

According to the American College Health Association, stress is still the number one obstacle to academic performance. While there are no studies specifically on college students and massage as of date, it is well known that this population as a whole has a lot of the characteristics of a highly stressed time period. According to "College of the Overwhelmed", by Dr. Richard Kadison, the chances of a college student becoming depressed to the point of being unable to function is almost one in two, also one and two that he or she will have regular episodes of binge drinking and one in ten that he or she will seriously consider suicide. The college years for the traditional age student is a time of major growth. College time is often seen as the transition period between the end of the teenage years and the entrance into adulthood. For some it is a trying time of discovering who they are vocationally, sexually, and morally. For many of them there is pressure to do well in school both from outside forces such as parents and community as well as internally. It is often times their first extended time away from home. The academic demands are often quite intense compared to their high school years. Some students who accomplish getting into highly competitive schools are no longer the "stars" of their school. They are among other talents similar to themselves and no longer seem unique or special in the positive ways that they were just months ago. For others there are financial pressures both put upon them by parents as well as just the knowledge of all their parents are doing to have them in college. This pressure is sometimes self - imposed even when parents are not intentionally putting pressure on them. Others need to work while in college as well as deal with the increased school workload. For the nontraditional student this could be a time of great change. They have other stressors such as balancing out work, family and now school. Below is a list of ailments that are common among the college population and the affect massage has had on each given population studied. The population typically that participated in these studies were both adults and teenagers but not necessarily attending college. It is our assumption that the demands of college socially, academically and financially could only make the need for stress relief that much more necessary.

ANOREXIA

Hart, S., Field, T., Hernandez-Reif, M., Nearing, G., Shaw, S., Schanberg, S. & Kuhn, C. (2001). Anorexia nervosa symptoms are reduced by massage therapy. *Eating Disorders*, 9, 289-299.

Nineteen women diagnosed with anorexia nervosa were given standard treatment alone or standard treatment plus massage therapy twice per week for five weeks. The massage group reported lower stress and anxiety levels and had lower cortisol levels following massage. Over the five-week treatment period they also reported decreased body dissatisfaction on the Eating Disorder Inventory and showed increased dopamine and norepinephrine levels.

ANXIETY

Field, T., Ironson, G., Scafidi, F., Nawrocki, T., Goncalves, A., Burman, I., Pickens, J., Fox, N., Schanberg, S., & Kuhn, C. (1996). Massage therapy reduces anxiety and enhances EEG pattern of alertness and math computations. *International Journal of Neuroscience*, 86, 197-205.

Adults were given a chair massage, and control group adults were asked to relax in a chair for 15 minutes, two times a week for five weeks. Frontal delta power increased for both groups, suggesting relaxation. The massage group showed decreased alpha and beta power, and increased speed and accuracy on math computations. At the end of the five-week period depression scores were lower for both groups but job stress scores were only, for the massage group.

BACK PAIN

Hernandez-Reif, M., Field, T., Krasnegor, J., & Theakston, H. (2001). Lower back pain is reduced and range of motion increased after massage therapy. *International Journal of Neuroscience*, 106, 131-145.

Massage therapy was compared to relaxation for chronic low back pain. By the end of the study, the massage therapy group, as compared to the relaxation group, reported less pain, depression and anxiety and improved sleep. They also showed improved trunk and pain flexion performance, and their serotonin and dopamine levels were higher.

Field, T., Hernandez-Reif, M., Diego, M., & Fraser, M. (2007). Lower back pain and sleep disturbance are reduced following massage therapy. *Journal of Bodywork and Movement Therapy, 11*, 141-145.

Massage therapy versus relaxation therapy with chronic low back pain patients was evaluated for reducing pain, depression, anxiety and sleep disturbances, for improving trunk range of motion (ROM) and for reducing job absenteeism and increasing job productivity. Thirty adults with low back pain with a duration of at least 6 months pain participated in the study. On the first and last day of the 5-week study participants completed questionnaires and were assessed for ROM. By the end of the study, the massage therapy group, as compared to the relaxation group, reported less pain, depression, anxiety and sleep disturbance. They also showed improved trunk and pain flexion performance.

DANCE

Leivadi, S., Hernandez-Reif, M., Field, T., Rourke, M., D'Arrienzo, S., Lewis, D., del Pino, N., Schanberg, S. & Kuhn, C. (1999). Massage therapy and relaxation effects on university dance students. *Journal of Dance Medicine and Science, 3*, 108-112.

Thirty female university dancers were randomly assigned to a massage therapy or relaxation therapy group. The therapies consisted of 30-minute sessions twice a week for five weeks. Both groups reported less depressed mood and lower anxiety levels. However, cortisol decreased only for the massage therapy group. Both groups reported less neck, shoulder, and back pain after the treatment sessions and reduced back pain across the study.

DEPRESSION

Field, T., Grizzle, N., Scafidi, F., & Schanberg, S. (1996). Massage and relaxation therapies' effects on depressed adolescent mothers. *Adolescence, 31*, 903-911.

Thirty-two depressed adolescent mothers received ten 30-minute sessions of massage therapy or relaxation therapy over a five-week period. Subjects were randomly assigned to each group. Although both groups reported lower anxiety following their first and final sessions, although only the massage therapy group

showed behavioral and stress hormone changes, including a decrease in anxious behavior, heartrate and cortisol levels.

Ironson, G., Field, T.M., Scafidi, F., Hashimoto, M., Kumar, M., Kumar, A., Price, A., Goncalves, A., Burman, I., Tetenman, C., Patarca, R. & Fletcher, M.A. (1996). Massage therapy is associated with enhancement of the immune system's cytotoxic capacity. *International Journal of Neuroscience*, 84, 205-217.

Twenty nine gay men with HIV received massage for 1 month. Major immune findings for the effects of the month of massage included an increase in Natural Killer Cell number. Major neuroendocrine findings included a decrease in cortisol. Anxiety also decreased and relaxation increased which were correlated with increased in NK cell numbers.

Sunshine, W., Field, T.M., Quintino, O., Fierro, K., Kuhn, C., Burman, I. & Schanberg, S. (1996). Fibromyalgia benefits from massage therapy and transcutaneous electrical stimulation. *Journal of Clinical Rheumatology*, 2, 18-22.

Adult fibromyalgia syndrome subjects were randomly assigned to a massage therapy, a transcutaneous electrical stimulation (TENS), or a transcutaneous electrical stimulation no-current group for 30-minute treatment sessions two times per week for 5 weeks. The massage therapy subjects reported lower anxiety and depression, and their cortisol levels were lower immediately after the therapy sessions on the first and last days of the study. The TENS group showed similar changes, but only after therapy on the last day of the study.

Field, T., Hernandez-Reif, M., Taylor, S., Quintino, O., & Burman, I. (1997). Labor pain is reduced by massage therapy. *Journal of Psychosomatic Obstetrics and Gynecology*, 18, 286-291.

Twenty-eight women were recruited from prenatal classes and randomly assigned to receive massage in addition to coaching in breathing from their partners during labor, or to receive coaching in breathing alone. The massaged mothers reported a decrease in depressed mood, anxiety and pain, and showed

less agitated activity and anxiety and more positive affect following the first massage during labor. In addition the massaged mothers had shorter labors, a shorter hospital stay and less postpartum depression.

Field, T., Quintino, O., Henteleff, T., Wells-Keife, L. & Delvecchio-Feinberg, G. (1997). Job stress reduction therapies. *Alternative Therapies*, 3, 54-56.

The immediate effects of brief massage therapy, music relaxation with visual imagery, muscle relaxation, and social support group sessions were assessed in 100 hospital employees at a major public hospital. The effects of the therapies were assessed using a within-subjects pre-post test design and by comparisons across groups. The groups reported decreased anxiety, depression, fatigue, and confusion, as well as increased vigor following the session.

Field, T.M., Sunshine, W., Hernandez-Reif, M., Quintino, O., Schanberg, S., Kuhn, C., & Burman, I. (1997). Massage therapy effects on depression and somatic symptoms in chronic fatigue syndrome. *Journal of Chronic Fatigue Syndrome*, 3, 43-51.

Twenty subjects with chronic fatigue immunodeficiency syndrome were randomly assigned either to a massage therapy or an attention control group. Although depression and anxiety scores were initially as high as clinically depressed patients, analyses of the before versus after therapy session measures on the first and last day of treatment revealed that immediately following massage therapy depression scores, pain, and cortisol levels decreased more in the massage versus control group.

HEADACHES

Hernandez-Reif, M., Dieter J., Field, T., Swerdlow, B., & Diego, M. (1998). Migraine headaches are reduced by massage therapy. *International Journal of Neuroscience*, 96, 1-11.

Twenty-six adults with migraine headaches were randomly assigned to a wait-list control group or to a massage therapy group, who received two 30-minute

massages per week for five consecutive weeks. The massage therapy subjects reported fewer distress symptoms, less pain, more headache free days, fewer sleep disturbances, and they showed an increase in serotonin levels.

PREMENSTRUAL SYNDROME

Hernandez-Reif, M, Martinez , A., Field, T., Quintino, O., Hart, S., & Burman, I. (2000). Premenstrual syndrome symptoms are relieved by massage therapy. *Journal of Psychosomatic Obstetrics & Gynecology, 21, 9-15.*

Twenty-four women with premenstrual dysphoric disorder were randomly assigned to a massage therapy or a relaxation therapy group. The massage group showed decreased anxiety, depressed mood and pain immediately after the first and last massage sessions. The longer term effects of massage therapy included a reduction in pain and water retention and overall menstrual distress.

Field, T. (In Press) Pregnancy and Labor Alternative Therapy Research. *Alternative Therapies in Health and Medicine.*

Medline and papers were reviewed for the most popular complementary and alternative therapies used during pregnancy and labor, including massage therapy, acupuncture, relaxation, yoga, and exercise. The pregnancy research suggests that alternative therapies have been effective for reducing pregnancy-related back and leg pain and nausea and for reducing depression and cortisol levels and the associated prematurity rate. The labor research generally shows that alternative therapies reduce pain and thereby the need for medication.

SEXUAL ABUSE

Field, T., Hernandez-Reif, M., Hart, S., Quintino, O., Drose, L., Field, T., Kuhn, C., & Schanberg, S (1997). Effects of sexual abuse are lessened by massage therapy. *Journal of Bodywork and Movement Therapies, 1, 65-69.*

Women who had experienced sexual abuse were given a 30-minute massage twice a week for 1 month. Immediately after the massage the women reported

being less depressed and less anxious and their salivary cortisol levels decreased following the session. Over the 1-month treatment period the massage therapy group experienced a decrease in depression and in life event stress. Although the relaxation therapy control group also reported a decrease in anxiety and depression, their stress hormones did not change, and they reported an increasingly negative attitude toward touch.

Studies done on teenagers

Anxiety

Field, T., Morrow, C., Valdeon, C., Larson, S., Kuhn, C., & Schanberg, S., (1992). Massage reduces anxiety in child and adolescent psychiatric patients. *Journal of the American Academy of Child and Adolescent Psychiatry, 31, 125-131.*

•Compared with a control group who viewed relaxing videotapes, the massaged subjects were less depressed and anxious and had lower saliva cortisol levels after the massage. In addition, nighttime sleep increased for both groups over the study period and urinary cortisol and norepinephrine levels decreased, but only for depressed patients.

Platania Solazzo, A., Field, T., Blank, J., Seligman, F., Kuhn, C., Schanberg, S., & Saab, P. (1992). Relaxation therapy reduces anxiety in child and adolescent psychiatric patients. *Acta Paedopsychiatrica, 55, 115-120.*

•Two groups were formed for the study; the control group watched a one hour relaxing videotape, while the treatment group participated in a one hour class consisting of yoga exercise, a brief massage, and progressive muscle relaxation. Decreases were noted in both self-reported anxiety and anxious behavior and fidgeting as well as increases in positive affect in the relaxation therapy, but not the videotape group. Cortisol decreased following both relaxation therapies.

Bulimic

Field, T., Schanberg, S., Kuhn, C., Fierro, K., Henteleff, T., Mueller, C., Yando, R., & Burman, I. (1998). *Bulimic adolescents benefit from massage therapy. Adolescence, 33, 555-563.*

•Twenty-four female adolescent bulimic inpatients were randomly assigned to massage therapy a standard treatment control group. The massaged patients showed immediate reductions (both self-report and behavior observation) in anxiety and depression. In addition, by the last day of the therapy, they had lower depression scores, lower cortisol

levels, higher dopamine levels, and they showed improvement on several other psychological and behavioral measures.

Depressed

Jones, N.A., & Field, T. (1999). *Massage and music therapies attenuate frontal EEG asymmetry in depressed adolescents. *Adolescence*, 34, 529-534.*

- EEG asymmetry, specifically (greater relative right frontal activation,) is associated with negative affect. Depressed adults show stable patterns of this asymmetry. The present study assessed the effects of massage therapy and music therapy on frontal EEG asymmetry in depressed adolescents. Thirty adolescents with greater relative right frontal EEG activation and symptoms of depression were given either massage therapy or music therapy. EEG was recorded for three-minute periods before, during, and after therapy. Frontal EEG asymmetry was significantly attenuated during and after the massage and music sessions.

Posttraumatic Stress Disorder

Field, T., Seligman, S., Scafidi, F. & Schanberg, S. (1996). *Alleviating posttraumatic stress in children following Hurricane Andrew. *Journal of Applied Developmental Psychology*, 17, 37-50.*

- As compared to a video attention control group, the children who received massage therapy reported being happier and less anxious and had lower cortisol levels after therapy.

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