

# Do Unilateral Right and Left Face Contractions Induce Positive and Negative Emotions? A Further Test of Schiff and Lamon's (1989) Hypothesis

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Schiff and Lamon (1989) proposed that unilateral face contractions induce positive or negative changes in emotion depending on the side of contraction; support for this proposal, however, has been mixed. In a new test, 40 right-handed and 38 left-handed men performed four alternating face contractions (LRLR or RLRL) and, after each one, completed a different version of the Depression Adjective Checklist (Lubin, 1994). A repeated-measures ANCOVA failed to reveal any significant effect of side of face contraction or handedness on direction of emotion change. Instead, regardless of side of contraction, the subjects' negative emotional state increased significantly across the four contractions with the degree of change being significantly related to the subjects' reported level of difficulty in holding the contraction irrespective of whether the more difficult side was the left or the right. © 2001 Elsevier Science

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The so-called "valence hypothesis" for cerebral organization of emotion posits that the left and right hemispheres are specialized for the experience of positive and negative emotions, respectively, where positive emotions include cheer, elation, and confidence and negative emotions include sadness, grouching, and distress (Silberman & Weingartner, 1986). Support for the hypothesis has been mixed. Evidence for it has come from research on clinical and normal populations, including studies of emotional displays in persons with unilateral cerebral lesions (Sackeim et al., 1982) and in persons with epilepsy who undergo the Intracarotid Amobarbital Procedure (Ross & Rosadini, 1967) and studies of asymmetries in cortical activity in persons induced into emotional states (Davidson, Schwartz, Saron, Bennet, & Goldman, 1979) and in persons with clinical depression (Henriques & Davidson, 1991). Evidence against the hypothesis has come from research on similar clinical and normal

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populations, including studies finding that, irrespective of valence, emotional disturbances are more common following right- than left-hemisphere injury (Lishman, 1968), that emotional changes in persons with temporal lobe epilepsy are more common in those with right- than with left-sided foci (Bear & Fedio, 1977), and that emotional responses in normal persons are stronger to happy and sad films alike when presented to the right than to the left hemisphere (Wittling & Roschmann, 1993).

Over the past decade Schiff and Lamon and their colleagues have reported further support for the valence hypothesis with a new method—unilateral contractions of the lower muscles of the face. With college students as subjects and using a variety of dependent measures—response to an open-ended instruction to attend to and report on their emotional experiences (Schiff & Lamon, 1989), responses to TAT cards (Schiff & Lamon, 1989), and response to instructions to describe different ethnic groups (Schiff, Esses, & Lamon, 1992)—left-side contractions were found to produce more negative changes, right-side contractions more positive changes in emotional state.<sup>1</sup> For left-side contractions, the effects in one experiment were dramatic, at one point producing weeping in 3 of 12 subjects (Experiment 1 in Schiff & Lamon, 1989). The same general lateralized effects also were found for men and women alike. Finally, the effects are not restricted to face contractions: The same effects have been reported for unilateral contractions of the muscles of the *hand*, as indexed by responses to TAT cards (Schiff & Lamon, 1994), judgments of the emotional valence of chimeric faces (Schiff & Truchon, 1993), and persistence in trying to solve unsolvable problems (Schiff, Guirguis, Kenwood, & Herman, 1998). Schiff and Lamon (1993) cite their ability to produce the valence effect under a number of different conditions as a sign of the method's being "quite robust" (p. 551).

To explain the effects of the contraction method, Schiff and Lamon (1989) propose a two-step mechanism: first, inasmuch as the muscles of the lower two-thirds of the face as well as the muscles of the hand are innervated predominantly by the contralateral hemisphere, unilateral contraction of these muscles is assumed to predominantly activate sensory and/or motor areas in the contralateral hemisphere; second, on the assumption that neural activation spreads to nearby cortical and limbic regions, including regions that mediate emotional states, there is arousal of the emotional state—positive or negative—primarily associated (according to the valence hypothesis) with that hemisphere.

If the contraction method works as Schiff and Lamon (1989) suppose, it would provide an important new way to test the valence hypothesis in clinical as well as nonclinical populations. The main reason is that it would allow for the selective (or predominant) activation of each hemisphere while avoiding, according to Schiff and Lamon, the intervening cognitions and demand characteristics associated with more conventional emotion-induction methods, such as the use of narratives, self-statements, films, or music (for reviews, see Gerrards-Hesse, Spies, & Hess, 1994; Martin, 1990; Westermann, Spies, Stahl, & Hesse, 1996). Other than the studies by Schiff and Lamon and their colleagues, however, the method has found mixed support in the two tests that we know to have been performed in other laboratories, by Kop, Merckelbach, and Muris (1991), and by Wissing and Wessels (1992).

Kop et al. (1991) failed to replicate the effect altogether and, instead, found only

<sup>1</sup> In describing their results, Schiff and Lamon (1989) use the terms "emotional state" and "mood" interchangeably. Other researchers, however, use them differently. For example, according to Ekman (1994) and Davidson (1994), emotions are brief "phasic perturbations," have a specific focus, and serve to modulate or bias action, whereas moods are longer lasting, have a more generalized focus, and serve to bias cognition. By this usage, the face-contraction method would seem to be better described as a method of emotion-induction than as a method of mood induction. In the current article, we shall use the term "emotional state" to avoid any misinterpretation.

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