Body Intelligence Scale: Defining and Measuring the Intelligence of the Body

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This article introduces the Body Intelligence Scale (BIS) to humanistic, transpersonal, and positive psychologists, the most likely initial users of the BIS. I invite research collaboration and clinical trials with individuals in appropriate health care and clinical populations to evaluate the efficacy of the BIS. Theory and research relevant to body intelligence are reviewed and the concept of body intelligence is defined. The combination of qualitative and quantitative methods employed in scale development supports a multimethod approach to scale development, especially as relevant to assessing subtle human qualities. The current BIS is composed of three subscales: the Energy Body Awareness, Comfort Body Awareness, and Inner Body Awareness subscales. Future research should evaluate the reliability and validity of the BIS, usefulness of the BIS as a tool for the enhancement of body intelligence generally, and the relationship of the scale to appropriate clinical populations, particularly individuals with weight-management challenges, history of trauma and abuse, and/or physical illnesses clearly aggravated by stress.

I wanted to begin not with characters or ideas, but with movements …

Martha Graham

DEFINING AND MEASURING BODY INTELLIGENCE: INTRODUCING THE BODY INTELLIGENCE SCALE

Body awareness and intelligence have been the source of speculation and theory for decades among luminaries, such as Sigmund Freud, Salvador Ferenczi, Carl

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1Retrieved from http://www.pbs.org/wnet/americanmasters/database/graham-m.html
Jung, Margaret Mahler, and Wilhelm Reich in medicine and psychiatry; Maurice Merleau-Ponty and Francisco Varela in phenomenological philosophy; Maria Montessori and Rudolf Steiner in education; and F. M. Alexander, Elsa Grinder, Moshe Feldenkrais, Thomas Hanna, Marion Rosen, Ida Rolf, Charlotte Selver, and Mary Whitehouse as body and movement specialists. Reflections on the body as a source of knowledge continues in the contemporary writings and practice of Janet Adler, Donald Bakal, Joan Chodorow, Bonnie Bainbridge Cohen, Antonio Damasio, Eugene Gendlin, Don Hanlon Johnson, Mark Johnson, George Lakoff, Penny Lewis, Alexander Lowen, Robert Romanyshyn, Ilana Rubenfield, and many others.

A converging line of research and theory focuses on the human capacity for multiple forms of intelligence. The writings of Howard Gardner (1983/1993, 1999) on multiple intelligence and Daniel Goleman (1995) on emotional intelligence have received widespread recent attention. Among nine forms of intelligence, Gardner’s (1999) Bodily-Kinesthetic Intelligence focuses on the capacity to learn experientially and solve problems rather than on body awareness as a source of insight about health and well-being per se.

Of significance at the level of mass society and public influence are modern dancers Isadora Duncan and Martha Graham. The sheer force of their dancing has demonstrated the incomparability of the body in movement as an instrument of expression and communication. Similarly, the physical virtuosity of opera stars Maria Callas and Luciano Pavarotti and athletes, such as basketball player Michael Jordan and golfer Tiger Woods, have had the same resounding “voice” in signaling the importance of the body as both a means and expression of intelligence.

Assessment of Body Awareness

Prior assessments of body awareness have focused primarily on the measurement of bodily symptoms of physical pain, discomfort, or emotional stress. The Body Awareness Scale (Roxendal, 1985) and the subsequent version of the scale known as the Body Awareness Scale–Health (Gyllensten, Ekdahl, & Hansson, 1999) measure physical pain, somatic anxiety, muscle tension, and breathing problems (e.g., Gustafsson, Ekholm, & Broman, 2002; Mattsson & Mattsson, 1994; O’Connor, Raglin, & Morgan, 1996). The Autonomic Perception Questionnaire (Mandler, Mandler, & Uviller, 1958) asks respondents to indicate sensations associated with anxiety or emotional stress, such as heat, cold, stomach upset, and a lump in the throat.

Closely related to the concept of body awareness is that of body-image perception. Seymour Fisher (1986a, 1986b) has comprehensively studied body image, generally defined as the many ways that individuals view and give meaning to their bodies, including body size, appearance, and boundaries. Considerable attention has been given to developing a variety of assessments of body-image disturbance.
(e.g., Byrne & Hills, 1996; Gardner, Friedman, & Jackson, 1998; Popkess-Vawter & Banks, 1992; Truby & Paxton, 2002). These assessments of body image have been used to evaluate the relationship between distorted body image, eating disorders, and associated personality characteristics such as anxiety, depression, and level of self-esteem (e.g., Auchus, Kose, & Allen, 1993; Candy & Fee, 1998; de Castro & Goldstein, 1995; Gardner, Garfinkel, Stancer, & Moldofsky, 1976; Geissler, Kelly, & Saklofske, 1994; Williamson, Barker, Bertman, & Gleaves, 1995).

To date, only the Body Awareness Questionnaire and Style in Perception of Affect Scale have attempted to assess body awareness or body intelligence related to the enhancement of health and well-being. Shields, Mallory, and Simon’s (1989) Body Awareness Questionnaire contains 18 Likert-scale items concerning “normal bodily processes” rather than stressful or painful bodily experiences. Items include questions such as “I can tell when I go to bed how well I will sleep that night” and “I notice distinct body reactions when I am fatigued.” A follow-up study indicated the awareness of body sensations associated with strong emotions (usually negative) is different from awareness of body sensations associated with well-being (Shields & Simon, 1991). In early research on emotional intelligence, Michael Bernet (1996, 1997) developed a Style in Perception of Affect Scale. This scale contains three subscales that assess personality or perceptual styles in the way people notice changes in feelings associated with body sensations: (a) an integrated body-based awareness; (b) emphasis on evaluation based on ideals, norms, or feedback from others; and (c) looking to logic to discern between feelings and responses. The respondent is asked to make a forced choice between the three perceptual styles. This unique scale deserves more research attention.

**Defining Body Intelligence**

The Body Intelligence Scale (BIS) assesses forms of body awareness that support overall wellness. The construct domain of body intelligence is currently defined as the awareness and use of bodily sensations to (a) support health and well-being, (b) supply information about environmental safety and comfort, and (c) enhance personal and spiritual development over a lifetime. Body sensations include those that originate from within the body and on the body’s surface (e.g., skin, hair, and nails), as well as sensations from the body acting as a whole, responsive to the energy of others and the environment.

Reflecting conceptually and experientially, human bodily functions, movements, and perceptions are a complex “orchestration” of tiny movements, muscles, liquids, tissues, and biochemical processes throughout our bodies. Most of these occur without conscious mental awareness. On the other hand, most of us are aware of bodily sensations that signal biological needs such as hunger, thirst, and fatigue. The underlying rationale for the BIS assumes that most people can in-
crease awareness, and sometimes verbalization, of bodily sensations to enhance their overall health and well-being. Great artists, poets, and scientists often bring conscious awareness of bodily processes to their creative endeavors. Men and women yogis, Zen Buddhist Masters, and mystics worldwide are known to bring conscious awareness of these bodily processes to serve spiritual openings and mindfulness. Some of the world’s greatest athletes are superbly adept in conscious body awareness. As a long-term goal, it is hoped that research on and related to the BIS will help people to become sufficiently aware of bodily sensations and processes to (a) support their overall health and well-being, including the amelioration of stress-aggravated symptoms and diseases such as hypertension and diabetes; (b) signal safety, danger, nurturance, and comfort from others and the environment; and (c) further a relationship with their bodies in a manner that cultivates ongoing self-knowledge and spiritual growth throughout life.

Some people are probably genetically and biologically predisposed to recognizing and using bodily sensations more effectively than others. Some aspects of body intelligence may also be easier to learn as children, in a manner similar to language acquisition. It is also likely that some aspects of body intelligence are easier to learn than others. For example, it may be easier to recognize and use bodily sensations to promote overall health and well-being, generally, than to use bodily sensations to signal safety and comfort, especially for individuals with a history of trauma, abuse, or repeated violation of bodily and psychological boundaries as children.

Methods

Both qualitative and quantitative methods were employed in the development of the BIS. As defined earlier, body intelligence is a subtle manifestation of human experience. As a consequence, the development of the BIS required an interpretative process more like classical hermeneutics than conventional scale development. An important byproduct of the development of the BIS (and a Varieties of Intuition Scale now in early stages of scale development) has been the development of a multimethod approach to scale development, particularly appropriate to the measurement of subtle human qualities and experiences (Anderson, 2006). An articulation of the nuances involved in the qualitative and quantitative procedures employed in the development of the BIS would require a separate article. What follows is an overview of the important steps.

Origins in personal history and embodied writing. My own explorations of body awareness began as a gymnast at age 7. I never became a great gymnast. I was only enthusiastic. But I learned wonderful metaphors that have carried me a long way in life. First, I learned how to relax and fall without hurting myself on the mat. As a professional woman, no other metaphor has served me better than this.
Second, I learned to stop exercising at the very moment I started to hurt. No other metaphor has kept me healthier all these years. I will die like everyone else, but I hope that I will release at just the right moment for a final soft “landing.”

Professionally, I began to explore the psychology of the body when I started to facilitate a research seminar on the Psychology of the Body. The seminar invited research collaboration concerning the role of the body in psychospiritual development. In the first 6 years, we developed a writing style known as Embodied Writing (Anderson, 2001, 2002a, 2002b), intended to evoke the voice of the body for the purposes of personal growth and data collection, purposes understood as mutually supportive in the fields of humanistic, transpersonal, and positive psychology. Many graduate students in the course were already established health and body care practitioners, bringing these skills to their Embodied Writings. For 6 years as we refined procedures and developed new applications for Embodied Writing, I listened to dozens of students and read hundreds of embodied writings about transformative experiences in and related to the body.

Then, one day while on vacation, I realized with much gratitude that I had experienced a full range of transformative bodily experiences through listening and vicarious learning. As an experienced researcher, I was simultaneously aware that I now had the knowledge base to construct a content domain of body awareness (later called body intelligence) in its myriad varieties, from commonplace to mystical. I sat down to work. Within minutes, I generated dozens of Likert-scale items (questions) to measure various modes of body awareness. A research project had begun.

**Defining the content domain of body intelligence.** Experientially, the content domain of body intelligence evolved explicitly from listening to hundreds of embodied writings written by graduate students and colleagues in the field of transpersonal psychology, as described earlier. By expanding my understanding of body awareness significantly beyond my own experience, this intense “immersion” allowed a definition of the content domain of body intelligence to emerge.

Concurrent with this experiential process, I also engaged in an ongoing textural analysis of the writings of body theorists and practitioners too numerous to name in this article. Among the most important theorists were David Abram (1996), Eugene Gendlin (1978), Mark Johnson (1997), Carl Jung (1933), David Levin (1985), Maurice Merleau-Ponty (1962, 1968), Robert Romanyshyn (2002), and Francisco Varela (e.g., Varela, Thompson, & Rosch, 1991). Other theorists and practitioners who informed the content domain are named at the beginning of this article.

**Item generation.** I personally generated over 100 items based on my own experience of body awareness and from what I had learned through listening to the Embodied Writings of others. Then, I formed three Focus Groups, composed of a
mix of body-centered psychotherapists; counselors with specializations in weight management and trauma and abuse recovery; and body practitioners, including acupuncturists, dance therapists, Aikidoists, body-centered therapists, massage therapists, and Feldenkrais body workers. The Focus Groups generated items in “live” brainstorming sessions and in online dialogue. I participated as a member of the Focus Groups, generating some of my items along with them. The members of the Focus Groups were asked to brainstorm items answerable in a Likert-scale format about the many ways body awareness supports overall health and well-being, based on personal experience and experiences with clients.

From the 423 possible items generated by the Focus Groups and me, I selected 200 items to form the preliminary BIS. The 200 items were selected for relevance to body awareness, clarity, readability, range and diversity of content, variation in wording, and reading level. Because one of the purposes of the BIS is to encourage higher levels of body awareness, items reflecting high levels of body awareness were included. To enhance the applicability of the BIS to a broad spectrum of ethnic and cultural groups, terminology reflective of religious, spiritual, or metaphysical systems were eliminated.

Participants. To secure a diverse adult sample likely to score across a wide range in body awareness, research participants were recruited from three types of populations. The final sample of 357 participants consisted of 232 undergraduate psychology students from six different colleges dispersed throughout the United States, 42 students and faculty in the field of transpersonal psychology, 58 dancers and movement specialists, and 25 weight-management clients who resided in Minnesota. Undergraduate students and the weight-management clients participated as a part of class activities or in return for extra credit. All other participants were volunteers.

Research participants were asked to complete 200 items in a 5-point, Likert-scale format ranging from 1 (strongly disagree) to 5 (strongly agree). Due to respondent recording errors or missing data, 6 respondents were eliminated from the data analysis. The final sample contained 351 respondents to the 200-item preliminary scale. Of the sample, 63% was female; 85% was White, 5% Asian, 3% African American, 5% Hispanic/Latino, and 2% other ethnicities.

Results

This version of the BIS is composed of three subscales: the Energy Body Awareness, Comfort Body Awareness, and Inner Body Awareness Subscales, derived from a Principal Components Factor Analysis of the 200 items. Inspection of the eigenvalues and scree plot reveals a marked gap between the third and remaining factors (Factor 1, eigenvalue = 37.38; Factor 2, eigenvalue = 9.49; Factor 3, eigenvalue = 7.94; Factor 4, eigenvalue = 4.78). Factor 1 accounts for 18.69%, Fac-
tor 2 for 4.74%, and Factor 3 for 3.97% of the total variance for all factors. Only items with factors loadings above .36 were considered for inclusion on the scale. Factor loadings for the items retained for the BIS ranged from .71 to .52 for Factor 2, .65 to .42 for Factor 2, and .36 to .48. Cronbach’s alphas for Energy Body Awareness, Inner Body Awareness, and Comfort Body Awareness Subscales were .88, .77, and .82, respectively. Cronbach’s alpha for the entire scale is .89.

Five items were added to the BIS for validity purposes. Therefore, the current BIS consists of 36 items in a 5-point, Likert-scale format and requires 10 min to complete. Scores for negative items were reversed. Therefore, high scores represent high body intelligence.

Brief descriptions of the three subscales and sample items for each subscale follow.

**Energy Body Awareness Subscale (E-BAS)**

Known colloquially as the “vibe scale,” this subscale measures awareness of energy inside and exterior to the physical body that signals safety and support, health and well-being. Energy is experienced through the five senses and the body functioning as a whole, responding to energy felt inside the physical body and exterior to it in a manner akin to a drum or tympanic membrane. This subscale is composed of 12 items.

Examples of items from this subscale include

- I work to heal my body when it is out of balance.
- Waves of sensation or energy move around in my body.
- I can sense the life of the plants and trees in my environment.
- My body lets me know when my environment is safe.

**Comfort Body Awareness Subscale (C-BAS)**

This “comfort body” subscale measures feelings of comfort with one’s body and feelings of being “at home” in the world. This subscale has practical application for weight-management as well as trauma and abuse recovery. By restricting or diverting attention, high or low scores on this subscale are likely to enhance or minimize Energy Body Awareness and Inner Body Awareness. This subscale is composed of 10 items. Examples of items from this subscale include

- I feel centered in my body.
- I feel comfortable in the world most of the time.
- When I touch my own skin, I can barely feel it, as if I were numb. (negative item)
- My body feels dark and gloomy inside. (negative item)
Inner Body Awareness Scale (I-BAS)

The “inner body” subscale measures awareness of minor changes inside the body and the relationship of these felt changes to external circumstances. Individuals scoring high on this subscale monitor minor changes, more or less constantly, to maintain health and well-being. This subscale is composed of nine items.

Examples of items from this subscale include

- I recognize signs of overall fatigue.
- Certain places or environments affect my emotions.
- I can feel my body tighten up when I am angry.
- I notice when I have been in one position too long.

DISCUSSION

I have written this research report at the completion of the first version of the BIS to introduce the scale to humanistic, transpersonal, and positive psychologists, the most likely initial users of the BIS. Specifically, I want to invite research collaboration and clinical trials with individuals in appropriate health care and clinical populations to evaluate the efficacy of the BIS. Particularly appropriate for research and clinical trials are individuals diagnosed with weight-management challenges, history of trauma and abuse, and/or physical illnesses clearly aggravated by stress, such as asthma, autoimmune diseases (e.g., arthritis, cancer, multiple sclerosis), chronic fatigue syndrome, chronic pain disorders, diabetes mellitus, hypertension, fibromyalgia, and migraine headaches. This list comprises more research opportunities than I could oversee.

Future research should evaluate the reliability and validity of the BIS, stability of the factor structure, the relationship of the scale to appropriate clinical populations, and usefulness of the BIS as a tool for the enhancement of body intelligence in the general population. At this point, I do not know how useful the concept of body intelligence, generally, or the BIS, specifically, will be for the amelioration of symptoms of any of aforementioned diseases. My own research efforts are likely to focus on the efficacy of the BIS in working with children diagnosed with type 1 diabetes mellitus, now at worldwide epidemic proportions.

I also do not know whether or not people can learn body awareness in a way that significantly enhances health and well-being, awareness of environmental safety and comfort, and psycho-spiritual development. My life experience informs me that it is possible for people to learn body awareness and use these “signals” and resources to enhance overall wellness. However, I question how likely it is for people to learn body awareness when already under the stresses of illness or pain.
Learning body awareness seems far more likely when one is healthy. But, when hail and healthy, who is motivated to learn new skills?

My own opinion is that training in body awareness and intelligence must begin early in life, preferably simultaneous with language acquisition. If we do not have a body articulate of awareness, we also do not have a mind articulate of the health and consciousness possible for humankind. Only the future will tell whether or not people will actively explore these potentials—or leave them for the great artists, poets, scientists, yogis, mystics, and athletes who break through the Procrustean bed of Euro-American culture almost bereft of conscious embodiment.

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REFERENCES


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**AUTHOR NOTE**

Rosemarie Anderson, PhD, is Professor of Psychology in the Institute of Transpersonal Psychology’s Global Doctoral Program. Dr. Anderson is coauthor, with William Braud, of Transpersonal Research Methods for the Social Sciences (Sage Publications, 1998), a book that has established a standard for research in the field of transpersonal psychology. She has published extensively in social psychology, feminist studies, and research methods since 1973. Her current research interests emphasize the multimethod approaches to research, intuition, embodied writing, and body intelligence. She has developed an interpretive research method know as Intuitive Inquiry and was the guest editor of The Humanistic Psychologist, 32(4), 2004, focused solely on the method. She is currently developing a Body Intelligence Scale (BIS) and a Varieties of Intuition Scale (VIS). Also interested in mythology, she is author of Celtic Oracles (Random House, 1998).