

INTRODUCTION

Many of us have seen heartwarming stories and anecdotes in the media or heard personal stories from family and friends of the benefits of interacting with horses. A frequent question involves the scientific merit of having horses involved in mental health services and how they might improve the quality of life of those involved.

The following is a sampling of studies that help illustrate the benefit of incorporating horses into mental health treatment and other wellness services. It is not meant to represent a comprehensive literature review or specific search parameters. Rather, the intent is to provide a sample of peer-reviewed published journal articles to assist those interested in learning more about the topic and to support services incorporating horses for mental health and well-being.

The 44 articles presented here have been published in scholarly journals where the articles are written by experts and the manuscripts are reviewed by several other professionals in the field before the article is published. This ensures the quality of the publication and makes it more likely that the article is scientifically valid.

Search engines-PubMed/Google Scholar/Google

Key words= Equine assisted intervention/Equine facilitated psychotherapy/Equine assisted learning

Outcome Category = Psychiatric/mental health

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INTRODUCTION

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Key words= Equine assisted intervention/Equine facilitated psychotherapy/Equine assisted learning

Outcome Category = Psychiatric/mental health

REFERENCES IN ALPHABETICAL ORDER WITH ABSTRACTS ATTACHED

Adams, C., et al. (2015). "The Helping Horse: How Equine Assisted Learning Contributes to the Wellbeing of First Nations Youth in Treatment for Volatile Substance Misuse." Hum Anim Interact Bull 1(1): 52-75.

There has been recent interest in Canada exploring the benefits of equine assisted interventions in the treatment of First Nations youth who misuse volatile substances. Using the richness of an exploratory case study involving the White Buffalo Youth Inhalant Treatment Centre and the Cartier Equine Learning Center, our community-based study examined the question of how an Equine Assisted Learning (EAL) program contributes to the wellbeing of First Nations female youth who misuse volatile substances. Both programs are grounded in a holistic bio-psycho-social-spiritual framework of healing. Our study shares how the EAL horses, facilitators and program content contributed to youths' wellbeing in each area of the healing framework (bio-psycho-social-spiritual), with emphasis on the cultural significance of the horse and its helping role. The horse is a helper in the girls' journeys toward improved wellbeing-the horse helps through its very nature as a highly instinctive animal, it helps the facilitators do their jobs, and it also helps put the treatment program activities into practice. In addition, the role of First

Nations culture in the girls' lives was enhanced through their encounters with the horses. The findings support the limited literature on equine assisted interventions and add important insights to the youth addictions treatment literature. Key implications to consider for EAL and volatile substance misuse policy, practice and research are identified.

Alfonso, S. V., et al. (2015). "Project Stride: An Equine-Assisted Intervention to Reduce Symptoms of Social Anxiety in Young Women." Explore (NY) 11(6): 461-467.

INTRODUCTION: Although there is evidence supporting the use of equine-assisted activities to treat mental disorders, its efficacy in reducing signs and symptoms of social anxiety in young women has not been examined. METHOD: We developed and pilot tested Project Stride, a brief, six-session intervention combining equine-assisted activities and cognitive-behavioral strategies to reduce symptoms of social anxiety. A total of 12 women, 18-29 years of age, were randomly assigned to Project Stride or a no-treatment control. Participants completed the Liebowitz Social Anxiety Scale at baseline, immediate-post, and 6 weeks after treatment. RESULTS: Project Stride was highly acceptable and feasible. Compared to control participants, those in Project Stride had significantly greater reductions in social anxiety scores from baseline to immediate-post [decrease of 24.8 points; $t(9) = 3.40, P = .008$] and from baseline to follow-up [decrease of 31.8 points; $t(9) = 4.12, P = .003$]. CONCLUSION: These findings support conducting a full-scale efficacy trial of Project Stride.

Arnon, S., et al. (2020). "Equine-Assisted Therapy for Veterans with PTSD: Manual Development and Preliminary Findings." Mil Med 185(5-6): e557-e564.

INTRODUCTION: Equine-assisted therapy (EAT) for post-traumatic stress disorder (PTSD) has attracted great interest despite lacking empirical support, a manual, and a standardized protocol. Our team of experts in EAT and PTSD developed an eight-session group EAT treatment protocol for PTSD (EAT-PTSD) and administered it to two pilot groups of military veterans to assess initial effects. MATERIALS AND METHODS: We describe the development of the treatment manual, which was used with two pilot groups of veterans. Protocol safety, feasibility, and acceptability were assessed by reported adverse events, treatment completion rates, and self-rated patient satisfaction. Preliminary data on PTSD, depressive, and anxiety symptoms and quality of life were collected pretreatment, midpoint, post-treatment, and at 3-month follow up. RESULTS: No adverse events were recorded. All patients completed treatment, reporting high satisfaction. Preliminary data showed decreases in clinician-assessed PTSD and depressive symptoms from pre to post-treatment and follow-up (medium to large effect sizes, $d = .54-1.8$), with similar trends across self-report measures ($d = 0.72-1.6$). In our pilot sample, treatment response and remission varied; all patients showed some benefit post-treatment, but gains did not persist at follow-up. CONCLUSIONS: This article presents the first standardized EAT protocol. Highly preliminary results suggest our new manualized group EAT-PTSD appears safe, well-regarded, and well-attended, yielding short-term benefits in symptomatology and quality of life if unclear length of effect. Future research should test this alternative treatment for PTSD more rigorously.

Bachi, K., et al. (2012). "Equine-facilitated psychotherapy for at-risk adolescents: the influence on self-image, self-control and trust." *Clin Child Psychol Psychiatry* 17(2): 298-312.

This article describes the theoretical-conceptual frame of equine-facilitated psychotherapy (EFP) for adolescents at-risk, the unique components of this intervention, and its implementation in an evaluation study. The study was conducted at a residential treatment facility for adolescents at-risk. We examined the outcomes of EFP on self-image, self-control, trust and general life satisfaction. Fourteen resident adolescents comprised the treatment group, and were compared with a matched group of 15 residents who did not receive EFP (control). The treatment comprised a weekly individual EFP session over a period of seven months. The study found a trend of positive change in all four research parameters within the treatment group. Additional indications of the intervention's positive influence were also found and are discussed.

Burton, L. E., et al. (2019). "Efficacy of equine-assisted psychotherapy in veterans with posttraumatic stress disorder." *J Integr Med* 17(1): 14-19.

BACKGROUND: Posttraumatic stress disorder (PTSD) is a common and debilitating disorder among war veterans. Although complementary and alternative therapies are gaining acceptance in the treatment of PTSD, the efficacy of animal-based therapies in this disorder is unknown. The goal of equine-assisted psychotherapy (EAP) is to improve the social, emotional, and/or cognitive functions of individuals with PTSD. **OBJECTIVE:** This study aims to explore the effects of EAP on PTSD symptoms. We hypothesized that veterans with PTSD who participate in a standardized EAP program for 1 h per week for 6 weeks would experience decreased PTSD symptoms and would demonstrate increased resilience as compared with individuals who do not receive EAP intervention. **DESIGN, SETTING, PARTICIPANTS AND INTERVENTIONS:** We conducted a sequentially assigned, two-arm parallel group trial comparing 6 weeks of EAP with standard, previously established, ongoing PTSD therapy. Therapy was conducted at a community EAP facility in conjunction with an academic University Hospital. Twenty adult veterans with symptomatic PTSD completed the study. Ten adult veterans with previously diagnosed PTSD were assigned to EAP and received directed interaction with trained horses for one hour a week in groups of 3 or 4 individuals, while also continuing their previously established therapies. A certified therapist supervised the sessions, and a professional horse handler was also present. Results were compared with those from 10 adult veterans who only received their standard previously established PTSD care as prescribed by their provider. **MAIN OUTCOME MEASURES:** Changes in salivary cortisol, scores for the PTSD Check List-Military Version (PCL-M) and the Connor-Davidson Resilience Scale (CD-RISC) after 6 weeks of study were measured. **RESULTS:** Of the 20 enrolled patients, 10 served in Afghanistan, 5 served in Iraq, and 3 served in Vietnam. Subjects were (47+/-14) years old, were predominantly male, and had a body mass index of (29+/-7) kg/m². They had (9.2+/-6.1) years of military service and carried 66%+/-37% service-connected disability. PCL-M scores declined significantly in both groups and CD-RISC scores increased significantly in the EAP group. There was no difference between the groups with respect to the magnitude of change. **CONCLUSION:** As compared to the control group, a 6-week EAP program did not produce a statistically significant difference with respect to PCL-M and CD-RISC scores, or salivary cortisol. However, our results suggest that EAP may work as well as standard therapy with respect to these parameters. This study supports further inquiry into EAP as a potentially efficacious alternative for veterans suffering from PTSD. **TRIAL REGISTRATION:** ClinicalTrials.gov NCT #03039361.

Cagle-Holtcamp, K., et al. (2019). "Does Equine Assisted Learning Create Emotionally Safe Learning Environments for At-Risk Youth?" 2019 14(4): 21.

Equine assisted learning (EAL) is a form of experiential learning that is quickly growing in interest within the educational community. A challenge with experiential learning programs for at-risk youth is creating an emotionally safe environment that opens up the participants to learning. Nevertheless, EAL has been credited with the development of life skills in youth that promote educational achievement, but research tracking the development of emotional safety and learning, specifically associated with programming dedicated to educating participants about the horse, is limited. Therefore, the objective of this study was to determine if EAL, with programming centered around equine education, will promote emotional safety and learning in at-risk youth. Youth labeled as at-risk participated in a 4-week EAL session focused on teaching participants horse behavior, management, handling, and riding, while incorporating the 4 themes of emotional safety (self-esteem, personal security, respect, and connectivity). To determine participant learning of the equine topics covered, a pre- and post-program test was given to each participant. Acquisition of the themes of emotional safety was tracked for each participant using weekly debriefing interviews. While this was the first time to perform this assessment protocol for evaluating learning and emotional safety in at-risk youth, the completion rate for both forms of assessment utilized in this study was 100%. Evaluation of debriefing interview answers and test scores from the equine knowledge questions showed improvement by the end of the session in both equine knowledge and emotional safety, particularly as it relates to personal security. These results suggest EAL, with programming directed towards educating the participant about the horse, promotes emotional safety and learning for at-risk youth.

Carlsson, C. (2017). "Triads in Equine-Assisted Social Work Enhance Therapeutic Relationships with Self-Harming Adolescents." Clin Soc Work J 45(4): 320-331.

Despite an increasing number of studies, there is still a lack of knowledge about the unique features that underlie the process in equine assisted social work (EASW). This study aimed to reveal, through qualitative methods, the dyads within the triad that become stronger during the process of EASW, as well as the effect of the participation of the horse on the relationship between the counselor and client. Data were collected through in-depth interviews with nine female self-harming clients aged 15-21 years and eight staff members. The interviews, together with video-recorded human-horse interactions with three staff members and four clients were analyzed, resulting in additional issues answered by these three staff members and four clients in a second interview. Critical dialogues between patterns and fragmentations in the narratives and video-recordings, as well as a dialogue with the participants while they were viewing videos of their own EASW sessions, led to the conclusion that adding a horse qualitatively changes therapeutic relationships in EASW. The different triads consist of different liaisons between actors in the triad, giving rise to unique combinations. The quality of the relationships depends on both the staff and the clients' attachment orientations. Further research is needed to investigate how the degree of emotional connection to the horse affects the impact that horses have on triads in EASW.

Chakales, P. A., et al. (2020). "Medicine and Horsemanship: The Effects of Equine-assisted Activities and Therapies on Stress and Depression in Medical Students." Cureus 12(2): e6896.

This study examined the use of an equine-assisted brief course module on stress and depression among medical students (n = 28), a demographic known to experience high pressure. Evidence supports that animal-assisted therapies can lead to the improvement of health and quality of life, particularly in terms of cognitive, psychological, and physical benefits. This study used the seven-session Kane Medicine and Horsemanship program; students completed pre- and post-measures one week before and after the course. Participation in the course significantly reduced perceived stress (p: 0.001), depression (p: <0.001), stress severity (p: 0.014), and stress frequency (p: 0.001) among medical students. This approach should be further investigated as an option for improving well-being among medical students.

Coffin, J. (2019). "The Nguudu Barndimanmanha Project-Improving Social and Emotional Wellbeing in Aboriginal Youth Through Equine Assisted Learning." Front Public Health 7: 278.

Background: Recent statistics have painted a grim picture for Australia's Aboriginal youth, with reports of higher levels of almost every health indicator, including depression, sexual and emotional abuse, unemployment, and incarceration. Traditional western based therapies have proven to have limited effectiveness in engaging this group as they can often be culturally inappropriate. International studies have provided promising results using equine assisted learning, with a sound methodological basis underpinned by Indigenous ways of being and doing. In Australia Aboriginal people have strong historical ties to horses through their work on stations and were often considered some of the country's best horsemen and women. While equine assisted learning programs exist in Australia there are currently none catering specifically to Aboriginal youth, run and staffed by Aboriginal staff and provided in a culturally secure manner. Aims: Alternative therapy for Aboriginal youth in the areas of grief, loss, and trauma, through an equine assisted learning program that focussed on self-concept, self-regulation, self-awareness, anxiety and depression, and sense of connectedness. Methods: Participants (N = 270) aged 6-25 years old engaged in a minimum of 6-weeks of equine assisted learning. Each session was 45-50 min duration and occurred on a weekly basis. Sessions were undertaken individually, in pairs and in groups, depending on the needs of the participant and the focus of the session goals. Qualitative examination of the participants included photography to capture the lived experiences of the participants throughout the program. In addition an cultural and age appropriate adaptation of the Strength and Difficulties Questionnaire was trialed to track changes quantitatively. Conclusion: We observed improvements in self-regulation, self-awareness, and socialization skills, evident from the photography recording and the questionnaire data. In addition parent and/or caregiver and teacher reported changes in behavior, self-regulation, and socialization skills were recorded.

Dawson, S., et al. (2022). "Equine-Assisted Therapy with Autism Spectrum Disorder in Serbia and the United States." Therapeutic recreation journal 56(1): 17-38.

Adolescent and young adults with a diagnosed autism spectrum disorder (ASD) in the severe to moderate functioning range were recruited for this study in Serbia and the United States (U.S.). A total of ten participants, five from each respective country, participated in a 15week equine-

assisted therapy (EAT) intervention that utilized ground-based learning through a manualized program approach. The purpose of the study was to test the effects of a manualized 15-week EAT intervention on the social functioning of individuals with severe to moderate ASD across two cultures using a single subject research design. Nine out of 10 participants displayed improved social functioning over the course of the 15week EAT intervention in both cultures.

Dunlop, K. and M. Tsantefski (2018). "A space of safety: Children's experience of equine-assisted group therapy." Child & family social work 23(1): 16-24.

Owing to a shift in alcohol and other drug practice towards a more ecological understanding of the impact of problematic parental substance use, children who were previously forgotten by practitioners are increasingly being included in alcohol and other drug service provision. Occurring concurrently with these changes has been a boom in interest in non-talk-based therapies to enhance child well-being. Examples of such therapeutic interventions include adventure-based activities, theatre, yoga, music, and purposeful interaction with animals. The latter approach, increasingly delivered by social workers, is known as animal-assisted therapy and involves the inclusion of animals in a goal-directed intervention. Equine-assisted therapy (EAT) is a specialised branch of animal-assisted therapy in which horses are used to cofacilitate therapeutic interventions. Although EAT practitioners argue horses are uniquely effective therapeutic animals, a strong evidence base has not yet developed. The present study utilised qualitative methods to explore children's individual experiences of an EAT program. Thematic analysis of interview data found that EAT is beneficial to children experiencing problematic parental substance use as it offers an environment in which children can feel safe and secure and are supported to grow, personally and socially, by mastering fears, making new friends, and improving their interpersonal behaviours.;Byline: Katie Dunlop, Menka Tsantefski Keywords: child therapy; groupwork; research with children; substance misuse (parental misuse and effects on children) Owing to a shift in alcohol and other drug practice towards a more ecological understanding of the impact of problematic parental substance use, children who were previously forgotten by practitioners are increasingly being included in alcohol and other drug service provision. Occurring concurrently with these changes has been a boom in interest in non-talk-based therapies to enhance child well-being. Examples of such therapeutic interventions include adventure-based activities, theatre, yoga, music, and purposeful interaction with animals. The latter approach, increasingly delivered by social workers, is known as animal-assisted therapy and involves the inclusion of animals in a goal-directed intervention. Equine-assisted therapy (EAT) is a specialised branch of animal-assisted therapy in which horses are used to cofacilitate therapeutic interventions. Although EAT practitioners argue horses are uniquely effective therapeutic animals, a strong evidence base has not yet developed. The present study utilised qualitative methods to explore children's individual experiences of an EAT program. Thematic analysis of interview data found that EAT is beneficial to children experiencing problematic parental substance use as it offers an environment in which children can feel safe and secure and are supported to grow, personally and socially, by mastering fears, making new friends, and improving their interpersonal behaviours.;

Earles, J. L., et al. (2015). "Equine-assisted therapy for anxiety and posttraumatic stress symptoms." *J Trauma Stress* 28(2): 149-152.

We tested the efficacy of the Equine Partnering Naturally((c)) approach to equine-assisted therapy for treating anxiety and posttraumatic stress disorder (PTSD) symptoms. Participants were 16 volunteers who had experienced a Criterion A traumatic event, such as a rape or serious accident, and had current PTSD symptoms above 31 on the PTSD Checklist (PCL-S; Weathers, Litz, Herman, Huska, & Keane,). Participants engaged in tasks with horses for 6 weekly 2-hour sessions. Immediately following the final session, participants reported significantly reduced posttraumatic stress symptoms, $d = 1.21$, less severe emotional responses to trauma, $d = 0.60$, less generalized anxiety, $d = 1.01$, and fewer symptoms of depression, $d = 0.54$. As well, participants significantly increased mindfulness strategies, $d = 1.28$, and decreased alcohol use, $d = 0.58$. There was no significant effect of the treatment on physical health, proactive coping, self-efficacy, social support, or life satisfaction. Thus, we found evidence that the Equine Partnering Naturally((c)) approach to equine-assisted therapy may be an effective treatment for anxiety and posttraumatic stress symptoms. Future research should include larger groups, random assignment, and longer term follow-up.

Fisher, P. W., et al. (2021). "Equine-Assisted Therapy for Posttraumatic Stress Disorder Among Military Veterans: An Open Trial." *J Clin Psychiatry* 82(5).

Objective: As veterans have high rates of posttraumatic stress disorder (PTSD) and historically poor treatment outcomes and high attrition, alternative treatments have gained much popularity despite lack of rigorous research. In this study, a recently developed and manualized 8-session group Equine-Assisted Therapy for PTSD (EAT-PTSD) was tested in an open trial to assess its preliminary feasibility, acceptability, and outcomes for military veterans. **Methods:** The study was conducted from July 2016 to July 2019. Sixty-three treatment-seeking veterans with PTSD enrolled. PTSD diagnosis was ascertained using the Structured Clinical Interview for DSM-5, Research Version (SCID-5-RV) and confirmed using the Clinician-Administered PTSD Scale (CAPS-5). Mean age was 50 years, and 23 patients (37%) were women. Clinician and self-report measures of PTSD and depression were assessed at pretreatment, midtreatment, and posttreatment and at a 3-month follow-up. An intent-to-treat analysis and a secondary analysis of those who completed all 4 clinical assessments were utilized. **Results:** Only 5 patients (8%) withdrew from treatment, 4 before midtreatment and 1 afterward. Posttreatment assessment revealed marked reductions in both clinician-rated and self-reported PTSD and depression symptoms, which persisted at 3-month follow-up. Specifically, mean (SD) CAPS-5 scores fell from 38.6 (8.1) to 26.9 (12.4) at termination. Thirty-two patients (50.8%) showed clinically significant change ($\geq 30\%$ decrease in CAPS-5 score) at posttreatment and 34 (54.0%) at follow-up. **Conclusions:** Manualized EAT-PTSD shows promise as a potential new intervention for veterans with PTSD. It appears safe, feasible, and clinically viable. These preliminary results encourage examination of EAT-PTSD in larger, randomized controlled trials. Trial Registration: ClinicalTrials.gov identifier: NCT03068325.

Frederick, K. E., et al. (2015). "Not Just Horsing Around: The Impact of Equine-Assisted Learning on Levels of Hope and Depression in At-Risk Adolescents." Community Ment Health J 51(7): 809-817.

Equine-assisted learning (EAL) is an experiential modality which utilizes horses to provide a unique learning experience for personal growth. Research by Damon et al. (Appl Dev Sci 7:119-128, 2003) suggests a positive relationship between hope and positive developmental trajectories. Hagen et al. (Am J Orthopsychiatr 75:211-219, 2005) showed hope to be a protective factor associated with adaptive functioning in at-risk youth. Ashby et al. (J Couns Dev 89:131-139, 2011) found a significant inverse relationship between hope and depression: as hope increases, depression decreases. The current study investigates the impact of a non-riding EAL curriculum entitled L.A.S.S.O. (Leading Adolescents to Successful School Outcomes) on levels of hope and depression in at-risk youth. The study uses an experimental design with longitudinal, repeated measures. Participants were randomly assigned to treatment and control groups. Participants in the treatment received 5 weeks of EAL, while participants in the control group received treatment as usual. Repeated measures ANOVA of participants' levels of hope and depression showed statistically significant improvements in the treatment group as compared with the control group. Even a brief (5-week) intervention of EAL had a positive impact on the lives and attitudes of at-risk adolescents, with increased levels of hope and decreased levels of depression.

Gatti, F., et al. (2020). "Complementary horse-assisted therapy for substance use disorders: a randomized controlled trial." Addict Sci Clin Pract 15(1): 7.

BACKGROUND: Treatment completion is the greatest challenge for the treatment of substance use disorders (SUDs). A previous investigation showed that complementary horse-assisted therapy (cCHAT) was associated with higher retention in treatment and completion than standard treatment alone. This randomized controlled trial further explored the benefits of cCHAT for patients with SUDs. **METHODS:** Fifty patients in residential SUD treatment at the Department of Addiction Treatment, Oslo University Hospital, were randomly allocated to either cCHAT (cCHAT group) or treatment as usual alone (TAU-only group). The primary end-point was treatment completion. Secondary end-points were dropout, transfer to another treatment, and time in treatment. **RESULTS:** The multinomial logistic regression analysis found no statistically significant association between intervention (cCHAT) and treatment outcome (completion, dropout, transferred) among the 37 participants who were ultimately recruited to the study. Some unforeseen challenges were encountered in the study: a high number of subjects transferred to another treatment, variable attendance at cCHAT sessions, and long temporary exits. Nevertheless, 44% of participants in the cCHAT group completed their treatment, compared with 32% in the TAU-only group; this observation encourages further investigation in a larger sample. **CONCLUSIONS:** Though no association was identified between cCHAT and treatment retention or completion, our study may have been underpowered. Further work in a larger clinical population is needed; observational studies with repeated measures may also be useful for investigating whether cCHAT increases retention in treatment or rates of completion, two important factors for successful SUD treatment. Trial registration The trial was registered and approved on 14 October 2011 by the Regional Committee for Medical and Health Research Ethics with registration number 2011/1642 and registered at ClinicalTrials.gov on 21 February 2013 with registration number NCT01795755.

Jang, B., et al. (2015). "Equine-Assisted Activities and Therapy for Treating Children with Attention-Deficit/Hyperactivity Disorder." J Altern Complement Med 21(9): 546-553.

OBJECTIVE: To investigate clinical effects of equine-assisted activities and therapy (EAA/T) for treating attention-deficit/hyperactivity disorder (ADHD) in children age 6-13 years. **METHODS:** This 12-week, prospective, open-label trial included 24 sessions of EAA/T. Twenty participants (19 boys and 1 girl) completed 12 weeks of EAA/T. Various clinical tests were administered at baseline and after EAA/T. Assessments included the investigator-administered ADHD-Rating Scale (ARS-I), Clinical Global Impressions (CGI)-Severity Scale, Clinical Global Impressions-Improvement Scale (CGI-I), Gordon Diagnostic System, Korea-Child Behavior Checklist (K-CBCL), Self-Esteem Scale, second edition of the Bruininks-Oseretsky test of motor proficiency (BOT-2), and quantitative electroencephalography. The primary efficacy measure was the response rate. **RESULTS:** The response rate was 90% based on a 30% or greater decline in the ARS-I score or 85% based on CGI-I scores of 1 or 2. The mean \pm -standard deviation ARS-I score decreased from 33.65 \pm -6.42 at baseline to 16.80 \pm -6.86 after 12 weeks of EAA/T ($p < 0.001$, paired t-test). EAA/T also resulted in significant improvement in the social problems subscale of the K-CBCL and in the manual dexterity, bilateral coordination, and total motor composite subscales of the BOT-2. The theta/beta ratio on electroencephalography was decreased significantly at the Pz electrode after 12 weeks of EAA/T. **CONCLUSION:** This is the first study demonstrating that EAA/T is effective for improving core ADHD symptoms. On the basis of these results, EAA/T could be a viable treatment strategy as a part of a multimodal therapy for children with ADHD.

Johnson, R. A., et al. (2018). "Effects of therapeutic horseback riding on post-traumatic stress disorder in military veterans." Mil Med Res 5(1): 3.

BACKGROUND: Large numbers of post-deployment U.S. veterans are diagnosed with post-traumatic stress disorder (PTSD) and/or traumatic brain injury (TBI), leading to an urgent need for effective interventions to reduce symptoms and increase veterans' coping. PTSD includes anxiety, flashbacks, and emotional numbing. The symptoms increase health care costs for stress-related illnesses and can make veterans' civilian life difficult. **METHODS:** We used a randomized wait-list controlled design with repeated measures of U.S. military veterans to address our specific aim to test the efficacy of a 6-week therapeutic horseback riding (THR) program for decreasing PTSD symptoms and increasing coping self-efficacy, emotion regulation, social and emotional loneliness. Fifty-seven participants were recruited and 29 enrolled in the randomized trial. They were randomly assigned to either the horse riding group ($n = 15$) or a wait-list control group ($n = 14$). The wait-list control group experienced a 6-week waiting period, while the horse riding group began THR. The wait-list control group began riding after 6 weeks of participating in the control group. Demographic and health history information was obtained from all the participants. PTSD symptoms were measured using the standardized PTSD Checklist-Military Version (PCL-M). The PCL-M as well as other instruments including, The Coping Self Efficacy Scale (CSES), The Difficulties in Emotion Regulation Scale (DERS) and The Social and Emotional Loneliness Scale for Adults-short version (SELSA) were used to assess different aspects of individual well-being and the PTSD symptoms. **RESULTS:** Participants had a statistically significant decrease in PTSD scores after 3 weeks of THR ($P \leq 0.01$) as well as a statistically and clinically significant decrease after 6 weeks of THR ($P \leq 0.01$). Logistic regression showed that participants had a 66.7% likelihood of having lower PTSD scores at 3 weeks and 87.5% likelihood

at 6 weeks. Under the generalized linear model (GLM), our ANOVA findings for the coping self-efficacy, emotion regulation, and social and emotional loneliness did not reach statistical significance. The results for coping self-efficacy and emotion regulation trended in the predicted direction. Results for emotional loneliness were opposite the predicted direction. Logistic regression provided validation that outcome effects were caused by riding longer. **CONCLUSION:** The findings suggest that THR may be a clinically effective intervention for alleviating PTSD symptoms in military veterans.

Kang, K. D., et al. (2018). "Effects of Equine-Assisted Activities and Therapies on the Affective Network of Adolescents with Internet Gaming Disorder." J Altern Complement Med 24(8): 841-849.

OBJECTIVES: Internet gaming disorder (IGD) has been suggested to be a mental health disorder. Attachment and emotional status in IGD patients are important for understanding the etiology and progression of IGD because both parameters are considered to be associated with the affective network. Equine-assisted activities and therapies (EAAT) have been reported to improve emotional status and attachment in subjects. We hypothesized that EAAT would improve attachment in IGD adolescents with insecure attachment issues and increase functional connectivity (FC) within the affective network. **DESIGN:** Subjects completed a demographic questionnaire, the Korean Experiences in Close Relationships Scale Revised version (K-ECRS), the Child Depression Inventory, Young's Internet Addiction Scale, the Korean Attention-Deficit Hyperactivity Disorder Rating Scale, and resting-state functional magnetic resonance imaging at baseline at the end of EAAT. **SUBJECTS:** Fifteen IGD adolescents with insecure attachment issues and 15 healthy comparison adolescents with secure attachment agreed to participate in this study. **RESULTS:** After 7 days of EAAT, K-ECRS avoidance and anxiety scores improved in all adolescents. K-ECRS avoidance scores of the IGD group showed marked improvement compared with those of the healthy group. In all participants, FC from the left amygdala to the left parahippocampal gyrus, left medial frontal gyrus, and left inferior frontal gyrus, as well as from the right amygdala to the left caudate, right claustrum, and left inferior frontal gyrus increased. In IGD adolescents, FC from the left amygdala to the left frontal orbital gyrus, as well as from the right amygdala to the right corpus callosum also increased. **CONCLUSION:** These findings suggested that EAAT improves attachment, which could lead to a decrease in the severity of IGD symptoms in IGD patients with insecure attachment issues. In addition, EAAT increases FC within the affective network, which was associated with attachment not only in healthy adolescents but also in adolescents with IGD.

Lee, K., et al. (2020). "Older Adults' Perceived Benefits of Equine-Assisted Psychotherapy: Implications for Social Work." Research on social work practice 30(4): 399-407.

The purpose of this study was to explore participants' perceived benefits of equine-assisted psychotherapy and to understand if older adults with functional or cognitive impairment found meaning and purpose in their interactions with horses. This study employed a mixed methods study design with a concurrent triangulation approach. The findings from our study suggest that those impacted with functional or cognitive impairment can meaningfully engage in EAGALA model of equine-assisted psychotherapy and demonstrate the ability to find purpose from their

experience. Their perceived benefits were not limited to their interactions with horses but instead wide-ranging, including positive influences from their peers, the outdoor environment associated with equine-assisted activities, and the increased level of social interactions through reminiscence. Social workers can serve a vital role in the use of equine-assisted psychotherapy among older adults, and equine-assisted psychotherapy may hold less stigma than traditional talk therapy to the older adult population.

Malcolm, R., et al. (2018). "It just opens up their world': autism, empathy, and the therapeutic effects of equine interactions." Anthropology & medicine 25(2): 220-234.

Experiences of autism-spectrum disorder are now increasingly studied by social scientists. Human-animal relations have also become a major focus of social inquiry in recent years. Examining horse-assisted therapy for autistic spectrum disorders, this is the first paper that brings these fields together. Drawing on participant observation and interviews at a UK horse therapy Centre, this article examines how staff and the parents of riders account for the successes and limitations of equine therapy. To the respondents, horses 'open up' autistic children and make possible interactions that seemed impossible before. Horses were regarded as facilitating the emergence of apparently social behaviours, which included eye contact, pointing, and speech. Three key explanations emerged for therapeutic success: the sensorial, embodied experience of riding the horse; the specific movements and rhythms of the horse; and, the 'personality' of the horse. Equine therapy can be regarded as enabling a form of multispecies intersubjectivity, with the resonance between rider and horse seeming to make possible a new attunement between humans. Practices of equine therapy, and perceptions of its efficacy, serve in turn to attune social scientists to a version of empathy constituted through lively and sensorial interactions, as opposed to one that is restricted to particular kinds of humans.

Malinowski, K., et al. (2018). "The Effects of Equine Assisted Therapy on Plasma Cortisol and Oxytocin Concentrations and Heart Rate Variability in Horses and Measures of Symptoms of Post-Traumatic Stress Disorder in Veterans." Journal of equine veterinary science 64: 17.

With the increase in the number of horses being used in Equine-Assisted Activities and Therapies (EAAT) programs and with the increasing concern for animal welfare, it is important to understand the impact of such interventions on the stress level and quality of life for the horses involved. The purpose of the present pilot study was to test the hypothesis that participation in EAAT would acutely alter physiological markers of stress and well-being, including plasma cortisol, plasma oxytocin, and heart rate variability (HRV), in horses and that symptoms of posttraumatic stress disorder (PTSD) would be reduced after five sessions of EAAT in veterans who had previously been diagnosed with PTSD. Nine healthy geldings, of various breeds, ages 10-23 years, conditioned and experienced as therapeutic riding horses, were selected to participate in the study. Of these, seven were selected at random to wear electrocardiogram units, and all nine were used for blood sampling to measure plasma cortisol and oxytocin. Each horse was randomly assigned to partner with a veteran for five EAAT sessions, 1 hour in duration. A standing control was conducted on a later date on which horses did not participate in EAAT. Measurement after 5 days of EAAT was conducted immediately after the end of the last session on day 5 using the Brief Symptom Inventory and the PCL-5 (a 20 item self-report

measure of the Diagnostic and Statistical Manual of Mental Disorders - 5 for symptoms of PTSD). Two way repeated measure analysis of variance showed no significant day by time interactions for plasma cortisol ($P = .821$) or oxytocin ($P = .861$). There was a significant day by time interaction ($P = .006$) for heart rate (HR); where on day 1, HR (bpm) was significantly lower during the interaction with the veterans. There were no significant differences in HRV variables. Posttherapy measures in PTSD symptoms in veterans were significantly reduced except for interpersonal sensitivity ($P = .08$) and phobic anxiety ($P = .17$). There was an effect of EAAT on HR which was significantly reduced on day 2 during the actual EAAT session. Equine-Assisted Activities and Therapies had no effect on respiration rate and systolic or diastolic blood pressure in veterans involved in five sessions of EAAT, lasting 60 minutes in duration over the course of 5 days. Stress levels, as demonstrated by plasma cortisol concentrations and HRV, did not change in horses involved in EAAT sessions with veterans who had been previously diagnosed with PTSD. Furthermore, the horses used in this study did not demonstrate increased levels of well-being as demonstrated by the lack of change in plasma oxytocin concentrations after EAAT sessions. Symptoms of PTSD did change significantly in the veterans who participated in this study.

Meinersmann, K. M., et al. (2008). "Equine-facilitated psychotherapy with adult female survivors of abuse." *J Psychosoc Nurs Ment Health Serv* 46(12): 36-42.

This qualitative study examined the stories of 5 women who experienced abuse and participated in equine-facilitated psychotherapy (EFP) as part of their recovery. Anecdotal accounts support the effectiveness of EFP with women who have experienced abuse, but there is a lack of supporting research. This study was designed to examine the effectiveness of EFP in the treatment of women who have experienced abuse. Selection criteria included age, experience of abuse, participation in EFP, and ability to understand English. Data analysis identified four patterns in the participants' stories: I Can Have Power; Doing It Hands On, Horses as Co-Therapists, and Turned My Life Around. Overall, the participants' stories show that EFP can be an effective intervention for women who have experienced abuse.

Mueller, M. K. and L. McCullough (2017). "Effects of Equine-Facilitated Psychotherapy on Post-Traumatic Stress Symptoms in Youth." *Journal of child and family studies* 26(4): 1164-1172.

Equine-assisted therapy has become an increasingly popular complementary mental health treatment approach, but there is limited empirical research assessing the effectiveness of this practice. In particular, equine-facilitated psychotherapy has many potential benefits for the treatment of trauma in youth. The purpose of the proposed study was to investigate changes in levels of post-traumatic stress symptomatology and levels of the human-animal bond in children and adolescents ages 10–18 over the course of a 10-week equine-facilitated psychotherapy (EFP) intervention. Youth in the treatment group ($n = 36$) participated in 10 weekly two hour EFP sessions, and were compared on changes in post-traumatic stress symptoms with a control group of participants ($n = 32$) who continued to receive the already existing traditional therapeutic services provided by their treatment facility or outpatient therapist. Findings suggested a significant decrease in post-traumatic stress symptoms across the intervention for both the treatment and control group, but the treatment group did not decrease significantly more than the control group. These findings suggest that EFP may be an effective additional

treatment modality for post-traumatic stress symptoms, but there was no evidence from this initial study that EFP was significantly more effective than traditional office-based therapy. Further research and discussion of the relative benefits of EFP compared to traditional treatment modalities is warranted.; Equine-assisted therapy has become an increasingly popular complementary mental health treatment approach, but there is limited empirical research assessing the effectiveness of this practice. In particular, equine-facilitated psychotherapy has many potential benefits for the treatment of trauma in youth. The purpose of the proposed study was to investigate changes in levels of post-traumatic stress symptomatology and levels of the human-animal bond in children and adolescents ages 10–18 over the course of a 10-week equine-facilitated psychotherapy (EFP) intervention. Youth in the treatment group (n = 36) participated in 10 weekly two hour EFP sessions, and were compared on changes in post-traumatic stress symptoms with a control group of participants (n = 32) who continued to receive the already existing traditional therapeutic services provided by their treatment facility or outpatient therapist. Findings suggested a significant decrease in post-traumatic stress symptoms across the intervention for both the treatment and control group, but the treatment group did not decrease significantly more than the control group. These findings suggest that EFP may be an effective additional treatment modality for post-traumatic stress symptoms, but there was no evidence from this initial study that EFP was significantly more effective than traditional office-based therapy. Further research and discussion of the relative benefits of EFP compared to traditional treatment modalities is warranted.;

Naste, T. M., et al. (2018). "Equine Facilitated Therapy for Complex Trauma (EFT-CT)." J Child Adolesc Trauma 11(3): 289-303.

Emerging research suggests that Equine Facilitated Psychotherapy (EFP) may be beneficial for traumatized youth. In addition, complex trauma (i.e., multiple and/or prolonged developmentally adverse traumatic events which are typically interpersonal in nature) treatment research is still growing and there is a need for the development and examination of novel treatments for youth with complex trauma histories. The current article describes a promising EFP model for this population called Equine Facilitated Therapy for Complex Trauma (EFT-CT). EFT-CT embeds EFP practices within Attachment, Regulation and Competency (ARC), an extant evidence-based complex trauma treatment framework for children and adolescents. The authors provide three case studies using both observational data provided by clinicians, as well as longitudinal measures of psychosocial functioning, to illustrate the potential promise of EFT-CT. The article concludes with a discussion about implications for EFP treatment and research.

Nevins, R., et al. (2013). "The Saratoga WarHorse project: a case study of the treatment of psychological distress in a veteran of Operation Iraqi Freedom." Adv Mind Body Med 27(4): 22-25.

OBJECTIVE: We theorized that ability to direct and control a horse will lead to a sense of empowerment, facilitate a relationship between horse and veteran, lead to a decrease in anxiety, and improve physical and social functioning. METHODS: This case study utilizes the Connection methodology: nonverbal language of the horse in a predictable, sequential, and

repeatable method. Psychological testing occurred immediately pre- and post-Connection with follow-up occurring at 2, 4, 6, and 12 wks post-Connection. PARTICIPANT: Twice-deployed combat medic who served in Operation Iraqi Freedom (OIF). SETTING: Saratoga Springs, New York. PRIMARY OUTCOME MEASURES: Beck Depression Inventory-II (BDI-II); Posttraumatic Stress Disorder Checklist (PCL-C); the Response to Stressful Experiences Scale (RSES); the Quality of Life Inventory (QOLI); and the Modified Social Support Survey (MSSS). RESULTS: The participant demonstrated significant improvement in measures of psychological functioning (eg, over 12 wks); both PCL-C and RSES scores decreased 58% and 44%, respectively. Participant further reported an increase in sleep quality. CONCLUSION: The results of this case study strongly support the potential for the intervention and indicate the need for a controlled, randomized study that might more stringently investigate the impact of the intervention.

Nurenberg, J. R., et al. (2015). "Animal-assisted therapy with chronic psychiatric inpatients: equine-assisted psychotherapy and aggressive behavior." *Psychiatr Serv* 66(1): 80-86.

OBJECTIVE: Animal-assisted therapy (AAT), most frequently used with dogs, is being used increasingly as an adjunctive alternative treatment for psychiatric patients. AAT with larger animals, such as horses, may have unique benefits. In this randomized controlled study, equine and canine forms of AAT were compared with standard treatments for hospitalized psychiatric patients to determine AAT effects on violent behavior and related measures. METHODS: The study included 90 patients with recent in-hospital violent behavior or highly regressed behavior. Hospitalization at the 500-bed state psychiatric hospital was two months or longer (mean 5.4 years). Participants were randomly selected to receive ten weekly group therapy sessions of standardized equine-assisted psychotherapy (EAP), canine-assisted psychotherapy (CAP), enhanced social skills psychotherapy, or regular hospital care. Participants' mean age was 44, 37% were female, 76% had diagnoses of schizophrenia or schizoaffective disorder, and 56% had been committed involuntarily for civil or forensic reasons. Violence-related incident reports filed by staff in the three months after study intake were compared with reports two months preintake. RESULTS: Interventions were well tolerated. Analyses revealed an intervention group effect ($F=3.00$, $df=3$ and 86 , $p=.035$); post hoc tests showed specific benefits of EAP ($p<.05$). Similar AAT effects were found for the incidence of 1:1 clinical observation ($F=2.70$, $df=3$ and 86 , $p=.051$); post hoc tests suggested benefits of CAP ($p=.058$) as well as EAP ($p=.082$). Covariance analyses indicated that staff can predict which patients are likely to benefit from EAP ($p=.01$). CONCLUSIONS: AAT, and perhaps EAP uniquely, may be an effective therapeutic modality for long-term psychiatric patients at risk of violence.

Pelyva, I. Z., et al. (2020). "How Equine-Assisted Activities Affect the Prosocial Behavior of Adolescents." *Int J Environ Res Public Health* 17(8).

Multiple studies have investigated the positive effects of human-animal interactions and showed that animal-assisted activities can be successfully used to better human physical and mental health. Equine-assisted activities have also raised considerable attention within the field. Our research focuses on healthy students (aged 14-18) without deviations or special educational needs. We analyze the occurrence of behavior problems and prosocial behavior among adolescents who regularly have interactions with horses, and those who have no connection to horses at all. The subjects of our investigation completed the strengths and difficulties

questionnaire (SDQ), and we use a 'quasi' 2 x 2 before-after control-impact design to analyze the data. Students studying equine-related vocations and students of other vocations are compared, at the beginning and at the end of their studies. Our results indicate that students of equine-related vocations are more helpful and empathetic, and have fewer behavior problems, than those studying other vocations. There is a negative correlation between prosocial behavior and behavior problems. The development of the prosocial behaviors of students with regular horse-human interactions is more remarkable than of those who have no connection to horses. With these results, we are going to confirm the hypothesis that equine-assisted activities correlate with positive behavioral traits among healthy adolescents.

Pendry, P., et al. (2014). "Improving adolescent social competence and behavior: a randomized trial of an 11-week equine facilitated learning prevention program." *J Prim Prev* 35(4): 281-293.

There is growing evidence that promoting social competence in youth is an effective strategy to prevent mental, emotional, and behavioral disorders in adulthood. Research suggests that programs delivered in collaboration with schools are particularly effective when they target social and emotional skill building, utilize an interactive instructional style, provide opportunities for youth participation and self-direction, and include explicit attempts to enhance youth social competence. A relatively new but popular approach that incorporates these characteristics is human animal interaction, which can be implemented in educational settings. We report the results from a randomized clinical trial examining the effects of an 11-week equine facilitated learning (EFL) program on the social competence and behavior of 5th-8th grade children. Children (N = 131) were recruited through referral by school counselors and school-based recruitment and then screened for low social competence. Researchers randomly assigned children to an experimental (n = 53) or waitlisted control group (n = 60). Children in the experimental group participated in an 11-week EFL program consisting of once-weekly, 90-min sessions of individual and team-focused activities, whereas children in the control group served as a wait-listed control and participated 16 weeks later. Parents of children in both groups rated child social competence at pretest and posttest. Three independent raters observed and reported children's positive and negative behavior using a validated checklist during each weekly session. Results indicated that program participation had a moderate treatment effect (d = .55) on social competence (p = .02) that was independent of pretest levels, age, gender, and referral status. Results showed that higher levels of program attendance predicted children's trajectories of observed positive ($\beta = .500$; p = .003) and negative behavior ($\beta = -.062$; p < .001) over the 11-week program.

Perkins, B. L. (2018). "A Pilot Study Assessing the Effectiveness of Equine-Assisted Learning with Adolescents." *Journal of creativity in mental health* 13(3): 298-305.

This study contains an observation of six female participants (N = 6) who completed 8 weeks of a psychoeducational life skills program. The program included psychoeducational sessions that covered life skills related to partnership, respect, boundaries, communication, emotional regulation, problem-solving, and teamwork followed by an Equine-Assisted Learning (EAL) session. A paired sample t-test was conducted to measure the effectiveness of the equine therapy program with the psychoeducation lesson. A mental health professional, equine specialist, and a ranch worker observed and scored participants' behaviors after each session. A

paired-samples t-test was conducted after week 4 and week 7; the results indicated that participants showed improvement in communication, confidence, and respect scores. The participants demonstrated improvements with emotional regulation $t(11) = 2.862, p = .015$.

Roberts, F., et al. (2004). "Equine-facilitated psychotherapy benefits students and children." Holist Nurs Pract 18(1): 32-35.

Baccalaureate nursing students who participated in equine-facilitated psychotherapy (EFP) clinical observation found that they could benefit as much from the program as the child clients. By identifying beneficial educational outcomes of this nontraditional learning assignment, the authors hope readers will explore similar possibilities for nurses at various stages of their professional development.

Roberts, H. and N. Honzel (2020). "The Effectiveness of Equine-Facilitated Psychotherapy in Adolescents with Serious Emotional Disturbances." Anthrozoös 33(1): 133-144.

Adolescents with serious emotional disturbances (SED) are a particularly difficult population to treat owing to high comorbidity rates of anxiety, depression, post-traumatic stress, and behavioral conduct disorders. The current study compared the effectiveness of equine-facilitated psychotherapy (EFP) and traditional group therapy (TGT) on levels of positive and negative affect in adolescents with SED. We hypothesized that participants would have higher overall positive affect after EFP compared with TGT and that negative affect would be significantly lower after EFP compared with TGT. Adolescents with SED participated in EFP and TGT sessions once a week over an 8-week period in addition to normative treatment. The Positive and Negative Affect Scale was administered immediately before and after the sessions. Statistical analyses revealed that EFP was just as effective as TGT in increasing positive affect and decreasing negative affect. More importantly, participants had significantly higher positive affect before and after EFP compared with TGT. Even though positive affect scores improved in both therapies, participants arrived to and left EFP with significantly higher positive affect scores than those attending TGT. Owing to its effect on positive affect, EFP may be a beneficial alternative to traditional therapies for adolescents with SED.

Robinson-Edwards, S., et al. (2019). "Examining prisoner experience of an equine assisted psychotherapy." Therapeutic communities 40(3/4): 111-124.

Purpose The purpose of this paper is to examine prisoner experience of an equine assisted psychotherapy (EAP). This paper explores the use of therapeutic interventions; specifically focussing on EAP, within this paper EAP constitutes the use of horses in therapy and involves a team approach from equine and mental health experts. **Design/methodology/approach** This paper took a qualitative approach; due to the exploratory nature of this study a phenomenological approach was adopted. Interpretative phenomenological analysis was deemed appropriate; the intervention took place in an adult, male, open condition prison in England (Category D) however participants who engaged in the equine intervention were from both the open prison and a nearby closed Category C prison. The equine intervention was delivered by qualified therapists who worked to help improve emotional regulation among participants with a history of drug and alcohol abuse. **Findings** The findings within this paper identify a strong correlation between EAP and positive experiences expressed by participants.

Alternative approaches such as animal assisted therapies are worthy of consideration when attempting to support the rehabilitation and treatment needs of incarcerated clients. Participants achieved a number of goals and their confidence improved as they felt a sense of achievement. Research limitations/implications This paper demonstrates the complexities of therapeutic interventions. Research relating to EAP in the UK is few and far between, consequently understanding is limited. This paper seeks to offer an insight into this topic and build upon this research in the future. Practical implications Access to prison for research purposes is challenging. Due to the nature of this study and the resources required sometimes EAP therapy cannot be implemented in or near many prisons in England and Wales. Therefore gaining access to this prison and exploring the data is the first phase of further research in this area. Social implications Researching the way individuals experience therapeutic interventions is a “growing phenomenon”. This paper aimed to explore EAP interventions, however due to the sample size it was imperative that the role of EAP was not misrepresented. Therefore this papers intention is to raise awareness of EAP interventions and therapeutic interventions in prisons in England and Wales. Originality/value To the authors knowledge no previous study has examined such an intervention using this method and as such the findings of this evaluation are important. Moreover this paper enhances and develops our knowledge about how best to support and treat people with histories of substance use and/or mental health problems and anxiety while in prison, and the vital role such therapies may play.;

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Romaniuk, M., et al. (2018). "Evaluation of an equine-assisted therapy program for veterans who identify as 'wounded, injured or ill' and their partners." *PLoS One* 13(9): e0203943.

The aim of this study was to evaluate outcomes of an equine-assisted therapy program for Defence Force veterans and their partners across the psychological domains of depression, anxiety, stress, posttraumatic stress, happiness, and quality of life, as well as compare the outcomes of an Individual and Couples program. A non-controlled, within-subjects longitudinal design was utilized with assessment at three time points (pre-intervention, post-intervention, and three months follow-up). Between-subjects analysis with two groups was also conducted to compare the outcomes of the Individual and Couples programs. Participants were recruited from ten programs in 2016 with a total of 47 veterans and partners from both an Individual program (n = 25; veterans only) and a Couples program (n = 22). Outcome measures included the Depression Anxiety Stress Scale-21, Posttraumatic Stress Disorder Checklist for DSM-5, Oxford Happiness Questionnaire, and Quality-of-Life Enjoyment and Satisfaction Questionnaire-Short Form. Paired samples t-tests revealed that within both the Individual and Couples programs, there were significantly fewer psychological symptoms and significantly greater levels of happiness and quality of life at post-intervention compared to pre-intervention. Reduced psychological symptoms were maintained at the three months follow-up for participants of the Couples program only. Independent samples t-tests revealed participants in the Couples program reported significantly less symptoms of depression, stress, and posttraumatic stress disorder (PTSD) at follow-up compared to participants in the Individual program. These results indicate there may only be meaningful benefits for equine-assisted therapy in the reduction of depression, stress, and PTSD symptoms for veterans, if partners are integrated into the intervention.

Schmidt, J., et al. (2020). "Equine-assisted biographical work (EABW) with individuals in the second half of life: study protocol of a multicentre randomised controlled trial." *Trials* 21(1): 857.

BACKGROUND: Equine-assisted therapy is more often practiced with children and adolescents than with the elderly, although individuals in the second half of life could also profit from it. This group, from the age of 50, is characterised by increasing emotional, social, health-related and cognitive changes; a critical life event, such as a neurological illness or loss of a family member, can increase the likelihood of subclinical depression. Individuals who exhibit depressive symptoms not necessarily diagnosed with a major depression may suffer from relevant losses of quality of life (e.g. sleep disorders, memory disorders, feelings of guilt, hopelessness). Despite the fact that the various healthcare systems are in general more frequently used, such individuals often do not receive adequate therapy. The processing of one's biography (reminiscence) is an elementary component of most psychotherapy approaches and has been demonstrated to treat and prevent the development of major depression. In this study, equine-assisted biographical work (EABW), a combination of equine-assisted therapy and biographical work, will be applied with individuals with subclinical depression in the second half of their life. **METHODS:** This is a multicentre, prospective, randomised, controlled and open phase III study in

enrolling participants with subclinical depression. The aim of the study is to evaluate whether a preventive, equine-assisted, age-specific treatment combining elements of equine-assisted intervention with those of biographical work offers better treatment potentials in comparison to a control group with no intervention. Study participants in the intervention group will receive weekly equine-assisted biographical work over a period of 8 weeks. The primary endpoint is the change in Beck Depression Inventory-II (BDI-II) in a pre-post comparison. Secondary endpoints include other health-related questionnaires including quality of life, reminiscence functions and anxiety. DISCUSSION: The present study is the first randomised study examining the efficacy of biographical work with a horse and has the potential to establish an empirically based treatment for individuals in the second half of life and improving the symptoms of subclinical depression. TRIAL REGISTRATION: German Clinical Trials Register DRKS00017010 . Registered on 01 April 2019.

Schroeder, K., et al. (2018). "Therapeutic Factors in Equine-Facilitated Group Psychotherapy for Women Survivors of Interpersonal Violence." The Journal for specialists in group work 43(4): 326-348.

This study entailed a qualitative content analysis of therapeutic factors in equine-facilitated group psychotherapy (EFGP) for women trauma survivors (n = 9). Our findings indicated that instillation of hope, self-understanding, learning from interpersonal action, guidance, and acceptance frequently appeared in group members' narratives about their most important session events. These, as well as other group therapeutic factors, manifested in unique ways specific to the EFGP format. Clinical practice implications and new directions for future research investigations are discussed within the context of designing and delivering equine-facilitated therapy groups.; This study entailed a qualitative content analysis of therapeutic factors in equine-facilitated group psychotherapy (EFGP) for women trauma survivors (n = 9). Our findings indicated that instillation of hope, self-understanding, learning from interpersonal action, guidance, and acceptance frequently appeared in group members' narratives about their most important session events. These, as well as other group therapeutic factors, manifested in unique ways specific to the EFGP format. Clinical practice implications and new directions for future research investigations are discussed within the context of designing and delivering equine-facilitated therapy groups.;

Shelef, A., et al. (2019). "Equine Assisted Therapy for Patients with Post Traumatic Stress Disorder: A Case Series Study." Military medicine 184(9-10): 394-399.

Introduction Equine assisted therapy (EAT) which includes therapeutic horseback riding (THR), grooming, horsemanship and ground level work with horses, has been studied as treatment for children with special needs and/or autistic spectrum disorder. Preliminary evidence indicates that EAT is also effective for improving self-efficacy and self-esteem in adults with psychiatric disorders. Empowerment, bonding and building trust with the horses, may promote functioning of patients struggling with post traumatic stress disorder (PTSD). The authors performed a prospective, pilot open case series study to assess the effect of EAT on patients with PTSD in terms of symptoms and functioning in work, family and social interaction. Methods Patients with PTSD received EAT once a week for 3 consecutive hours for 6 months. The Short Post Traumatic Stress Disorder Rating Interview (SPRINT) and the Sheehan Disability Scale (SDS) were assessed at baseline, the SDS after 1 and 6 months, and the SPRINT after 6 months. Results

Thirteen of 23 participants completed the study. Ten participants withdrew from the study for various reasons including discomfort from horses. Total SPRINT scores showed a statistically significant improvement in PTSD symptoms (baseline vs. 6 months: 24.38 ± 6.4 vs. 21.54 ± 7.94 points; $p < 0.05$). SPRINT scores indicated improvement in the ability to work and perform daily tasks ($p < 0.05$). A statistically significant improvement in the total SDS score was revealed following 1 month ($p < 0.03$) and after 6 months ($p < 0.02$) of EAT. There was also a significant decline in the days of inefficiency (baseline vs. 6 months: 4.15 ± 2.73 vs. 1.88 ± 2.18 days per week, $p < 0.02$). Conclusion This preliminary pilot open case series study suggests that EAT may be a beneficial treatment for patients suffering from PTSD. The study demonstrated improved ability to work and perform daily tasks and reduction in the number of days of inefficiency. Further large-scale long-term studies are warranted to substantiate our observation.

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Steele, E., et al. (2018). "TRR's Warrior Camp: An Intensive Treatment Program for Combat Trauma in Active Military and Veterans of All Eras." Military medicine 183(suppl_1): 403-407.

Effective treatments for combat trauma in military service members exist, but barriers to care abound, including poor access, stigma, and dropout. Although the effects of post-traumatic stress disorder (PTSD) can be severe, recovery is possible when proper treatment is implemented. Trauma and Resiliency Resources, Inc.'s Warrior Camp (WC) program is designed to address the effects of combat trauma in military service members and veterans. This intensive, 7-d treatment incorporates eye movement desensitization and reprocessing therapy, equine-assisted psychotherapy, yoga, and narrative writing in context of community. This single-group pretest–posttest design included paired t-tests and effect size analyses for 85 participants of WC. Outcome measures included the Mississippi Scale for Combat-related PTSD, the Patient Health Questionnaire, the Revised Adult Attachment Scales, and the Moral Injury Events Scale. Clinician-administered measures included the Davidson Trauma Scale and the Dissociative Experiences Scale. All measures showed statistically significant reductions in distress. The effect sizes ranged from small to large. Results suggest that WC participants experienced significant improvement in PTSD, depression, moral injury, dissociation and adult attachment. Clinicians should consider the potential benefits of this short-term, intensive treatment when addressing combat-related PTSD among military service members and veterans.;

Sylvia, L., et al. (2020). "Acceptability of an adjunct equine-assisted activities and therapies program for veterans with posttraumatic stress disorder and/or traumatic brain injury." J Integr Med 18(2): 169-173.

OBJECTIVE: Equine-assisted activities and therapies (EAATs) have been a growing adjunctive integrative health modality, as they allow participants to practice mindfulness, emotional regulation, and self-mastery or self-esteem building skills. Preliminary evidence suggests that these programs may be helpful in reducing posttraumatic stress disorder (PTSD), anxiety, and depressive symptoms. The current study examines the acceptability of integrating an EAAT program as part of a two-week, intensive clinical program for veterans with PTSD and/or traumatic brain injury (TBI). METHODS: A family member or support person could accompany veterans and participate in the program. One hundred and six participants (veteran $n = 62$, family $n = 44$) left the urban environment in an intensive outpatient program (IOP) to attend a two-day, weekend EAAT in rural New Hampshire. Satisfaction surveys were conducted on the last day of the program and examined using thematic analysis. RESULTS: The following themes were reported in the surveys: ability of horses to catalyze emotional rehabilitation, effectiveness

of immersion in equine-assisted activities, program's ability to foster interpersonal relationships and necessity of education about PTSD for staff. Participants also reported enjoying the program as highlighted by qualitative feedback, a mean score of 9.76 (standard deviation [SD] = 0.61) as reported by veterans and a mean score of 9.91 (SD = 0.29) as reported by family members on a 10-point visual analog scale with higher scores indicating a greater overall experience.

CONCLUSION: These data offer preliminary evidence that an adjunct EAAT program is acceptable for veterans with PTSD and/or TBI participating in an IOP.

Tan, V. X.-L. and J. G. Simmonds (2017). "Parent Perceptions of Psychosocial Outcomes of Equine-Assisted Interventions for Children with Autism Spectrum Disorder." Journal of autism and developmental disorders 48(3): 759-769.

This research explored parents' perceptions of the psychosocial outcomes of their children's experience of receiving equine-assisted interventions (EAI). Participants were the parents of six children (aged 3–14) diagnosed with autism spectrum disorder. Five semi-structured interviews were conducted and the transcript data was analysed using Interpretative phenomenological analysis. Four super-ordinate themes emerged from the analysis: (1) child's improved self-concept and enhanced emotional well-being, (2) child's improved self-regulatory ability, (3) social benefits for the child, and (4) unexpected outcomes. EAI was perceived by the parents as having several levels of psychosocial benefits for their children. These benefits may also extend to parents and family through ecopsychological and "flow on" effects associated with the children's involvement in EAI programs.

Tsantefski, M., et al. (2017). "An open trial of equine-assisted therapy for children exposed to problematic parental substance use." Health Soc Care Community 25(3): 1247-1256.

Children exposed to problematic parental substance use (PPSU) often face a number of deleterious developmental outcomes, yet these children are less likely to become known to child protection and welfare services. Although there is a growing evidence base for equine-assisted therapy (EAT) as an effective treatment modality for atypically developing children and adolescents, scant research has explored the benefit of EAT for children exposed to PPSU. The current study is the first to explore the benefit of EAT for children exposed to PPSU in Victoria, Australia. Five 12-week EAT programmes were delivered from 2012 to 2015 with a total of 41 children (mean age of 10.26 years) taking part. Children's parents (n = 41) and schoolteachers (n = 31) completed the Strengths and Difficulties Questionnaire pre- and post-intervention. Parents reported that children's total difficult behaviour and emotional problems decreased following the 12-week EAT programme. In addition, parents and teachers observed a significant decrease in children's hyperactivity. The findings obtained highlight the benefit of EAT for children exposed to PPSU and thus, extends the existing evidence base for this treatment modality.

Wharton, T., et al. (2019). "Pilot Testing a Manualized Equine-Facilitated Cognitive Processing Therapy (EF-CPT) Intervention for PTSD in Veterans." Psychiatric rehabilitation journal 42(3): 268-276.

The objective of this study was to test effectiveness and feasibility of equine-facilitated cognitive processing therapy (EF-CPT), a manualized adaptation of the cognitive processing therapy model for veterans with posttraumatic stress disorder (PTSD) championed by the Department of

Veterans Affairs, in which equine-facilitated activities are integrated into face-to-face sessions. Twenty-seven veterans with a diagnosis of PTSD participated (M = 51; 78% male) in a pretest-posttest design. Veterans were seen by a single psychologist for 12 sessions of individual EF-CPT. Instruments included: PTSD Checklist (PCL), Trauma Related Guilt Inventory (TRGI), Working Alliance Inventory (WAI), and the Human Animal Bond Scale (HABS). We hypothesized improvement on all measures, low attrition, and good model fidelity. Paired sample t tests were conducted using SPSS. PCL scores improved significantly (M1 = 68.25, M2 = 35.96, $p \leq .001$), as did TRGI scores ($p \leq .001$ on all scales). HABS and WAI indicated good working relationship. Two individuals attended one session and did not return (both under the age of 50); there was no other attrition (7% rate). Audio of sessions was reviewed for fidelity; there were variations in temporal order of session plans, which is within the acceptable flexibility of the manual. This manualized intervention has promise as an effective and well-tolerated treatment for veterans with PTSD. (PsycINFO Database Record (c) 2019 APA, all rights reserved).;Objective: The objective of this study was to test effectiveness and feasibility of equine-facilitated cognitive processing therapy (EF-CPT), a manualized adaptation of the cognitive processing therapy model for veterans with posttraumatic stress disorder (PTSD) championed by the Department of Veterans Affairs, in which equine-facilitated activities are integrated into face-to-face sessions. Method: Twenty-seven veterans with a diagnosis of PTSD participated (M age = 51; 78% male) in a pretest-posttest design. Veterans were seen by a single psychologist for 12 sessions of individual EF-CPT. Instruments included: PTSD Checklist (PCL), Trauma Related Guilt Inventory (TRGI), Working Alliance Inventory (WAI), and the Human Animal Bond Scale (HABS). We hypothesized improvement on all measures, low attrition, and good model fidelity. Paired sample t tests were conducted using SPSS. Results: PCL scores improved significantly (M1 = 68.25, M2 = 35.96, $p \leq .001$), as did TRGI scores ($p \leq .001$ on all scales). HABS and WAI indicated good working relationship. Two individuals attended one session and did not return (both under the age of 50); there was no other attrition (7% rate). Audio of sessions was reviewed for fidelity; there were variations in temporal order of session plans, which is within the acceptable flexibility of the manual. Conclusions and Implications for Practice: This manualized intervention has promise as an effective and well-tolerated treatment for veterans with PTSD. (PsycINFO Database Record (c) 2019 APA, all rights reserved) (Source: journal abstract);Objective: The objective of this study was to test effectiveness and feasibility of equine-facilitated cognitive processing therapy (EF-CPT), a manualized adaptation of the cognitive processing therapy model for veterans with posttraumatic stress disorder (PTSD) championed by the Department of Veterans Affairs, in which equine-facilitated activities are integrated into face-to-face sessions. Method: Twenty-seven veterans with a diagnosis of PTSD participated (Mage = 51; 78% male) in a pretest-posttest design. Veterans were seen by a single psychologist for 12 sessions of individual EF-CPT. Instruments included: PTSD Checklist (PCL), Trauma Related Guilt Inventory (TRGI), Working Alliance Inventory (WAI), and the Human Animal Bond Scale (HABS). We hypothesized improvement on all measures, low attrition, and good model fidelity. Paired sample t tests were conducted using SPSS. Results: PCL scores improved significantly (M1 = 68.25, M2 = 35.96, $p \leq .001$), as did TRGI scores ($p \leq .001$ on all scales). HABS and WAI indicated good working relationship. Two individuals attended one session and did not return (both under the age of 50); there was no other attrition (7% rate). Audio of sessions was reviewed for fidelity; there were variations in temporal order of session plans, which is within the acceptable flexibility of the manual. Conclusions and Implications for Practice: This manualized intervention has promise as an effective and well-tolerated treatment for veterans with PTSD. Impact and

Implications This pilot of an adapted, manualized equine-facilitated cognitive processing therapy model for veterans with posttraumatic stress disorder demonstrated efficacy and low attrition, suggesting a viable alternative treatment option for veterans who have been reluctant to engage with services. This pilot is unique in the use of a novel standardized manual and attention to fidelity to the model.;

OBJECTIVEThe objective of this study was to test effectiveness and feasibility of equine-facilitated cognitive processing therapy (EF-CPT), a manualized adaptation of the cognitive processing therapy model for veterans with posttraumatic stress disorder (PTSD) championed by the Department of Veterans Affairs, in which equine-facilitated activities are integrated into face-to-face sessions.

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Willmund, G., et al. (2021). "Equine-assisted psychotherapy with traumatized couples-Improvement of relationship quality and psychological symptoms." *J Marital Fam Ther* 47(4): 925-944.

Many traumatised individuals suffering from deployment related PTSD report severe problems in their relationships. Up until now, the therapeutic interventions used by the German Armed Forces have rarely targeted these problems through the integration of partners. For this reason, a Program designed specifically for couples was developed. In this prospective study equine-

assisted psychotherapy was applied to soldiers and their spouses. The study population consisted of n = 36 couples, divided in n = 20 therapy group with a inpatient equine-assisted intervention and a 16-couples control group. After the intervention, numerous significant improvements occurred in the therapy group in the areas of current, somatic and communication problems, depressive symptoms and partnership quality but not in the control group. PTSD was reduced significantly on the sub-scale associated with negative thoughts. These results show that the intervention is an effective way to improve partnership quality and reduce the stressors that the partners of afflicted service members face.

Wilson, K., et al. (2017). "Equine-Assisted Psychotherapy for adolescents experiencing depression and/or anxiety: A therapist's perspective." Clin Child Psychol Psychiatry 22(1): 16-33.

Animal-Assisted Interventions (AAIs) are thought to overcome some of the limitations of traditional therapies as they do not rely exclusively on language as a medium for change. One such Animal-Assisted Therapy (AAT) approach involves horses as a therapeutic medium. Equine-Assisted Psychotherapy (EAP) comprises a collaborative effort between a licensed therapist and a horse professional working with clients to address treatment goals. The purpose of the present Australian-based qualitative study was to examine EAP facilitators' perspectives on the biosychosocial benefits and therapeutic outcomes of EAP for adolescents experiencing depression and/or anxiety. The findings suggest a range of improvements within adolescent clients, including increases in confidence, self-esteem and assertiveness, as well as a decrease in undesirable behaviours. The effectiveness of the therapy was thought to be due to the experiential nature of involving horses in therapy. The lack of understanding in the wider community about EAP was seen as a barrier to recognition and acceptance of EAP as a valid therapeutic intervention.

Zhu, X., et al. (2021). "Neural changes following equine-assisted therapy for posttraumatic stress disorder: A longitudinal multimodal imaging study." Hum Brain Mapp 42(6): 1930-1939.

BACKGROUND: While effective treatments for posttraumatic stress disorder (PTSD) exist, many individuals, including military personnel and veterans fail to respond to them. Equine-assisted therapy (EAT), a novel PTSD treatment, may complement existing PTSD interventions. This study employs longitudinal neuro-imaging, including structural magnetic resonance imaging (sMRI), resting state-fMRI (rs-fMRI), and diffusion tensor imaging (DTI), to determine mechanisms and predictors of EAT outcomes for PTSD. **METHOD:** Nineteen veterans with PTSD completed eight weekly group sessions of EAT undergoing multimodal MRI assessments before and after treatment. Clinical assessments were conducted at baseline, post-treatment and at 3-month follow-up. **RESULTS:** At post-treatment patients showed a significant increase in caudate functional connectivity (FC) and reduction in the gray matter density of the thalamus and the caudate. The increase of caudate FC was positively associated with clinical improvement seen immediately at post-treatment and at 3-month follow-up. In addition, higher baseline caudate FC was associated with greater PTSD symptom reduction post-treatment. **CONCLUSIONS:** This exploratory study is the first to demonstrate that EAT can affect functional and structural changes in the brains of patients with PTSD. The findings suggest that EAT may target reward circuitry responsiveness and produce a caudate pruning effect from pre- to post-treatment.