

## EFFECTS OF STRUCTURAL INTEGRATION ON STATE-TRAIT ANXIETY

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Studied the effects of the intervention technique of Structural Integration on state-trait anxiety. Matched pairs of *Ss* were assigned randomly to either the experimental (received rolfing) or control group ( $N = 48$ ). State anxiety questionnaires were administered before rolfing and then again in 5 weeks after rolfing. Results indicated that rolfing caused a decrease in state anxiety when compared to the control group. Results were discussed in terms of the release of emotional tension stored up in the muscles due to Structural Integration.

Of the numerous new intervention techniques designed to improve the general well-being through postural alignment, Structural Integration has received rapid and popular acclaim. Structural Integration, or rolfing as it is popularly known, is a technique for reordering the body so as to bring its major segments—head, shoulder, thorax, pelvis and legs—into a finer vertical alignment. The theory and techniques of rolfing are derived from the elemental fact that human bodies are affected by the pull of gravity. If gravitational force is managed effectively through the lines of gravity, mechanical stress is minimized, which allows freedom of movement and economical use of energy (Hunt & Massey, 1977). Rolfing con-

sists of a carefully worked-out sequence of manipulations in which the rolfer reverses the randomizing influence of the environment by moving tissue toward symmetry and balance (Pierce, Note 1). Thus, rolfing aims to create and maintain a more balanced energy system that conserves energy rather than expends it. To achieve this end, rolf practitioners concentrate on fascia and connective tissue and apply the necessary force with fingers, elbows, clenched fists and open hands.

The consequences of rolfing vary a great deal depending on the individual's body structure; However, besides a change in the physiological and anatomical structure of the body, practitioners and patients have claimed that rolfing causes psychological change as well. Rolf (1973) argues that emotional pain and anger often are repressed and held in the musculature at a physical level. Usually, painful blockages during rolfing betray areas that harbor residues of stressful emotional experiences. After rolfing, a great deal of this anger and resentment seem to disappear so that individuals can meet situations with less tension and anxiety. Despite these claims by practitioners and patients, *no* empirical studies have been conducted to determine whether Structural Integration causes a reduction in anxiety. Spielberger (1966) has argued that when one is assessing anxiety, one must distinguish between anxiety as a relatively stable disposition (trait anxiety) and *as* an immediate "right now" reaction. Therefore, it was the purpose of the present investigation to determine the effects of Structural Integration on state-trait anxiety.

## METHOD

### *Subjects*

*Ss* were 48 volunteer students from universities in the Los Angeles area. *Ss* were randomly assigned to either an experimental (rolfing) or control group. There were 12 males and 13 females in both the experimental and control groups.

### *Procedure*

As *Ss* entered the laboratory they were asked to relax for 5 minutes and then were given the state anxiety and trait anxiety questionnaires (Spielberger, Gorsuch, & Lushene, 1970). *Ss* then were *electroded* on four sets of muscles with bipolar silver/silver chloride surface electrodes. Electromyographic readings were made during five activities—lying, throwing, lifting a stool, jogging and stepping up on a stool—chosen as a representative sampling of daily activity that involved gross motor activity of arm, trunk and leg muscles. These activities were used to determine the effect of Structural Integration on the neuromuscular patterning of energy, and results are reported elsewhere (Hunt, Massey, Weinberg, Bruyere, & Hahn, 1977). After the completion of the experimental procedures, *Ss* were given the second state anxiety questionnaire.

During the intervening 5 weeks *Ss* in the experimental group were rolfed twice a week; each session lasted approximately 1 hour. Control *Ss* were not rolfed, but instead were brought into the laboratory twice a week for 5 weeks and given a series of exercises and movements. *Ss* were told that these exercises would increase their general physical well-being. This was done to insure that each group received equal attention and thus the results could not be attributed to expectancy effects. After the 5-week period, both experimental and control *Ss* were brought back individually into the laboratory and administered state anxiety questionnaires and the electromyographic recordings in the same sequence as described above. The only deviation was that no trait anxiety measures were ascertained because this was a relatively stable disposition. To recapitulate, the major dependent variables were the four state anxiety questionnaires, two administered before rolfing, both pre- and post-instrumentation, and two after rolfing, both pre- and post instrumentation.

## RESULTS AND DISCUSSION

To assess state anxiety differences, it was necessary first to determine whether control and experimental groups differed in trait anxiety. Results of the test indicated no significant differences between groups on this parameter. Thus, we would not expect differential elevations in state anxiety based on the measure of trait anxiety. Between-group differences were analyzed by a multivariate analysis of variance with three dependent variables using different combinations of the four state anxiety test scores. Variable one was a measure of average state anxiety for each group over the entire experiment. Variable two measured whether there were group differences between pre- and post-instrumentation settings. The third variable served to determine whether there were group differences in state anxiety from before to after rolting and thus was the key variable in testing the hypothesis. To test for the significance of this third variable, average state anxiety before rolting was used as the covariate, and state anxiety after rolting was the dependent variable.

**TABLE 1**  
MEANS FOR STATE ANXIETY SCORES

Before rolting	Pre-instrumentation	Post-instrumentation
Control	34.5	30.8
Experimental	38.5	34.9
After rolting		
Control	36.2	33.4
Experiment al	<b>28.7</b>	<b>26.1</b>

Means for all state anxiety tests are presented in Table 1. Results indicated that the overall multivariate  $F$  was significant,  $F(3, 39) = 3.03, p < .05$ . More importantly, univariate tests show that a significant effect was obtained when differences in state anxiety from before to after rolting were compared (variable 3),  $F(1, 36) = 7.09, p < .01$ ;  $Ss$  who received Structural Integration displayed less anxiety than controls. None of the other variables reached significance. Thus, although the groups did not differ on state anxiety when averaged out throughout the experiment or during pre- and post-instrumentation, they did differ from before to after rolting.

These results provide empirical support for the notion that Structural Integration leads to a decrease in state anxiety. Practitioners of this intervention technique have maintained that chronic muscle tension often carries with it an emotional load. The rolfer must apply sufficient force to stretch and move tissues and thus creates some pain, which disappears after the pressure is removed. However, this temporary pain marks an emotional release that, may be colored strongly by associated emotions. While individuals are being rolfed, they often recall specific traumatic episodes associated with particular parts of the body. In this fashion, they release pent-up emotions and relinquish chronic muscular contractions. It has been proposed that releasing of emotions and bringing experiences to conscious awareness can result in a decrease in anxiety. The results of the present investigation do indicate that the decrease in state anxiety can be attributed to Structural Integration. However, the exact causal link between anxiety reduction and a specific aspect of Structural Integration cannot be determined at this time. Future studies are needed to explore fully the exact nature of the relationship between Structural Integration and its effect on emotional release.

## REFERENCE NOTE

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