' to questions such as "Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?" and "Have you neglected your family because of your use of drugs?" DAST-10 scores range from 0 to 10 with higher scores indicative of more severe drug abuse. The DAST is a widely-used measure of substance abuse with sound psychometric properties. The DAST-10, specifically, has shown high internal consistency, adequate test-retest validity, and convergent and divergent validity with appropriate measures (Yudko, Lozhkina, & Fouts, 2007).

Life Events Checklist for DSM-5 (LEC-5; Gray, Litz, Hsu, & Lombardo, 2004; Weathers et al., 2013). The LEC-5 assesses exposure to a broad range of life events known to potentially result in PTSD. Specifically, the LEC-5 includes 16 events or items, such as "sudden accidental death" and "severe human suffering," which are rated on a 6-point nominal scale to identify level(s) of exposure. Example response options include "happened to me," "witnessed it," and/or "learned about it." The LEC-5 is used in conjunction with the CAPS, and although it has no formal scoring instructions, it establishes exposure to PTSD criterion A events. The LEC evidenced good convergent

validity with other measures of trauma exposure and related symptomology in veteran and student samples (Gray et al., 2004).

Mini International Neuropsychiatric Interview (MINI; Version 6.0; Sheehan, et al. 1998). The MINI is a brief structured diagnostic interview, which will be used to assess co-occurring psychiatric disorders that would lead to participant exclusion. Specifically, disorders such as bipolar disorder and schizophrenia are examined, consistent. The MINI is advantageous in that it is short, but accurate. Concordance of the MINI with other structured interviews including the Structured Clinical Interview for DSM Disorders (SCID) and the Composite International Diagnostic Interview (CIDI) are generally good or very good. Specificities and negative predictive values were high for all diagnoses (Sheehan et al., 1997).

Patient Health Questionnaire (PHQ-9; Kroenke & Spitzer, 2001). The PHQ-9 is a brief, 9-item instrument designed to assess symptoms of depression. Example items include "Little interest or pleasure in doing things," and "Feeling down, depressed or hopeless." Participants rate how often symptoms occur using a 4-point Likert scale, ranging from 0 (*not at all*) to 3 (*nearly every day*). Higher scores are indicative of more severe depressive symptoms. In addition, based on participants' endorsement of items, plausible diagnostic status for major depression can be determined. The PHQ-9 has evidenced strong internal consistency, convergent validity with other measures of depression, and strong diagnostic sensitivity and specificity (Kroenke et al., 2001).

PTSD Checklist for DSM-5 (PCL-5; Bovin et al., 2016). The PCL-5 is a 20-item, self-report instrument designed to measure severity of PTSD symptoms as outlined by the DSM-5. Respondents provide severity ratings indicative of how much they have been bothered by the item over the last month, ranging from 0 (*not at all*) to 4 (*extremely*). For example, questions include, "Repeated, disturbing dreams of the stressful experience," and "Feeling very upset when something reminded you of the stressful experience." Scores range from 0 to 80, and higher scores correspond with greater PTSD symptom severity. A cut-point of 33 has been considered reasonable. The PCL is a widely-used measure of PTSD symptom severity. The more recently revised PCL-5 has evidenced good internal consistency, test-retest reliability, and convergent and discriminant validity in veteran samples (Bovin et al., 2016).

Threat-Related Attention Bias and Attention Bias Variability (See Badura-Brack et al., 2015). Assessment is made a version of the attention control computer task. The computer task records reaction times, which allow for threat-related attention bias to be calculated as the difference between the mean reaction time for trials in which targets appeared at the neutral word location and the mean reaction time for trials in which targets appeared at the location of the threat-related word (i.e., time for neutral location minus time for threat-related location); positive values reflect attention bias toward threat. Attention bias variability (ABV) data is also collected and calculated in four steps: 1) a trial-by-trial moving average algorithm computed mean reaction times

for all successive 10 neutral trial blocks and all successive 10 threat trial blocks, 2) successive attention bias scores were calculated by subtracting the first threat block average from the first neutral block average, the second threat block average from the second neutral block average, etc., forming a series of consecutive attention bias scores, 3) the standard deviation of these successive bias scores was then calculated, providing an index of variation in attention bias throughout the session, and 4) this standard deviation score was divided by the participant's mean overall reaction time to control for associations between mean and variance. Attention bias variability reflects the within-session variability in threat-related attention bias, normalized to individual task performance. This computer task takes about 10 minutes.

Step by Step Procedures

Pre-Screen: If veterans, active duty personnel, or women who have experienced interpersonal violence are interested in participating they will be invited to call or visit the research team for an initial screening. Once they give verbal consent to a brief screen, researchers will assess for PTSD using the Posttraumatic Stress Disorder Checklist (PCL-5), and briefly screened for exclusion criteria. Participants will be excluded from participation if they have: 1) a psychotic, bipolar, or obsessive-compulsive disorder; 2) current substance dependence; 3) a significant head injury (marked by loss of consciousness for 5 minutes or more); 4) if they just began or changed doses of a psychotropic medication within 6 months of study recruitment. This study will only enroll adult participants age 19 and above who can give fully informed consent.

Session 1: After meeting preliminary eligibility requirements via a phone call or initial visit to the clinic, participants will be invited to consider participation and the investigator will lead an informed consent discussion. Participants who elect to join the study and give their written informed consent, will start the study procedures by completing a clinical interview, the attention bias measurement task, and the study questionnaires. All measures listed below will be administered during Session 1, which is expected to last about 1.5-2 hours.

- *Life Events Checklist for DSM-5*
- *DRRI-2 Combat Exposure Scale* (for veterans only)
- *Clinician Administered PTSD Scale for DSM-5* (past month version)
- *Mini International Neuropsychiatric Interview*
- *Demographics*
- *Alcohol Use Disorders Identification Test*
- *Beck Anxiety Inventory*
- *Difficulties in Emotion Regulation Scale -16*
- *Drug Abuse Screening Test – 10*
- *Patient Health Questionnaire*

- *PTSD Checklist for DSM-5*
- *Threat-Related Attention Bias and Attention Bias Variability*

Participants who give consent and meet the study inclusion criteria but not exclusion criteria, will be randomly assigned to either attention control training or the comparison task in a double blind fashion. Those participants assigned to the neutral-neutral comparison condition will be given the opportunity to participate in ACT training immediately after completing session 8 if they are interested. They can participate in ACT in the clinic or from home online, so all participants will have an opportunity to receive the target intervention. If individuals participate in ACT after completing their participation in the neutral condition of the trial, we will ask them to complete the PCL-5 to assess PTSD symptoms at the end of their ACT training (either in the clinic or online through Qualtrics, Creighton Universtiy's online survey platform).

Sessions 2-7: Participants will complete short appointments for their computer attention training or comparison task session. Ideally participants will complete two training sessions per week, such that their participation from start to finish will complete in one month's time.

- For Study 1 sessions will occur in a private room at the Creighton University Psychology Department or online from the participants' personally selected private space (we are encouraging a quiet room in their home). For those participants completing training online, they will be asked to contact study investigators just before starting the task, to offer a relationship aspect to the online delivery and ensure they are conducting their training in a private setting.
- For Study 2 sessions will occur at the WCA or at Creighton University in a private room.

Session 8: Participants will return for a final appointment following training completion, and be reassessed with the same questionnaires and CAPS interview that were employed during the pretreatment assessment. (See the list below for post-intervention questionnaires.) The demographic, trauma screens, and M.I.N.I will be not readministered.

- *Clinician Administered PTSD Scale for DSM-5* (past week version)
- *Alcohol Use Disorders Identification Test*
- *Beck Anxiety Inventory*
- *Difficulties in Emotion Regulation Scale -16*
- *Drug Abuse Screening Test – 10*
- *Patient Health Questionnaire*
- *PTSD Checklist for DSM-5*
- *Threat-Related Attention Bias and Attention Bias Variability*

The participants will be paid $50 for both session 1 and 8 and $20 each session 2-7, for a total of $220 for their time and inconvenience if they complete all aspects of the study. If participants withdraw from the study, they will be paid for all completed sessions.

Follow up: We will contact the participants by email and/or phone to conduct a follow-up assessment at 6 months and 1 year after study completion. The follow up contacts will ask basic questions about any perceived changes since participating in the study, and have participants complete the PCL-5 to assess PTSD symptoms. Participants can complete follow-up phone calls, or online questionnaires via Qualtrics, if they prefer.

Confidentiality

All interventions will be delivered via laptop computer and will use internet versions of the tasks. The website is run by Tel Aviv University and has been designed in compliance with international privacy and data safety procedures. Each participant will be assigned an individual login code word, and will not enter their name or any personal identifier into the intervention website. The primary investigator will keep a list of code words linked to individual participants in her locked Creighton University office and also stored electronically using Office365 storage through her Creighton University account. She will share access to these files only with approved study investigators who need contact information for the study.

All questionnaire data, including participant names, demographics, and questionnaire responses will be collected using Qualtrics, Creighton's online survey platform at Creighton University and this data is protected and data safety compliant. All study computers will be password-protected computers purchased through this study grant.

The only medical records used by this study are those data points collected directly for the purposes of this study.

Proposed Analyses

We will conduct a series of standard analyses. For example, we will calculate summative scores for participant questionnaire responses. In addition, we will conduct Repeated Measures Analyses of Variance, t-tests, correlation, and multiple regression analyses on these summative questionnaire scores as well as on the reaction time and accuracy data that we collect during the treatment trials and the pre- and post-training measures.

Anticipated Risks and Mitigation of Risks

We recognize that participating in the assessments required by the study may cause some psychological discomfort to our participants. As a result we regard this project as

having greater than minimal risk. We expect psychological discomfort when participants talk about their traumatic experiences and symptoms during the structured interview or answer questions about these experiences on questionnaires. Psychological assessments will be conducted by trained mental health professionals who are able to recognize any serious exacerbations of symptoms and provide appropriate immediate interventions and referrals.

Specifically, if participants report significant suicidal or violent intent or significant worsening of their symptoms, referrals will be made to Paul Greenwell, MS LMHP, Director of At Ease with Lutheran Family Services in Bellevue NE for the veterans through their partnership with At Ease USA, and for the women through the partnership that At Ease USA has with the WCA. If such referrals are warranted, participation in the trials will be discontinued.

Important to consider when evaluating the risk/benefit ratio of this study, the VA/DoD (2010) Clinical Practice Guideline for the Management of Post-Traumatic Stress indicates that the mechanisms of action of current evidence-supported treatments for PTSD involve "repetitive review of traumatic memories and trauma-related situations" (p.43). Clearly the most unpleasant aspects of this project - thinking about their own traumatic experiences and related symptoms during the pre and post assessments are forms of exposure therapy. Such exposure is the active ingredient in our current most effective treatments for PTSD, and is considered standard practice in assessment and intervention for PTSD. We realize we are asking difficult questions, but those questions are being asked by or in the presence of our research staff with expertise and experience with PTSD in a private and comfortable setting. Although the assessments are potentially emotional, we also realize that talking about past traumas and symptoms is considered the gold standard of care for PTSD.

Nothing about the training sessions is expected to be difficult. The computerized attention training tasks are simple, brief, and easy. Those training sessions, and the intervention itself, are not associated with any known or expected risks to participants.

Potential Direct and Societal Benefits

If ACT is effective, participants' psychological symptoms may improve. We should note that ACT was shown to be effective in our previous studies, Badura-Brack, et al. (2015), and Khanna et al. (2015), so we are hopeful that this intervention will be effective again. Those participants who were randomly assigned to the comparison intervention will all be invited to continue on after completing formal participation in the study to complete the ACT training protocol in the clinic or online (whichever they prefer). Therefore all participants will have an opportunity to receive the active intervention within approximately 2 months time from initial study enrollment.

If ACT is shown to be effective, we are prepared to begin offering this very low cost,

easy to administer, and easy to experience intervention as therapy to people with PTSD in the near future. Additionally, if ACT is shown to effective at a distance over the internet, barriers to accessing psychological interventions for PTSD could be significantly reduced, because clients could log on to the website from home.

Dr. Yair Bar-Haim of Tel Aviv University has promised that Creighton University, At Ease USA, and the State of Nebraska can continue to use the intervention website for treatment (without cost) if ACT is proven effective, offering the great potential for societal benefit.