



Short Communication

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Preliminary Study on the Short-Term Effects of Entomic Exercises: Evaluation Through Biofeedback

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Goals

This research aims to verify whether a brief intervention carried out according to the technique of Entomy can limit, in subjects with a phobic component of the personality, the physiological stress reactions caused by exposure to the phobic stimulus (images of small invertebrate animals, such as insects, arachnids, etc.) or even by a path of imagination guided to the identification in the phobic object itself.

Entomy and Entomic Treatment

Entomy is a discipline conceived and developed, since 1996, at the Center of Mental Health of the Serchio Valley, in Northwest Tuscany Local Health Unit Company. It originates from ancient shamanic practices revised in the light of current psychological and neuro-scientific knowledge. It is a dynamic meditation, a kind of Mindfulness in motion, which aims at health enhancing and personal evolution. It includes a series of psycho-corporeal techniques, called “entomic forms”, inspired by small invertebrate animals such as insects, arachnids, crustaceans, mollusks, and earthworms, that is living species very far from us in the phylogenetic scale [1-3].

Entomic forms are psychomotor sequences that aim to produce an identification with the evoked animal and help the practitioner to get in touch with removed or denied parts of himself, activating processes of inner transformation. When a person feels rejected, threatened, or disqualified by others, feelings of inadequacy can take over, so demeaning as to be intolerable. These unacceptable parts of self are then separated and removed from consciousness. Thus, we defend ourselves from feelings of shame, abjection, and worthlessness, avoiding the feeling of rejection and contempt about ourselves; however, they continue to act deeply, taking away energy and causing emotional disorders [4,5].

Experimental Hypothesis

It is hypothesized that entomic techniques can reduce stress reactions in a subject with phobic symptoms both in case of visual exposure to the phobic stimulus (images of insects, spiders, etc.) and in paths of guided imagination aimed at the visualization of the phobic object or its internalization. The increase in heart rate, skin conductance (psychogalvanic reflex) and muscle tension were chosen as indicators of the state of stress, evaluated with the Biofeedback technique [6-8].

The Method

A sample of ten volunteers of both sexes, aged between 26 and 68 years, was recruited. Each participant had expressed, as a preliminary, a particular sensitivity towards a small invertebrate, to be understood as a phobic trait. For each of the participants, an audiovisual sequence was recorded showing the chosen phobic animal in motion. At each meeting, the audiovisual was shown twice to the subject.

Phase 1

After checking the quality of the signals collected using biofeedback instrumentation, a neutral stimulus (mountain landscape film) lasting one minute is initially shown on a PC screen, followed by the vision of the phobic stimulus for another minute.

Phase 2

The one-minute exposure to the neutral stimulus is repeated, followed by a short path of guided imagination in which images of the phobic stimulus and/or processes of identification with it are suggested to the subject, with closed eyes.

Phase 3

Each subject performs a guided exercise of Entomy together with the instructor.

Phase 4

Phase 2 (neutral stimulus followed by phobic stimulus) is repeated.

Phase 5

Phase 3 (neutral stimulus followed by guided imagination) is repeated.

Subsequently, the tracks of the four measurements (phase 1, phase 2, phase 4, phase 5) are cleaned of artifacts (changes to the signal due to movement, speech, sensor displacement, etc.) by a certified biofeedback technician; then, the level of the three variables before and after the phobic stimulus and before and

after the guided imagination is checked, both before (pre) and after (post) the exercise of Entomy. Both the characteristics of the stimulus and the variations were taken into account in determining the period over which the measurements were taken: for the guided imagination path (attached table No. 1), which requires several tens of seconds to be performed, the physiological states of the subject have been evaluated in the previous minute and in the minute after the beginning of the suggestion; for the exposure to the image of the phobic stimulus (attached table No. 2) the previous and subsequent ten seconds for the SC and EMG variables have been taken into account, since they are susceptible to rapid variations, while the period of 60 seconds (before and after the stimulus) was maintained for FC, because an overly short detection period can be influenced by other variables such as RSA (Respiratory Sinusoidal Arrhythmia).

Table 1:

Evaluation of the Effects of Guided Imagination (Suggestion)					
PRE					
variable	t	t	criteria	assessment	cases
Activation - SC (μ S)	Average 60 sec. before the stimulus	Average 60 sec. after the stimulus	Increase $\geq 0,5 \mu$ S	stress	3
			Variation within $\pm 0,5 \mu$ S	neutral	5
			Decrease $\geq 0,5 \mu$ S	no-stress	2
Muscle tension - EMG (μ v)	Average 60 sec. before the stimulus	Average 60 sec. after the stimulus	Increase $\geq 0,1 \mu$ v	stress	6
			Variation within $\pm 0,1 \mu$ v	neutral	3
			Decrease $\geq 0,1 \mu$ v	no-stress	1
Heart rate - FC (b/s)	Average 60 sec. before the stimulus	Average 60 sec. after the stimulus	Increase $\geq 0,5$ b/s	stress	4
			Variation within $\pm 0,5$ b/s	neutral	1
			Decrease $\geq 0,5$ b/s	no-stress	5
POST					
variable	t	t	criteria	assessment	cases
Activation - SC (μ S)	Average 60 sec. before the stimulus	Average 60 sec. after the stimulus	Increase $\geq 0,5 \mu$ S	stress	1
			Variation within $\pm 0,5 \mu$ S	neutral	8
			Decrease $\geq 0,5 \mu$ S	no-stress	1
Muscle tension - EMG (μ v)	Average 60 sec. before the stimulus	Average 60 sec. after the stimulus	Increase $\geq 0,1 \mu$ v	stress	1
			Variation within $\pm 0,1 \mu$ v	neutral	5
			Decrease $\geq 0,1 \mu$ v	no-stress	4
Heart rate - FC (b/s)	Average 60 sec. before the stimulus	Average 60 sec. after the stimulus	Increase $\geq 0,5$ b/s	stress	5
			Variation within $\pm 0,5$ b/s	neutral	3
			Decrease $\geq 0,5$ b/s	no-stress	2

Table 2:

Evaluation of the Effects of Exposure to the Phobic Stimulus					
PRE					
variable	t	t	criteria	assessment	cases
Activation - SC (μ S)	Average 10 sec. before the stimulus	Average 10 sec. after the stimulus	Increase $\geq 0,5 \mu$ S	stress	5
			Variation within $\pm 0,5 \mu$ S	neutral	4
			Decrease $\geq 0,5 \mu$ S	no-stress	1
Muscle tension - EMG (μ v)	Average 10 sec. before the stimulus	Average 10 sec. after the stimulus	Increase $\geq 0,1 \mu$ v	stress	6
			Variation within $\pm 0,1 \mu$ v	neutral	3
			Decrease $\geq 0,1 \mu$ v	no-stress	1

Heart rate - FC (b/s)	Average 10 sec. before the stimulus	Average 10 sec. after the stimulus	Increase $\geq 0,5$ b/s	stress	7
			Variation within $\pm 0,5$ b/s	neutral	0
			Decrease $\geq 0,5$ b/s	no-stress	3
POST					
variable	t	t	critereon	assessment	cases
Activation - SC (μ S)	Average 10 sec. before the stimulus	Average 10 sec. after the stimulus	Increase $\geq 0,5$ μ S	stress	0
			Variation within $\pm 0,5$ μ S	neutral	7
			Decrease $\geq 0,5$ μ S	no-stress	3
Muscle tension - EMG (μ v)	Average 10 sec. before the stimulus	Average 10 sec. after the stimulus	Increase $\geq 0,1$ μ v	stress	1
			Variation within $\pm 0,1$ μ v	neutral	7
			Decrease $\geq 0,1$ μ v	no-stress	2
Heart rate - FC (b/s)	Average 10 sec. before the stimulus	Average 10 sec. after the stimulus	Increase $\geq 0,5$ b/s	stress	2
			Variation within $\pm 0,5$ b/s	neutral	4
			Decrease $\geq 0,5$ b/s	no-stress	4

Comment on the Statistical Data

Three different variables (Activation, Muscle Tension, Heart Rate) were evaluated in response to two different conditions of possible phobic reaction (exposure to the stimulus and a guided imagination path), for a total of six pre-post evaluations. In all

cases (except for Heart Rate for guided imagination) the short entomic practice carried out between the first ("pre") and the second ("post") detection seems to have reduced the number of subjects who expressed stress responses, in two cases statistically significant ("Activation" for exposure to the phobic stimulus and "Muscle tension" for the guided imagination - attached table No. 3).

Table 3:

	variable	two-sided asympt. sig.
Visual stimulus	SC 10 sec. pre/post	
	EMG 10 sec. pre/post	,084
	FC 60 sec pre/post	,084
Guided imagination	SC 60 sec. pre/post	,564
	EMG 60 sec. pre/post	
	FC 60 sec pre/post	,194

*Wilcoxon test for independent samples - $P \leq ,05$

Conclusions

This was the first experiment of this kind aimed at evaluating some objective parameters, recorded in an extremely short time (a few minutes). The experimentation, which needs to be supported by other data, nonetheless provides us with an initial confirmation of the immediate effectiveness of entomic intervention. These data tend to consolidate the clinical observation, which has shown rapid responses already to the first executions of the entomic form. Therefore, the prerequisites for integrating the data with further tests on larger samples evaluated for longer periods of time are emerging.

Acknowledgement

None.

Conflict of Interest

No Conflict of interest.

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