Perceptual and Motor Skills, 1994, 79, 688-690.

STYLES OF INTERPERSONAL CONTACT AND MUSCULAR TONE AT REST OF SOME MUSCLES OF THE SHOULDER[1]

VEZIO RUGGIERI AND SIMONETTA GIUSTINI

Università degli Studi di Roma

Summary.—Styles of interpersonal contact are related, we hypothesized, to particular postural attitude showing the tendency to interact with or to avoid the environment. Those attitudes are expressed through myographic patterns. Now we examined the interpersonal contact styles and the muscular activity at rest (frequency and amplitude) of some muscles of the shoulders of 54 undergraduate women in psychology. All subjects declared they were right-handed. Increased myographic frequency seems associated with the perception of some levels of interpersonal barrier while increased amplitude seems to facilitate contact with other persons.

The present research examined the association of styles of interpersonal contact and myographic tension of the shoulder. The hypothesis was that habitual attitude toward another or interpersonal contact style is represented at two levels. The first level is behavioral; the second is expressed by bodily attitude that could be considered habitual interpersonal personality traits. The bodily attitudes are, of course, displayed as muscular patterns of tonic activity involving different areas of the body. The behavioral contact styles were measured on a questionnaire (2) of nine scales which described contact in terms of conflict or refusal (barrier). This contact was related to different aspects of interpersonal relations (erotic, social, etc.) The scales were Barrier to Intimacy, Barrier to Physical Erotic Contact, Conflict in Physical Erotic Contact, Barrier to Spatial Approach, Conflict in Spatial Approach, Social Barrier, Social Barrier with Sexual Problems, Barrier toward Deviation and Emotivity, and Good Contact, a positive attitude.

Muscular tone at rest in an upright position was measured by electromyographic equipment constructed in the laboratory. EMG potentials passed through an amplifier using a band pass between 20 and 1000 Hz. The EMG signal was sent to an integration system which performed the analysis of amplitude. Then the EMG signal was sent to a zero-crossing apparatus which analyzed frequencies. These signals were digitized in 1-sec. periods that appeared on a display. The EMG scores were expressed in arbitrary units of frequency and amplitude. We calculated the EMG scores for the musculature of the shoulder, placing surface electrodes bilaterally at four points: (a) in the middle of a horizontal line passing through the scapula muscles and the vertebral column at the level of the medial border (inter-

[1]Address requests for reprints to Vezio Ruggieri, Dipartimento di Psicologia, Università degli Studi di Roma "La Sapienza," Via dei Marsi 78, 00185 Roma, Italia.

scapular point); (b) on the cross-point of a line drawn from the seventh cervical vertebra and the humerus and a vertical line deriving from the superior apex of the scapula (point above the scapula); (c) a point on the neck 2 cm above and 2 cm lateral to the seventh cervical vertebra (nucal point); and (d) a point anterior to the emiclavear line and about 2 cm below the clavicle (anterior point). For each point a mean score of 25 measures was obtained.

The mean values and standard deviations of examined measures are indicated in Table 1 (EMG frequency and EMG amplitude) and Table 2 (Interpersonal Contact). Analysis showed that an increase in electromyographic frequency was positively and significantly correlated with scores on barrier and on conflict about contact. EMG frequency at the point above the scapula of the left half of the body showed a statistically significant positive correlation (using Spearman *rho*) with the scores on Barrier to Intimacy (.453, $p < .005$), Barrier to Spatial Approach (.338, $p < .05$), and Conflict in Spatial Approach (.430, $p < .005$). EMG frequency at the anterior point on the right half of the body was positively correlated with scores on Barrier to Physical Erotic Contact (.331, $p < .05$), Barrier to Intimacy (.346, $p < .05$), and Conflict in Spatial Approach (.330, $p < .05$).

TABLE 1
MEANS AND STANDARD DEVIATIONS FOR ELECTROMYOGRAPHIC SCORES: FREQUENCY AND AMPLITUDE

	Nucal Point		Point Above Scapula		Interscapular Point		Anterior Point	
	Right	Left	Right	Left	Right	Left	Right	Left
Frequency								
M	397.6	429.6	449.1	489.1	442.1	479.6	473.9	496.6
SD	190.6	166.0	180.9	168.7	158.5	163.4	148.9	140.9
Amplitude								
M	302.6	325.8	283.0	280.9	150.9	280.0	143.4	287.9
SD	163.6	158.4	143.3	164.2	45.5	158.2	67.2	171.4

EMG frequency at the interscapular point and at the point above the scapula of the left half of the body were both positively correlated with scores on Barrier to Physical Erotic Contact .385 ($p < .005$) and .345 ($p < .05$), respectively. EMG amplitude, on the contrary, was negatively correlated with scores for Conflict in Spatial Approach (EMG amplitudes at the interscapular and nucal points, both of the right half of the body) −.353 and −.306 ($p < .05$), respectively, and with Social Barrier with Sexual Problems (interscapular point of both halves of the body) −.416 (right) and −.333 (left). The increase in myographic amplitude on the interscapular point of the right half of the body was positively correlated .374 ($p < .005$) with scores on Good Contact, too.

TABLE 2
MEANS AND STANDARD DEVIATIONS FOR MEASURES OF INTERPERSONAL CONTACT

	Barrier to Intimacy	Barrier to Physical Erotic Contact	Conflict in Physical Erotic Contact	Barrier to Spatial Approach	
M	5.4	2.7	5.7	7.4	
SD	2.8	2.0	2.4	3.3	
	Conflict in Spatial Approach	Social Barrier	Social Barrier With Sexual Problems	Barrier Toward Deviation and Emotivity	Good Contact
M	5.7	2.9	3.2	3.1	11.7
SD	2.4	1.5	2.3	2.1	1.6

These results suggest that some attitudes toward interpersonal contact, especially in the areas of social and spatial contact for the right half of the body, are expressed as an increase in electromyographic amplitude, which can be involved in producing contact gestures, while the increase in EMG frequency, especially of the left half of the body and for measures of Intimacy, Physical Erotic Contact, and Spatial Contact, seems to have an inhibitory role for interpersonal contact. We hypothesized, as in previous research (1), that right and left halves of the body have different psychophysiological meanings. While the left half would reflect psychological self-regulation, the right half of the body is employed in interpersonal behavior. These hypotheses seem to be confirmed by our data.

REFERENCES

1. RUGGIERI, V., CELLI, C., & CRESCENZI, A. Gesturing and self-contact of right and left halves of the body: relationship with eye-contact. *Perceptual and Motor Skills*, 1982, 55, 695-698.
2. RUGGIERI, V., MILIZIA, M., IMPERIALI, M. G., & FABRETTI, E. (1983) *Contributo sperimentale all'indagine sul contatto interpersonale*. Rome: Kappa.

Accepted August 11, 1994.