# The Psychophysiological Effects of the Bowen Technique

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*The purpose of the present investigation was to examine the effects of the Bowen technique on participants mood state, heart rate, and muscle tension. Participants consisted of 10 (5 Males and 5 Females) healthy undergraduates from Swinburne University aged 18 to 55 years. Subjects reports of anxiety (measured by the Spielberger State Anxiety Inventory) and mood state (measured by the Profile of Mood state questionnaire) were obtained before, immediately after and one week following the administration of the Bowen technique therapy. The physiological measures of heart rate and muscle tension (Frontalis electromyogram) were recorded during two control conditions (B1 and B2) and four experimental conditions (Ml-M4). The experimental recordings were taken in the second minute of the prescribed 2 minute rest period following each Bowen treatment session. Control recordings were taken after a 2 minutes rest prior to the initiation of the Bowen technique therapy, and 5 minutes post-therapy to examine the prolonged effects of the treatment. The Bowen technique therapy significantly reduced subjects level of anxiety, and enhanced individuals positive feelings by reducing tension, anger, depression, fatigue and confusion. In addition to these subjective measures, heart rate and muscle tension tended to decrease from baseline, providing further indication of relaxation. Muscle tension decreases were however insignificant. Results are discussed in terms of providing an explanation for the effectiveness of the Bowen technique, and practical implications of the use of the Bowen technique in therapy and sports performance are discussed. Future directions for research into the effects of the Bowen technique therapy are discussed.*

Massage has been a successful therapeutic modality in all cultures since early civilisation. As early as the fifth century BC, Hippocrates, known as "the father of medicine", laid down the foundation for natural health care therapies with his belief that the function of good medicine was to assist the body's natural ability to repair and regulate itself. Massage was considered by many to be a powerful aid to self-healing, but today, dazzled by the increasingly sophisticated technology, pharmacology, and treatment approaches, many of us have seemed to have lost sight of simple, yet fundamentally successful natural health care therapies.

The Bowen technique is one such natural approach consisting of a system of muscle and connective tissue therapy. The technique was devised by Mr. Tom Bowen and practiced as a full time manipulative therapist for many years subsequent to the war. The technique is based on the philosophy of re-setting the body to stimulate energy flow, and allowing the body to heal itself. The premise that the body is capable of maintaining health, provided that it is given the proper essential ingredients, namely food, water, rest, clean air, adequate nutrition and an unimpaired flow of life-renewing energy throughout every cell of the body is basic to the Bowen philosophy [Mowat, 1993; B.T.A.A]. Consequently, there is not a part of the body that cannot be addressed by the Bowen technique. Every organ and system of the body is attended to, and can be helped by stimulation of energy flow, clearance of dysfunctional debris and interference, and balancing the body so that the body can set about correcting itself.

The Bowen system has amazed many academics and practitioners all over the world. The sequence of accurate and gentle moves are practiced world-wide, giving relief to painful conditions such as sore backs, joints, post-trauma and post-surgery healing, bronchial conditions, sporting conditions, headaches, and has been found to be effective in assisting emotional and psychological stress. In many instances results are obtained immediately. For some cases it may take up to five days and two Bowen technique treatments, however eighty to ninety percent of people treated would have their conditions resolved in just one treatment [Mowat,1993 ; B.T.A.A]. The technique is so gentle and precise that it can be safely and effectively applied to anyone from new bornsto the elderly, mobile and immobile. For the treatment and reduction of pain in conditions with sensory deficits, the Bowen technique would permit therapy without exposing the patient to possible risks of tissue damage.

A typical example of the effectiveness of the Bowen technique therapy is illustrated by the case of John

> John was diagnosed at 10 months with Cerebral Palsy. At presentation to Ossie Rentsch (Bowen therapeutic educator and practitioner) at age 25, John could not lift his left arm above his nose, his left shoulder was below his right, and his left foot was medially rotated. His left hand was only partially pronated and his left elbow could not be straightened. Within 45 minutes of the first Bowen technique treatment, Johns left arm could be raised above his head and he soon noticed a looser feeling on his left side. His left foot spontaneously straightened two hours later and his shoulders were almost level. John also remarked on clearer thinking ability. With just three Bowen technique treatments, John has shown continued improvement both physically and mentally, gained a new confidence, and markedly improved his quality of life
>
> (Bowen Therapy Academy of Australia).

There is no doubt that Mr. Bowen's original techniques are an effective health care treatment, however, the exact basis for the effects of his methods remain unknown. A related concept in examining the effects of the Bowen technique on painful conditions is the relaxation response described by Benson (1976). Benson documented that the relaxation response is an integrated hypothalamic response that decreases sympathetic nervous system activity. This mechanism brings on bodily changes that decrease heart rate, lower metabolism, decrease the rate of breathing, decrease oxygen consumption, and brings the body back to what is probably a healthier balance. Also, consistent with the decrease in sympathetic activity, the relaxation response is associated with the enhancement of positive feelings such as ecstasy, beauty and relaxation.

It was suggested by Benson (1976) that one effective way of inducing a relaxation response is to decrease muscle tension. [Benson, 1976]. It is well recognised that massage therapies such as Swedish massage and connective tissue massage successfully reduce muscle tension. Longworth (1982) found electromyographic evidence of muscle relaxation following slow-stroke back massage. Consistent with Benson's (1976) proposed relaxation response, this reduction in muscle tension was associated with decreases in subjects perceptions of anxiety and decreases in sympathetic activity such as heart rate and blood pressure (Longworth, 1982]. If such reductions in muscle tension were to occur as a result of the Bowen technique therapy, and consequently the associated relaxation responses transpire, such an area of study may prove to be important in furthering our understanding of the basis for the successes in Bowen technique treatment.

Consistent with the notion of muscle tension accounting for the effectiveness of theBowen technique, research has documented a relationship between muscle tension andpainful conditions, whereby muscle and joint pain can arise from sustained muscle contraction. Jacobs (1960) found that procedures that

increase the electrical activity of the neck musculature caused an intense pain, implicating that sustained contractions of the *head and* neck muscles is a likely source of painful conditions such as headache and migraine. Such a finding may also relate to other painful conditions such as sore backs, joints, and sporting conditions, all found to be successfully treated by the Bowen technique. In the case of backache, for example, reflex muscle contraction, and muscle tension produced by anxiety and emotional distress, may be the cause of prolonged pain in the back, pertaining while the muscle remains in the hypertonic state. The reflex action to the pain itself may also place additional tension within the muscles, in this way establishing a viscous circle. Therefore based on the assumption that there is a close relationship between pain and muscle tension (caused by anxiety or reflex muscle contractions), it would follow that the administration of therapeutic techniques that would modify the muscle tension, would consequently alleviate pain and induce a relaxation response.

Assuming that muscle relaxation occurs with the Bowen technique therapy, it was expected that the effects of the Bowen technique would be similar to the effects described in the relaxation response. Therefore the purpose of the present investigation was to reliably determine the effects of the Bowen technique therapy on muscle tension, heart rate and mood state. In particular, it was predicted that the Bowen technique therapy would reduce the level of muscle tension, consequently decreasing sympathetic activity, as indicated by heart rate, and enhance the mood state of participants involved in the study.

## Method

### Participants.

This study involved 10 healthy undergraduate students from Swinburne University of Technology. Subject participation was voluntary and based on subjects statements that they had no history of a diagnosed heart disease, elevated blood pressure, and were not taking medications for blood pressure, heart or kidneys. They comprised of 5 men and 5 women. Subjects ranged in age from 18 to 55, with a mean age of 27 years.

### Instruments.

All subjects were required to complete a questionnaire that consisted of several instruments [Profile of Mood States; State Trait Anxiety Inventory] assessing various aspects of psychological well-being and mood just prior to, immediately after, and one week after the administration of the Bowen technique therapy. These instruments were chosen because of their sound psychometric properties and successful use in previous health studies.

The Profile of Mood States [POMS; McNair, Lorr & Droppleman, 1971] was used to assess mood fluctuations. The six POMS subscales and their description included tension (somatic tension), depression (feelings of personal inadequacy), anger (feelings of intense overt anger), vigor (mood of high energy), fatigue (mood of weariness and low energy), and confusion (cognitive inefficiency).

The State-Trait Anxiety Inventory (form X-1) [STAT; Spielberger, Gorsuch & Luschene, 1970] was employed to measure state anxiety. The State anxiety version consists of 20 items that measure self-report of anxiety at the current time. Subjects mark their responses on a four point likert type scale (not at all, somewhat, moderately so, very much so). Score range from 20 to 80, with lower scores indicating less anxiety and higher scores indicating greater amounts of anxiety. Over the last ten years the STAI has been used more frequently than any other research tool measuring anxiety [Spielberger & Sarason, 1986, cited in Ferrel-Torry & Glick, 19931. Reliability of the tool have been demonstrated in many

different populations including medical and surgical patients with test-retest and alpha reliability coefficients ranging from 0.83 to 0.92 [Spielberger, Gorsuch & Luschene,1970].

Heart rate was recorded using a portable electrocardiogram [N HON KOHDEN]. Heart rate was calculated based on the paper speed of the electrocardiogram output tracings.

Electromyographic recording of the frontalis muscle indicated muscle tension. Leaf and Gaardner (1971) denote surface electromyography (EMG) as the best indicator of general muscle tension. In a series of experiments, Budzinski and Stoyva (1973) found that the frontalis muscle was a reliable means of measuring general muscle tension, and reductions in frontalis muscle tension are associated with other responses such as decreased heart rate and subjective reports of pleasure [Stoyva & Budzynski,1974].

**Procedure.**

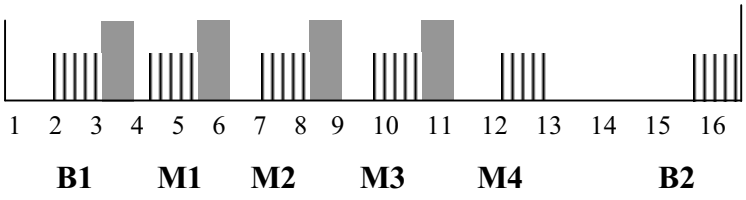
The study was conducted in a large laboratory at Swinburne University department of biophysics. Attempts were made to moderate environmental stimuli by decreasing noise and interruptions during the measuring periods. The study was conducted at the convenience of the subjects between midmorning and midafternoon. Data collection was completed during the month of October 1993.

Individuals who met eligibility requirements were given a 30 minute appointment. Each subject was instructed to allow plenty of time to arrive to the appointment without hurrying.

Prior to each session, the subject was familiarised with the procedure, measuring equipment such as electrodes, and briefly on the Bowen technique. All subjects were given the opportunity to ask questions. The subject was told that the purpose of the study was to examine the effects of the Bowen technique therapy. The word relaxation was not used in the explanation to avoid biasing the subjects perceptions.

After subjects were content with the procedure, the subject was administered the questionnaire consisting of the Spielberger State-Trait Anxiety Inventory (STAI form X-1) and the Profile of Mood States (McNair, Lorr & Droppleman, 1971). Following skin preparation (OMNI Prep), all silver-silver chlorided electrodes were applied using high conductance electrode gel (3M) and hypoalergic tape. The electrodes were placed over the belly of the frontalis muscle one inch above the eyebrows with a ground on the earlobe. The subject was then assisted into a comfortable prone position.

The subject was told that after a 3 minute rest period the masseur would lightly rest his hands on the lower back. The subject was then instructed that he/she was to lie quietly with his/her eyes closed for the entire session, lasting approximately 15 minutes, but to avoid going to sleep. Silence would be maintained until the session was completed.




Bowen Technique Administered During This Periode.

Data Collection During This Period.

An initial reading (B 1) of heart rate and frontalis EMG was taken 2 minutes after the onset of the 16 minute experimental period, to establish pre-therapy baseline values with which changes could be compared. Four experimental recordings (M1-M4) were taken during the second minute of the 2 minute rest period following each Bowen treatment session. A final recording (B2) was taken 5 minutes post-therapy to examine the prolonged effects of the Bowentechnique.

The same qualified therapist administered all Bowen therapies in attempt to ensure consistency of the technique. At conclusion of the session, the electrodes were disconnected and the subject was instructed to sit up slowly but not dismount the bed immediately. Any spontaneous comments made by the subjects regarding the effects of the treatment were recorded. The subject was instructed by the therapist the proper way to dismount the massage table providing consistency with the original Bowen technique.

Finally, the session concluded after the subject completed the STAI and POMS post-measurement forms. Subjects were also administered with a 3rd rendition of the questionnaire to be completed approximately one week later to examine the prolonged effects of the Bowen technique therapy on mood state.

**Data Analysis.**

Data were entered into the SPSS/PC+ statistical program [SPSS,1987] in order to carry out statistical analysis. Analysis of data was accomplished using a correlated t-test for paired samples for the dependent variables (STAT, heart rate, EMG, and the 6 POMS scales; tension depression, anger, vigor, fatigue and confusion) at all measurement periods (B 1 M 1 M2 M3 M4 B2) to examine for significant ($p<.05$) changes in each variable over time. Technical problems with recording caused deletion of some data, consequently one subjects data was eliminated from the data analysis.

## Results

T-tests revealed no significant differences between men and women subjects on any of the dependant variables (STAI, heart rate, EMG, tension depression, anger, vigor, fatigue and confusion) so data for all subjects was suppressed for analysis.

**General Observations.**

Two subjects reported a warm feeling in the abdominal region during the application of the third Bowen technique interval. One subject also reported a warm secure feeling in the liver region during the application of the Bowen technique. Three subjects reported feelings of light headedness when rising upon cessation of the experiment session.

**Mood States.**

To examine the effect of the Bowen technique therapy on individuals mood states, means and standard deviations were computed from pre-therapy, post-therapy and 1 week after therapy. Means and standard deviations for state anxiety are presented in table 1.

The data revealed that State anxiety scores significantly decreased after the administration of the Bowen technique $t(8)= 3.07$, $p<.05$. In examining the prolonged effects of Bowen therapy on individuals anxiety, analysis revealed that individuals anxiety one week after the administration of the Bowen technique therapy was significantly greater than pre-therapy $t(8)= -2.79$, $p<.05$ and post-therapy $t(8)= -5.45$ $p<.005$.

A comparison of individuals anxiety level in the current study with Spielberger and colleagues (1970) normative data, reveals that individuals in the current study were less anxious prior to the Bowen technique than the standardized norms of college individuals. Comparison also reveals that individuals following the Bowen technique therapy exhibit anxiety more closely resembling Spielberger et al (1970) normative data for a relaxed state.

**Table 1**.

Means and Standard Deviations for State Anxiety Before, After and 1 Week Subsequent to the Bowen Technique Therapy. A Comparison to Standardised Norm for College Students.

| Study | Mean | SD |
|---|---|---|
| Bowen Therapy (n=9) | | |
| Pre | 33.00 | 8.73 |
| Post | 26.13 | 5.30 |
| 1 Week | 39.25 | 9.19 |
| Standardised Norms (n=88)* | | 9.92 |
| Norm | 37.12 | |
| Exam | 43.35 | 11.41 |
| Relaxed | 31.15 | 7.97 |

* Overall norms averaged from male and female normative data.

Table 2 consists of individuals means and standard deviation mood states (POMS) before, after and one week subsequent to the administration of the Bowen technique therapy. Results for individuals tension revealed that the Bowen technique therapy brought about a significant decrease from pre to post therapy tension $t(8)= 2.95$ $p<.05$. For depression, Bowen therapy produced a significant decrease $t(8)=2.12$ $p<.05$, and the anger subscale again showed a significant decrease from pre-therapy to post-therapy $t(8)= 3.37$ $p<05$-Despite a trend for vigor to increase following Bowen technique therapy, results however, revealed no significant difference in individuals vigor from pre to post-therapy $t(8)= -.47$ $p<.65$. For the variable of fatigue, the Bowen technique therapy gave rise to a significant decrease in individuals fatigue from pre to post-therapy. Finally, the confusion subscale showed a significant decrease from pre to post Bowen therapy $t(8)= 2.95$ $p<.05$.

**Table 2**

Mean and Standard Deviations for the POMS Subscales Before. After and 1 Week Subsequent to the Bowen Technique Therapy.

| Variable (n=2) | Before | After | 1 Week Later |
|---|---|---|---|
| Tension | 10.1 (5.11) | 3.88 (3.40) | 10.37 (5.29) |
| Depression | 7.13 (6.53) | 3-50(6.07) | 534(4.53) |
| Anger | 6.13 (4.64) | 3.25 (4.59) | 4.00(4.31) |
| Vigor | 16.88 (6.21) | 17.625 (5.90) | 12.37 (6.19) |
| Fatigue | 8.50 (3.90) | 5.00 (4.90) | 8.37(3.66) |
| Confusion | 9.00 (4.72) | 6.00(4.21) | 9.25(4.06) |

Calculations failed to show that the effects of the Bowen technique were prolonged over a week preceding the administration of therapy. One-week-post-therapy measurements of the six POMS subscales (tension, depression, anger, vigor, fatigue and confusion) were revealed a significant increase in heart rate following the first Bowen technique manipulation $t(8)= 3.64$ $p<.01$. Significant decreases in individuals heart rate occurred in between experimental measurements (M2) and (M3) $t(8)= 2.38$ $p<.05$, suggesting a notable decrease in heart rate following the third Bowen technique manipulation, and a decrease in heart rate between measurement (M4) and (B2) $t(8)= 4.15$ $p<.005$, suggesting a notable decrease in heart rate five minutes after the final Bowen technique manipulation. Data also revealed a significant difference between pre-therapy heart rate (B 1) and post-therapy heart rate measurements (B2) $t(8)= 3.48$ $p<.01$, suggesting that there was an overall decrease in heart rate from pre-Bowen therapy to post-Bowen therapy.

**Discussion.**

The purpose of the present investigation was to examine the psychological and physiological effects of the Bowen therapeutic technique in a sample of healthy undergraduates. There is little doubt that the Bowen technique is an extremely effective health care treatment, however, little is known about the exact basis for the treatments remarkable effects. Using Benson's (1976) relaxation response theory as the basis for further understanding the effectiveness of the Bowen technique, it was reasoned that the application of the Bowen technique therapy could produce a decrease in muscle tension, and consequently induce a relaxation response characterised by a decrease in sympathetic activity (as indicated by heart rate), and an enhancement of individuals positive feelings.

Consistent with this prediction, muscle tension (EMG), although not significant, did show a general decrease from the application of the Bowen technique therapy. However, since there were no significant differences between each of the EMG measurement periods, it can be inferred that the Bowen technique was ineffective in significantly decreasing muscle tension.

Results did, however, exhibit a trend for a reduction in individuals heart rate, indicating a general decrease in sympathetic nervous activity following the administration of the Bowen technique. This result is consistent with the findings of Benson (1976) who found a corresponding decrease in sympathetic nervous system activity when the relaxation response occurs. These findings are also consistent with the changes in heart rate following massage noted by Frakouri and Jones (1987),

however in contrast, the increase in heart rate differed from those of other massage studies [Barr & Taslit, 1970; Bauer & Dracup, 1987; Kaufman, 1964; Longworth, 1982; Reed & Held, 1988]. Comparisons with previous massage studies may, however, be inconsequential as the inconsistencies in results are likely to be due to differences in the methodology and massage techniques utilised.

Similar to the results in heart rate, individuals level of anxiety significantly reduced following the administration of the Bowen technique therapy. Such a result on a persons anxiety indicates that the Bowen technique is perceived by individuals as relaxing. A comparison of the results of the current study with normalised data of Spielberger et al (1970) suggests that individuals were less anxious prior to the Bowen technique therapy.

To make such a conclusion, however, would be a bit enthusiastic as the trend for a decrease in muscular tension following the administration of the Bowen technique therapy found in the current investigation was not significant. This insignificance may be explained when considering the initial state of the subjects level of muscular tension. Prior to administering the Bowen technique, subjects general muscle tone was already in a relaxed state (as indicated by the low EMG values). Consequently, any reduction in muscle tension from this already relaxed state would not be extensive. It could be suggested that the trend observed for a decrease in muscle tension induced by the Bowen technique may be proportionate to the individuals initial amount of tonus. Therefore, someone who exhibits tightening of the muscles beyond the amount needed for normal healthy functioning (hence may exhibit an associated painful condition), may be more beneficial of the Bowen technique therapy and display larger reductions in muscle tension. There is clearly a need for further research into clinical cases of the Bowen technique. Only an investigation of subjects with hyertonicity could reveal the full extent to which the Bowen technique can-successfully reduce muscle tension.

An impressive and encouraging result of the present study was the consistent increase in the psychological well-being in individuals after the Bowen technique therapy was employed.It appears the Bowen technique can enhance individuals feelings of well-being by reducing tension, depression, anger, fatigue, confusion and anxiety. Being recognised as valuable and effective tool for enhancing positive feelings and well-being, the Bowen technique could be sufficiently utilised therapeutically for this purpose in patients who suffer from anxiety, hypertension and other stress related disorders.

Additionally, the psychological and physiological findings of the current investigation opens up a new dimension in which athletes can benefit from the use ofthe Bowen technique therapy. Application of the Bowen technique might prove to be extremely important in trying to prepare for competitions. Since the present study indicated a trend towards the decreasing of sympathetic activity following the Bowen technique therapy, this would be an important consideration for an athlete before competition where an influence over sympathetic parameters such as heart rate, blood pressure, body temperature and respiratory rate would be an advantage in the stressful pre-event environment.

The Bowen technique was also found to enhance an individuals feelings of well-being. This might prove beneficial to sport participants as the Bowen technique can be used to put them in a better frame of mind to withstand the pressures of competition. It might also prove beneficial to apply the Bowen technique therapy following competition by allowing the athlete overcome fatigue, assist in recovery, and from a psychological point of view, allow athletes to recover from competition stresses.It might prove to be of importance for future research to examine the relationships between the Bowen technique and actual

sports performances to provide more direct evidence of the benefits of the Bowen technique to sports participants.

In sum, the results of the present study indicated that the Bowen technique consistently brought about an enhancement of individuals positive moods, reducing feelings of tension, anxiety, fatigue, anger, depression and confusion. The therapy was also found to be associated with a decrease in heart rate, indicating a suppression of sympathetic activity, and a trend for an extensive decrease in individuals general muscle tension. Since psychological and physiological relaxation and well-being is an extremely important variable in therapy of many conditions and in sports performance, the Bowen technique may be considered an extremely useful aid in these and many other applications. There is an extremely wide range of applications of the Bowen technique therapy and hopefully, this preliminary research will encourage further investigation in the many areas which the Bowen technique may be beneficial, and to provide empirical support and further insight into the techniques remarkable accomplishments.

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