

Group Exercise as an Adjunct Treatment for Trauma

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Introduction

The health benefits of exercise are hard to ignore. In addition to the many physical benefits (weight control, decreased risk of cardiovascular disease, more energy, and better sleep), physical activity stimulates various brain chemicals that improve mood and relaxation. Exercise is so important to one's physical and mental health, that many programs are adding it as an adjunct treatment to traditional interventions. Research has found significant benefits in using exercise as an adjunct treatment modality for depression [1,2], anxiety [3,4], Post Traumatic Stress Disorder (PTSD) and substance-related disorders [5]. In their review of the literature, Pedersen and Saltin concurred that physical activity could be a supplement to medical treatment to reduce symptoms of depression [6]. Salmon found consistent reductions in anxiety in adult samples following exercise [7]. Additionally, the co-occurrence of PTSD and substance use disorders is a major concern, where Zschucke and colleagues identified the need for adjuvant therapies and long-term life-style modifications due to the high rates of relapse and physical and mental comorbidities among those who suffer from substance use disorders [8].

Trauma

Often, clients are treated for depression or anxiety symptoms where the underlying issue is untreated childhood psychological trauma. Shaw, McFarlane, Bookless and Air (2002) found that 23% of patients in psychiatric hospitals may have suffered some form of childhood trauma, but few received treatment aimed at the problems created by that history [9]. Research has shown that traumatic childhood experiences are common and have a profound impact on development [10-12]. The American Psychiatric Association [APA] defines a traumatic event as exposure to actual or threatened death, serious injury, or sexual violence where one must directly experience the traumatic event, witness the traumatic event in person, learn that the traumatic event occurred to a close family member or close friend (with the actual or threatened death being either violent or accidental), or experience first-hand repeated or extreme exposure to aversive details of the traumatic event [13]. More recent research has argued that the definition and what qualifies as traumatic has been problematic, suggesting that the definition of traumatic events should be expanded to include adverse childhood experiences that are not typically considered traumatic according to the DSM-5 PTSD criterion [14]. Felitti and colleagues conducted the Adverse Childhood Experiences study which looked at the impact of child abuse and household dysfunction, which included conditions such as parental drug abuse, spousal violence, and criminal activity in the household, on adult health and well-being. Felitti et al. recognized that without measuring household factors, as well as child abuse, long-term influence might be wrongly attributed solely to single types of abuse and the cumulative influence of multiple categories of adverse childhood experiences would not be assessed [15]. Based on the above definition, untreated trauma is a pervasive and growing problem and has been identified as our nation's single most important public health challenge [16].

The benefit of the group experience is something well supported among treatment of trauma survivors [17]. Sloan et al. conducted a

meta-analysis of 16 studies looking at the efficacy of group treatments for adult survivors of trauma with PTSD symptoms and found that group treatments were associated with significant pre- to post treatment reduction in PTSD symptom severity and result in superior treatment effects relative to a wait list comparison condition [18]. The group creates a sense of relief at no longer being alone in the world. This is done in a safe space, where group members give voice to their experience with the support of empathetic and non-judgmental members.

Exercise and Psychological Trauma

In addition to the physical and psychosocial effects, exercise is also beneficial to the brain and nervous system. An endogenous substance that plays a central role in the health of neurons is brain-derived neurotrophic factor (BDNF). Literature suggests that exercise significantly increases BDNF activity in regions of the brain critical to fear extinction and fear extinction is a critical component in overcoming symptoms of PTSD [19-21]. This is significant given that Bessel van der Kolk argued that after trauma, the world is experienced with a different nervous system [22]. With those who have experienced psychological trauma, the critical balance between the amygdala and the medial prefrontal cortex shifts, which makes it harder to control emotions and impulses [23]. To control one's impulses and emotions relies on one's ability to learn self-regulation. Since brain structures involved in self-regulation also control the autonomic nervous system, heart rate variability (HRV) has recently been identified as a measure of self-regulatory capacity [24]. Research has shown a relationship between HRV and exercise [25], where moderate to intense exercise has been shown to raise HRV, which has been correlated with improvements with self-regulation and PTSD symptomology [24,26]. Another benefit of exercise is improvements in mood which are connected with endorphin release. Such endorphin release leads to improvements in social skills, increases in self-confidence, and a disregard of negative thoughts [27]. Finally, the goal of group exercise is to connect to leisure as a healthy coping resource, all the while reaping the benefits of exercise.

The Benefit of the Group in Exercise

It seems that adding physical activity to a treatment plan would be easy to apply in clinical settings, yet most clients struggle to begin a physical activity program. The struggle may be correlated to the modality, in that most programs involve home based or individualized gym based exercise programs. The social interaction hypothesis indicates that those individuals who participate in physical activity gain social support from others, thus improving their mental health [28].

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Received July 03, 2015; Accepted July 14, 2015; Published July 21, 2015

Citation: Nowakowski Sims E (2015) Group Exercise as an Adjunct Treatment for Trauma. J Trauma Treat S2: 014. doi:10.4172/2167-1222.S2-014

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Group and facility-based exercise both appear to be more beneficial than individual and home-based programs [29]. One meta-analysis of 56 studies looking at the effect of exercise interventions on quality of life found that quality of life improved among both healthy and clinical patients whom exercised in groups, but not among those whom used home-based or individual regimens [30], in a study of the benefits of group exercise among women with breast cancer, Mutrie et al. found that supervised group exercise provided functional and psychological benefits for its clients, where the group itself was an important aspect and that exercise in standard settings did not provide the same benefits [31]. Muller and Clausen found that quality of life improved among completers of the group exercise program, where group exercise was an effective way to increase substance use disorder patients' valuation of their physical and mental capabilities and functionality [32]. Additionally, study participants were more likely to attend when their peers attended. Research supports the idea that the group experience offers participants positive social reinforcement, which has been shown to be a powerful predictor of success.

Group exercise with trauma survivors is an emerging research area with very few empirically based studies. Manger and Motta found significant reductions in PTSD, anxiety, and depression following an aerobic exercise intervention and these reductions were maintained in a 1month follow-up [33]. Newman and Motta noted positive changes in the anxiety, depression, and PTSD symptoms of adolescents after an eight-week aerobic exercise program [34]. Among a sample of rape survivors exhibiting PTSD-related symptoms, Smith found that a combined intervention of cognitive-behavioral therapy (CBT) and physical exercise led to significantly greater symptom improvement than CBT alone [35]. Although these studies recognize the benefits of exercise with trauma survivors, more research is needed to study the benefit of the group during exercise as a motivator to stay engaged and continue treatment.

Although little is known of the effects of group exercise on trauma survivors, or the role group exercise plays in healing, the concept of body movement as an intervention is not new. van der Kolk reported that the memory of the trauma is encoded in the viscera, where what is traumatizing is the blockage of effective behavioral escape responses in the presence of highly threatening events, creating a state in which intense emotional responding becomes divorced from effective coping [36]. In his book, *The Body Keeps the Score*, van der Kolk argued that the most successful treatment incorporates top down approaches (those that activate social engagement) with bottom up methods (those to calm physical tensions in the body) [22]. A variety of body movement interventions have been explored to address the body based nature of the trauma response, most notably yoga [22,37]. Learning yoga can help a person regain their sense of being in control of their lives, as well as increase their self-dependence [38]. Another body movement intervention that is a powerful adjunct to traditional treatment of trauma is self-defense training and has been successful among survivors of interpersonal violence who suffer from PTSD, anxiety, and depressive disorders [39]. Rosenblum and Taska explain that the group process works to provide normalization, social support, and the reduction of stigma, where the goal of class is to facilitate the internalization of new resources and access experiences of "triumph" over the trauma.

There isn't any available literature regarding the extent to which trauma survivors might be amenable to participation in group exercise. Information regarding exercise habits and attitudes toward exercise in persons with trauma histories present an important first step toward the development of exercise-based interventions. Exercise has been shown

to provide tension relief, stress reduction, and a more positive attitude [8] and the group experience can potentially increase the effect of the intervention because of heightened motivation as a result of the social interaction among the participants.

Conclusion

Group exercise improves quality of life, mood, physical functioning, and emotional well-being. There is an existing gap in research regarding the effects of group exercise as an adjunct treatment among trauma survivors. Because of the benefits of the group experience, group exercise may be an effective adjunct treatment used to lessen the symptoms associated with psychological trauma and increase quality of life. Clinicians and trauma informed agencies should consider the inclusion of group exercise opportunities in the treatment of trauma. Growing evidence on the role of the body in trauma response coupled with an increase in BDNF suggests that exercise can be effective as an adjunct treatment to traditional therapy to enhance outcome. The success of group exercise with those who suffer from depression, anxiety, PTSD, and substance use should drive the need for more research on the effects of group exercise among trauma survivors.

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