



## The Effect of Massage Therapy on Aggression in Youth Wrestlers

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### Abstract

For several reasons study of aggression is important. Unfortunately aggression can be found frequently among players and athletes and today is the main issue of competitions. Features and personality characteristics are the most important factors in aggressive behaviors and emotions. Although there are many studies about effects of massage on psychological factors but there are few studies in field of massage on athlete's psychological factors especially in physical competitive sports such as wrestling. Therefore in this study, we examined the effects of sports massage on the level of aggression in adolescent wrestlers. In this study, sample population was selected out of 50 male adolescent wrestler. Aggression Questionnaire used to collecting wrestlers aggression data. At the beginning of each session, groups exercised wrestling training for 60 minutes and the experimental group received sports massage during 10 sessions for 25 minutes. The results showed that sports massage significantly reduces the level of wrestler's aggression.

### How to Cite

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## INTRODUCTION

Aggression is the aggressive and hostile behavior and a reaction to frustration and repressed desires that born of complex interactions between environmental, biochemical changes, cultural factors and learned responses and occurs as assaults, harassment, destruction and harm to others occurs. Aggression can be regarded as a defensive response that aimed at removing barriers and eliminate the threat, and aggression is a behavior to damage or injury to someone or something; aggression often appears as violent and destructive acts against persons or property. Aggressive behavior sometimes occurs practically (destruction and harm to self and others) or sometimes verbally (Hage *et al.*, 2009). Aggression is defined as behavior that aimed at hurting or harming any creature that did not intend and avoids of this behavior. Anger as a basic emotion is associated with the threat of negative evaluation, activates the physiological responses and effect on behavioral tendencies. Aggressive behavior may occur in everyone, including athletes. The athlete may tolerate high stressed followed by the aggressive action, according to the conditions prevailing in the competition and expect excellence, when placed in competition and contest conditions. Such behavior from athlete can be associated various consequences, including expulsion from the competition, barring several sessions or years that such deprivation is expensive for athletes, especially in professional sports. Thus according to such consequences investigate involved psychological factors are critical to the initiation and continuation of aggression (Moyle, 2014; Sacks *et al.*, 2003; Ziaee *et al.*, 2012).

Massage therapy is one of the oldest complementary therapies, which had special status and popularity and used along with free medicines. A large number of years everywhere throughout the world massage has utilized for relaxation (Jane *et al.*, 2009; O'Flaherty *et al.*, 2012). Human beings experience the sense of touch in many ways throughout the lifetime. We are nurtured through touch. Touch is a means of exerting power and control. Massage has been characterized as an efficient type of touch the delicate tissues with palm and fingers for advancing wellbeing and prosperity (Dreyer *et al.*, 2015; Field, 2014; Jalalodini *et al.*, 2016; Moyer, 2004).

There are distinctive types of massage (more than 80 sorts) from many societies with assorted settings that utilized by various gatherings in different occupations (Calvert, 2002). One of the prevalent types of massage is sport massage

that depends on 12 central body poses that from every single athletic development and are utilized to help competitors ideally plan for exercise or competition (Jelvéus, 2011). According to Jelvéus (2011) sports massage should be part of elite athlete's training programs.

Hemmings, Smith, Graydon, & Dyson (2000) suggested that psychological effects of massage therapy are foremost rather than physiological (Hemmings *et al.*, 2000). In fact, competitors have been trusted that the advantages of sport massage might be more mental than physiological (Zadkhosh *et al.*, 2015).

In Greek gymnasiums massages were called "Esclapeion" where occur athletic training (Calvert, 2002). According to Calvert (2002) the Greek physician Claudius Galenus (AD 129–201) recommended all athletes after exercise should be preceded by oil massage. In addition, Roman gladiators used of massage after exercise and fights. In India, wrestlers have been used of massage as a healing modality since ancient times (Calvert, 2002; Ko Y-L *et al.*, 2014).

Moraska (2005) investigated the examination concerning the impacts of massage on physiological and mental parameters identified with athletic execution has been a moderate and just little collection of literature on massage therapy, and physical activity has been distributed (Moraska, 2005).

The mental impact gave to an athlete by an experience, like massage might be of significance in a non-physiological way. Psychological mechanisms like reduced anxiety and a better frame of mind also contribute to perceived relaxation (Hemmings *et al.*, 2000; Albert *et al.*, 2009; Haun *et al.*, 2009; Weerapong *et al.*, 2005). Hemmings *et al.* (2000) investigated that sports massage may is an additional psychological "anchor" for the athlete (Hemmings *et al.*, 2000).

According to the National Certification Board for Therapeutic Massage and Body work, the 1996 Atlanta Olympic Games were the first to officially offer massage as part of athletes exercise sessions. There are different reasons for using massage with athletes and commonly sport massage to be combined with different forms of assisted movement and stretching. According to Hemmings *et al.* (2000) it seems that psychological effects of massage are driving demand for massage therapy in athletic populations. These and additional findings have led to a hypothesis that massage could generate the psychological effects on athlete's sense of initial recovery (Hemmings *et al.*, 2000).

Jelvéus (2011) offer this possibility that in

future studies on massage therapy in sport should particularly attention to the psychological effects and on this trend the communication, relationship and teamwork between coach, trainer, doctor and athletes will increase the value level of sport massage therapy. So sports massage specialists could share coaches' goal to enhance athlete's potential performances and assist to athletes for competition prepare and stay in peak physical and psychological condition and keep a positive outlook and attitude (Jelvéus, 2011).

In addition, sports massage research has done little to acknowledge the mind-body connection (Zadkhosh *et al.*, 2015). The observed positive effects of sports massage treatments seem are difficult to prove through systematic research (Ogai *et al.*, 2008).

The study of sport massage is important to numerous populaces, including competitors, athletic mentors, mentors, and also sports physiologists (Moraska, 2005; Mine, 2017). According to Von Knorring, Söderberg, Austin, & Uvnäs-Moberg (2008), 5 to 10 minute of daily massage is the easiest and cheapest way to reduce the level of aggression in kindergarten students (Von Knorring *et al.*, 2008). Garner *et al.* (2008) explored that massage therapy can help reduce anxiety and aggression (Garner *et al.*, 2008). Diego *et al.* (2002) inspected the impact of massage therapy on aggressive adolescents, and results show that massage significantly reduces anxiety and aggression (Diego *et al.*, 2002). Von Knorring *et al.* (2008) also investigated the effect of massage therapy in kindergarten students. The research findings showed significant reductions of aggression after three months (Von Knorring *et al.*, 2008).

Massage therapy reduced the stress, anxiety and aggression of young peoples who are hospitalized with acute psychiatric problems (Garner *et al.*, 2008) and elders (Suzuki *et al.*, 2010). Touching the children and attention to them can greatly reduce aggression in adolescents (Diego *et al.*, 2002).

Finally, as there are few studies on the effect of massage on athletes' aggression, especially in individual sports such as wrestling and also aggression and non-aggression are important factors in control of competitiveness and achieve the desired results at the end of the competition. Therefore, the point of this examination is to explore the impact of sports massage on adolescent wrestlers' aggression factor. We estimated that sport massage would lessen the level of aggression in adolescent wrestlers.

## METHOD

### Participation

In this examination, sample population was chosen out of 50 young male wrestlers who were wrestling in nonprofessional level (who exercises wrestling no less than 3-5 years and participated in provincial competitions). The involvements' age varied from 15-18 years of age. In order to homogenize the involvements and ensure about their general emotional well-being level, an Aggression Questionnaire (AGQ) was implemented to the participants. Having investigated the information, 24 participants who scored the most reduced score (low score = ordinary temperament) were picked as the subjects of this examination, hence, they were randomly appointed into exploratory and control groups with 12 in each group. At that point subjects parent finished the parental assent shape and allowed to their child participate in this investigation.

### Apparatus and Materials

To start with, the involvements' general emotional well-being was evaluated utilizing the Manual for the Aggression Questionnaire (AGQ) to guarantee the homogeneity of the groups from the earliest starting point of the course. Prior to the intervention, physical estimations were performed, like age, height, weight and body-fat percentage in the two groups. The participants' statures were measured by utilizing stadiometer SECA model, and weights were measured by utilizing a digital scale. Body-fat percentage was measured by caliber and Jackson and Polack formula. The two groups day by day participated in 65-55 percent of ordinary wrestling HRmax training sessions. At that point the experimental group received sport massage by neutral oil per session for 10 sessions. Each session was 25 minutes. Massages by the massages specialists and researchers were done in a calm place with reasonable light and ventilation in a clean condition and massage sessions made arrangements for each specimen was done in a specific time, while during this period, the control group were followed to guarantee of their regular training in the club.

### Buss-Perry Aggression Questionnaire

This survey was outlined by Arnold Buss and Mark Perry (1992). It is a 29 thing poll where members rank certain announcements along a 5 point continuum from "extremely uncharacteristic of me" to "extremely characteristic of me". The implementation of this questionnaire is a self-report - pencil paper. The questionnaire analyses yielded scores for four dimensions of aggression:

Physical Aggression, Verbal Aggression, Anger and Hostility. The scores are normalized on a Likert method. Scale scores correlated with peer nominations for aggression (Buss&Perry, 1992).

### Exercise protocol

Exercise protocol utilized as a part of the examination was gotten from Rashidlamir, Ghanbari Nikani, and Rahbarizade (2009) examination convention that depended on wrestling strategies included wrestling training and circle exercise and in every session, half of the preparation was committed to the wrestling exercise and other portion of the session to the circle practice with wrestling techniques. In training sessions, wrestling and circle exercises were changed at each session intermittently.

A session of wrestling training was contained of 10 minutes warm up took after by a progression of dynamic stretches and mobility exercises, 16 minutes cool down, 17 minutes wrestling practice and 17-minute circle work out. The circle exercises were consisted of eight movements: Rear take down with single leg tackle, Buttocks, Double leg pickup, Flying mare, Rear takedown with outside single leg, over – under, Double Leg Snatch and Standing Spin under (Rashidlamir *et al.*, 2009).

### Massage protocol

Based on Moraska (2005) Effleurage, Petrissage, Tapotement, Friction and Vibration are ordinarily techniques that utilized as a part of sports massage:

Effleurage depicts long, soothing, stroking movements utilizing the flat of the hand (or fingers if working on little regions). These are frequently used to apply oil evenly to the body. You can utilize one hand without anyone else or with the other offering help over it, the two hands all the while, or one hand exchanging with the other.

Petrissage portrays various movements, which include different methods for massaging, rolling and grabbing the skin and muscles. These firm and reinforce the structures by fortifying the profound layers of tissue, and expanding the supply of blood to the region. They additionally enhance the stream of lymph.

Tapotement, or percussion movements, are quick and invigorating. They include cupping, hacking, pounding (additionally called pummeling), which all sound like painful practices but when done appropriately ought to positively not cause bruising or pain.

Friction, or “connective tissue massage,” is an infiltrating circular movement which applies

profound direct pressure to one specific site of muscular tension, utilizing the thumb, fingertips or knuckles. It is a significant technique for focusing on particular regions of tightness and muscle spasm in the back.

Vibration (Shaking) is a pre-occasion technique to stimulate the objective muscle groups before competition. The technique includes tremulous movement bringing about a shaking of the body region massaged. The reason for vibration is to facilitate muscle relaxation and increment circulation (Moraska, 2005).

The protocol of this treatment is took out from Jelvéus (2011) that recommended regions to massage for wrestlers:

1. Ankles and calves. Triceps surae, peroneal, tibialis posterior, and tibialis anterior muscles.
2. Knees and thighs. Quadriceps femoris, adductors, and hamstring muscles.
3. Gluteal and hip area. Gluteus maximus, medius and minimus, TFL, and iliopsoas muscles.
4. Lower back. Quadratus lumborum, erector spinae, and lower latissimus dorsi muscles.
5. Shoulders. Latissimus dorsi, teres major and minor, infraspinatus, subscapularis, deltoid, serratus anterior, and pectoralis major muscles.
6. Neck. Splenius capitis, splenius cervicis, trapezius, levator scapulae, and suboccipital muscle group.
7. Arms. Biceps and triceps brachii muscles (Jelvéus, 2011).

### Procedure

At first, an Aggression Questionnaire test was managed to 50 youth wrestlers who were wrestling in competitive level. Having dissected the data, 24 wrestlers who scored typical range of score were decided for the study. Prior to the start of the examination, it was watched that any of the members had not the injury. At that point, they were haphazardly assigned into the experimental and control groups with 12 in each gathering.

From that point forward, members in the experimental group were made a request to take an interest in a legitimization session for coordination and set the massage schedule. At that point set a daily plan for every single one of them along 10 days. Then again, mentors and analysts were controlled to participate of experimental and control groups in wrestling day by day practice. In this pattern, massage group were given the massage following a hour wrestling practice and the control group just take part in wrestling practice.

During 10 day by day sessions of treatment, the massage group following hour long wrestler practice were gotten 25 minutes sport

massage for each session, and the control group just participated in hour long wrestler practice. Having completed the treatment (10 days, 10 sessions), members in the two groups participated for the posttest. Previously, then after the fact 10 sessions of massage therapy, the two groups were made a request to finish AGQ and data were recorded to investigate by SPSS statistical software. The researchers regulated the pretest as posttest to see the impacts of the treatment during the examination.

## RESULTS

In this investigation for homogeneity of typical age, height, weight and BMI were utilized of kolmogorov-smirnov test that showed the two groups had ordinary arrangement ( $P > 0.05$ ).

According to table 2 and by comparing the pre-test and post-test results shows that 10 sessions of sports massage had a significant effect on the aggression scale ( $P = 0.001$ ) and a considerable level of wrestler's aggression decreased after the massage. In addition, the study repeated measures analysis of variance results indicated that there was significant difference between aggression levels of experimental group and the control group.

## DISCUSSION

Aggression is the behavior to damage or injury to someone or something; aggression often appears as violent and destructive acts against persons or properties. Aggressive behavior in action (destruction and harm to self and others) or sometimes it is done verbally (Hage *et al.*, 2009). Overemphasis on winning and results, the influence of aggressive coaches and athletes, excessive arousal and sometimes media pressure, and visual media are the cause of violence and aggression in sports. Behaviors that intentionally and unintentionally harm to another or themselves are aggressiveness behavior. Aggressiveness used to describe a set of outpouring behaviors that are common in all of them characteristic of the others' violations rights and the impact of this behavior. Some psychologists believe that aggression is a behavior that can harm to others. Aggression may be physical, verbal or otherwise or violate the rights of others. The psychologists are distinguished between aggression means and aggression hostility. Athletes skillful performing's in sports, arena creates the beauties that bring joy to spectators and sports enthusiasts. However, the sporting competition beautiful scene sometimes becomes contaminated by violence and aggression. According to the extant, definitions can be considered violence and aggression conceptually as practical that be done volitionally and cons-

**Table 1.** The mean and standard deviation of the individual characteristics of subjects

| Group        | Variable            | Range         | Mean  | SD   |
|--------------|---------------------|---------------|-------|------|
| Experimental | Age (year)          | 15 -18        | 16.92 | 0.99 |
|              | Height (cm)         | 162 – 177     | 168.5 | 2.23 |
|              | Weight (kg)         | 54 – 66       | 60.5  | 4.14 |
|              | BMI                 | 17 – 23       | 20.53 | 1.59 |
|              | Body fat percentage | 9.63 – 10.73  | 11.70 | 1.33 |
| Control      | Age (year)          | 15 – 18       | 16.42 | 1.37 |
|              | Height (cm)         | 160 – 178     | 169.6 | 7.02 |
|              | Weight (kg)         | 55 – 67       | 61.83 | 5.14 |
|              | BMI                 | 19 – 22       | 20.80 | 1.08 |
|              | Body fat percentage | 10.26 – 13.60 | 12.18 | 1.18 |

**Table 2.** Wrestlers Pre-test and post-test scores and repeated measures analysis of variance

| Group        | Mean ± SD  |            | Within Group |       | Interactive |       | Between Group |       |
|--------------|------------|------------|--------------|-------|-------------|-------|---------------|-------|
|              | pretest    | posttest   | F            | Sig.  | F           | Sig.  | F             | Sig.  |
| Experimental | 48.9 ± 3.3 | 45.9 ± 3.9 | 54           | 0.001 | 22          | 0.001 | 5417          | 0.001 |
| Control      | 49.5 ± 2.5 | 48.9 ± 3.1 |              | 0.07  |             |       |               |       |

sciousness by subjects to physical or mental harm. Aggression in the field of sports can be used to describe of a wide variety of actions. For example, a golf player can be called aggressive due to overcome his opponent in a competition or athletes who participated in sports like tennis; soccer and boxing are in a state of aggression. Participants and spectators in sports activities can be called aggressive for the sake of some aspects of behavior that are degrading and insulting (Sacks et al. 2003). Unfortunately, today aggressiveness significantly increased in sports fields. When in competitions, an act of aggression occurs to rarely be dealt with decisively and usually dealt with a little financial penalty or a short-term deprivation which cannot be good options to prevent a repetition of the act. Wrestling is one of the sports who due to the competitive sensitivity and high physical confrontations, there is the risk of verbal or practical aggressive behavior.

It is important to say that aggression in wrestling is more verbally. These results obtained from watching the 36 hours of professional wrestling movies. Analysis of these films suggested that the main reason and motivation of aggression in wrestlers are violence and sometimes for fun and to disrupt the focus of the opponent (Tamborini et al, 2008). Aggressions in wrestlers with presence in the match's background are related to wrestler's classification table ranked. There is a positive correlation between match's background and aggression among wrestlers. Furthermore, those wrestlers who are ranked in the bottom of the table are more aggressive than high-ranking wrestlers (Gazar&Raziek, 2010).

Therefore, in this study we investigated the effect of massage on the level of aggression in adolescent wrestlers. The results of this study showed that 10 sessions of sports massage have significant effect on the level of aggression ( $P = 0.001$ ) in adolescent wrestlers, and a considerable amount of wrestler's aggression decreased after massage and probably the reduction of aggression by massage is due to massage effect that effects on muscles, out of the muscle contraction, increases the muscles and organs and also the brain blood circulation; People can take a better decision, and massage may also cause the body to stimulate the central nervous system (sympathetic system) relaxing nervous system of body and (parasympathetic system) balance and reduce aggression. It can be concluded that massage can be useful in sports and if as a coach, you know your athlete and probably by few minutes of massage could reduce the level of competition's aggressions. There are many researchers in the field of the effect of

massage therapy on aggression in different societies that most of them reported positive effects of massage on the level of aggression. But according to the researchers investigations there are few researchers in the field of the effects of massage in sports aggression. However, results of this study are consistent with other findings in this field. Results show that 5 to 10-minute massage can reduce aggression in kindergarten students who is consistent with the present study. Furthermore, in this study, results showed that massage after three months significantly reduced the aggression of kindergarten students. In this, studies were used of 60 kindergarten students as the experiment group that received massage every day for three months, and 50 subjects were used as the control group than in contrast, at this time just heard to presented stories. During 3 months, children's behavior was assessed by kindergarten coaches and parents. The results showed that in three months, aggression was significantly decreased in the experimental group, and parents reported that some behaviors of children reduced, and their attention have increased at the home (Von Knorring et al, 2008). The results of this study are parallel with current research. It furthermore, researches shows that messages are reduced the aggression of young peoples who is admitted to the hospital with serious mental-health problems. This study was conducted in a psychiatric center and during the sessions, patients received 20-minute massage, and the results showed that the levels of aggression were reduced from the initial sessions. In addition of aggression, it was reported that anxiety and depression in patients decreased and also decreased the resting heart rate and cortisol levels (Garner et al, 2008). Alternatively, in one study, the effects of massage on aggressive adolescents were examined, and Results show that massage significantly reduces aggression. In this study, randomly 17 aggressive adolescents selected, and they received massage two sessions per week for five weeks and twenty minutes per session. The results showed that the levels of anxiety were reduced from the initial sessions, and families reported that the aggression was reduced after the massage which is consistent with the present results (Diego, 2002). Touch and attention to children can significantly reduce the child's aggression. The results showed that in educational institutions of Western countries such as schools and universities because of aggressive behavior by young students has developed a fear in the community. Frequently in much press and news agencies in the West reported of the shooting and killing of teachers and students by aggres-

sive students. Or students because of aggressive bitten their teachers. Psychologists have emphasized that if parents pay attention to children from infancy and strengthening relationships between there and children and most importantly touch and caress children, many of these problems and aggressive behaviors controlled in elderly (Barquilla& Rodriguez, 2015).

Studies show that the results of other researchers are consistent with the present results which indicated the high and positive effects of different types of massage on the level of aggression. Therefore, it is recommended to all officials wrestling teams that in addition, a qualified psychologist, have a massage expert along with their teams. According to few studies in the field of massage therapy on athletes on the team and individual researchers have recommended to other researchers to examine the effects of different types of massage such as sports massage, Swedish, therapeutic and relaxation on the aggressiveness of individual and team sports and in different age groups and in both men and women.

## REFERENCES

- Albert NM, Gillinov AM, Lytle BW, Feng J, Cwynar R, Blackstone EH. A randomized trial of massage therapy after heart surgery. *Heart & Lung: The Journal of Acute and Critical Care*. 2009;38(6):480-90.
- Barquilla AC, Rodriguez-Mansilla J. Therapeutic massage on behavioral disturbances of elderly patients with dementia. *Atencion primaria*. 2015;47(10):626-35.
- Buss AH, Perry M. The aggression questionnaire. *Journal of personality and social psychology*. 1992;63(3):452.
- Calvert RN. The history of massage: An illustrated survey from around the world: Inner Traditions/Bear & Co; 2002.
- Diego MA, Field T, Hernandez-Reif M, Shaw JA. Aggressive adolescents benefit from message therapy. *Adolescence*. 2002;37(147):597.
- Dreyer NE, Cutshall SM, Huebner M, Foss DM, Loveley JK, Bauer BA, et al. Effect of massage therapy on pain, anxiety, relaxation, and tension after colorectal surgery: A randomized study. *Complementary therapies in clinical practice*. 2015;21(3):154-9.
- Field T. Massage therapy research review. *Complementary therapies in clinical practice*. 2014;20(4):224-9.
- Garner B, Phillips LJ, Schmidt H-M, Markulev C, O'Connor J, Wood SJ, et al. Pilot study evaluating the effect of massage therapy on stress, anxiety and aggression in a young adult psychiatric inpatient unit. *Australian & New Zealand Journal of Psychiatry*. 2008;42(5):414-22.
- Gazar IA, Raziak MMA. Sport aggression and its relationship with ranking of the junior Egyptian wrestlers. *World Journal of Sport Sciences*. 2010;3(5):252-7.
- Hage S, van Meijel B, Fluttert F, Berden G. Aggressive behaviour in adolescent psychiatric settings: what are risk factors, possible interventions and implications for nursing practice? A literature review. *Journal of psychiatric and mental health nursing*. 2009;16(7):661-9.
- Haun JN, Graham-Pole J, Shortley B. Children with cancer and blood diseases experience positive physical and psychological effects from massage therapy. *International journal of therapeutic massage & bodywork*. 2009;2(2):7.
- Hemmings B, Smith M, Graydon J, Dyson R. Effects of massage on physiological restoration, perceived recovery, and repeated sports performance. *British journal of sports medicine*. 2000;34(2):109-14.
- Jalalodini A, Nourian M, Saatchi K, Kavousi A, Ghaljeh M. The Effectiveness of Slow-Stroke Back Massage on Hospitalization Anxiety and Physiological Parameters in School-Age Children: A Randomized Clinical Trial Study. *Iranian Red Crescent Medical Journal*. 2016;18(11).
- Jane S-W, Wilkie DJ, Gallucci BB, Beaton RD, Huang H-Y. Effects of a full-body massage on pain intensity, anxiety, and physiological relaxation in Taiwanese patients with metastatic bone pain: a pilot study. *Journal of pain and symptom management*. 2009;37(4):754-63.
- Jelvéus A. *Integrated Sports Massage Therapy E-Book: A Comprehensive Handbook*: Elsevier Health Sciences; 2011.
- Ko Y-L, Lee H-J. Randomised controlled trial of the effectiveness of using back massage to improve sleep quality among Taiwanese insomnia postpartumwomen. *Midwifery*. 2014;30(1):60-4.
- Mine K. Acute Effects of Quick Short-Duration Massage On Vertical Jump; A Crossover Randomised Controlled Trial. *J Phys Med Rehabil Disabil*. 2017;3:019.
- Moraska A. Sports massage: a comprehensive review. *Journal of Sports Medicine and Physical Fitness*. 2005;45(3):370.
- Moyer CA, Rounds J, Hannum JW. A meta-analysis of massage therapy research. *American Psychological Association*; 2004
- Moyle W, Cooke ML, Beattie E, Shum DH, O'Dwyer ST, Barrett S. Foot massage versus quiet presence on agitation and mood in people with dementia: A randomised controlled trial. *International journal of nursing studies*. 2014;51(6):856-64.
- O'Flaherty L-A, van Dijk M, Albertyn R, Millar A, Rode H. Aromatherapy massage seems to enhance relaxation in children with burns: an observational pilot study. *Burns*. 2012;38(6):840-5.
- Ogai R, Yamane M, Matsumoto T, Kosaka M. Effects of petrissage massage on fatigue and ex-

- ercise performance following intensive cycle pedalling. *British journal of sports medicine*. 2008;42(10):834-8.
- Rashidlamir A, Ghanbari NA, Rahbarizadeh F. The Effect of 6 Weeks of Wrestling and Wrestling-Based Circuit Training on Plasma Ghrelin and Some Glucoregulatory Hormones of Well-Trained Wrestlers. 2009.
- Sacks DN, Petscher Y, Stanley CT, Tenenbaum G. Aggression and violence in sport: Moving beyond the debate. *International journal of sport and exercise psychology*. 2003;1(2):167-79.
- Suzuki M, Tatsumi A, Otsuka T, Kikuchi K, Mizuta A, Makino K, et al. Physical and psychological effects of 6-week tactile massage on elderly patients with severe dementia. *American Journal of Alzheimer's Disease & Other Dementias*. 2010;25(8):680-6.
- Von Knorring AL, Söderberg A, Austin L, Uvnäs-Moberg K. Massage decreases aggression in preschool children: a long-term study. *Acta Paediatrica*. 2008;97(9):1265-9.
- Weerapong P, Hume PA, Kolt GS. The mechanisms of massage and effects on performance, muscle recovery and injury prevention. *Sports medicine*. 2005;35(3):235-56.
- Tamborini R, Chory RM, Lachlan K, Westerman D, Skalski P. Talking smack: Verbal aggression in professional wrestling. *Communication Studies*. 2008;59(3):242-58.
- Zadhkosh S, Ariaee E, Atri A, Rashidlamir A, Saadatyar A. The effect of massage therapy on depression, anxiety and stress in adolescent wrestlers. *International Journal of Sport Studies*. 2015;5(3):321-7.
- Ziaee V, Lotfian S, Amini H, Mansournia M-A, Memari A-H. Anger in adolescent boy athletes: a comparison among Judo, karate, swimming and non athletes. *Iranian journal of pediatrics*. 2012;22(1):9.