

REGULAR ARTICLE

Increase or Decrease Depression: How Body Postures Influence Your Energy Level

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The treatment of depression has predominantly focused on medication or cognitive behavioral therapy and has given little attention to the effect of body movement and postures. This study investigated how body posture during movement affects subjective energy level. One hundred and ten university students (average age 23.7) rated their energy level and then walked in either a slouched position or in a pattern of opposite arm and leg skipping. After about two to three minutes, the students rated their subjective energy level, then walked in the opposite movement pattern and rated themselves again. After slouched walking, the participants experienced a decrease in their subjective energy ($p < .01$); after opposite arm leg skipping they experienced a significant increase in their subjective energy ($p < .01$). There was a significantly greater decrease ($p < .05$) in energy at the end of the slouched walk for the 20% of the participants who had the highest self-rated depression scores, as compared to the lowest 20%. By changing posture, subjective energy level can be decreased or increased. Thus the mind-body relationship is a two way street: mind to body and body to mind. The authors discuss clinical and teaching implications of body posture.

My energy slowly drained and I became more sleepy the longer the lecture lasted; however, when the instructor guided us through a few physical movements, my energy and mood significantly increased. I can pay much more attention.
—Student in class

Introduction

The treatment of depression has predominantly focused on medication or cognitive behavioral therapy and has given too little attention to the impact of body movement and posture on brain function and mood. The pharmaceutical approach of using antidepressant medications appears

significantly less successful when long-term follow-up is included and may contribute to the exacerbation of the depression (Viguera, 1998; Whitaker, 2011). Cognitive therapy appears to be a more successful approach when clients are taught to observe and change their self-talk or internal dialogue (Cuijpers, Andersson, Donker, & van Straten, 2011; Reinecke, Ryan, & DuBois, 1998; Rupke, Blecke, & Renfrow, 2006). Both of these approaches assume that the depressive process is modulated by the brain and thinking. The goal of the pharmaceutical approach is to optimize serotonin levels, while cognitive behavioral therapy focuses on changing the client's dysfunctional internal dialogue/self-talk.

What has been missing from the pharmaceutical and cognitive approaches is an attention to somatic factors that contribute to depression. Much of the clinical treatment and almost all academic behavior medicine research has focused on brain activity, as if the body does not exist, even though many controlled studies have demonstrated that exercise has significantly better long-term outcomes in the treatment of depression than antidepressant medications (Blumenthal et al., 1999; Blumenthal et al., 2007; Herring et al., 2012; Villaverde Gutiérrez et al., 2012). For example, a research investigation of the antidepressant Zoloft compared Zoloft alone, Zoloft plus exercise, and exercise therapy alone, for people with major depression. Only 8% of the patients who did exercise alone relapsed at the end of the six-month follow-up, as compared to 38% of the Zoloft alone group and 31% of the Zoloft plus exercise therapy group. At the end of ten months, 30% of the patients in the exercise group were depressed, as compared with 52% of the Zoloft alone and 55% of the Zoloft plus exercise therapy group (Babyak et al., 2000). Exercise appears to significantly improve mood. Implicit within the process of performing exercise is a shift in cognitive perspective. Exercise may enhance the experience of personal control and offer hope. It focuses the individual upon health versus illness. When moving one feels more

alive, although this may depend partially upon the type of body posture.

Recently, heart rate variability (HRV) biofeedback has emerged as a self-regulation approach to treat depression. Karavidas et al. (2007) used HRV biofeedback for 11 patients with major depressive disorder. The results showed that 10 sessions of HRV biofeedback—training the participants to breathe at an identified “resonance frequency”—increased the participants’ HRV and decreased their depressive symptoms. In addition, HRV training targets baroreflex function and vagus nerve activity. Siepmann et al. (2008) provided six sessions of HRV biofeedback with 14 major depressive disorder patients and found that the training decreased depressive symptoms, lowered heart rate, and increased HRV. Therefore, HRV biofeedback training effectively increased HRV and decreased depressive symptoms. HRV biofeedback may have some processes that are similar to exercise; both shift the locus of control internally. Thus, participants discover that their own activity can modify their physiology. This experience increases self-efficacy and facilitates hope.

Body Posture and Mood

Modifying body posture is a self-awareness and somatic biofeedback technique. Body posture significantly affects the recall of positive or negative memories. Wilson and Peper (2004) showed that when sitting in a collapsed position and looking downward, it was much easier to recall hopeless, helpless, powerless, and negative memories, than empowering, positive memories. When sitting upright and looking upward, it was difficult and for many almost impossible to recall hopeless, helpless, powerless, and negative memories and easier to recall empowering, positive memories. In addition, Peper, Harvey, Takabayashi, and Hughes (2009) reported that when an individual client with anxiety and crying looked upward, the tearing and crying stopped. Looking upwards inhibited crying while looking downwards amplified crying. Thus, body posture appears to directly influence emotions and cognitions. In addition, decreased subjective energy level seems associated with depression. When people experience a lower subjective energy, they feel less capable of performing a task, which then contributes to the risk of becoming depressed. When university students with depression perform exercise, change their diet (reduce simple carbohydrates, caffeine, and processed foods), watch less than an hour of TV, or stop playing computer games, they report that their energy level increases and their depression decreases (Ratkovich, Fletcher, Peper, & Harvey, 2012).

Posture and movement appear to contribute to a change in subjective energy level and to the onset and maintenance of depression. This study explores how different posture and movement patterns affect subjective energy levels.

Method

Participants

Seventy-three female and 37 male students participated, with an average age 23.7 ($SD = 4.5$).

Procedure

After sitting in a large lecture class, students filled out a short questionnaire in which they rated their general depression level during the last few years from 1 (never) to 10 (all the time), rated whether it was situational or chronic, and rated their subjective energy level from 1 (low) to 10 (high). They also described their subjective energy level during sitting at this time in the lecture. Using a crossover design, they were randomly divided into two groups. They then went into the hallway to walk in a slouched position or engage in opposite arm/leg skipping (see Figure 1). Opposite arm and leg skipping is also sometimes called “cross crawl skipping.”

After about two to three minutes, the students were asked to rate their subjective energy level. Next, those who walked in a slouched pattern were asked to skip, and those who skipped were asked to walk in a slouched pattern. After 2 or 3 minutes, they again rated their subjective energy level and described their subjective experience.

Results

For the whole group, slouched walking decreased the subjective energy ($p < .01$), while opposite arm and leg skipping significantly increased their subjective energy ($p < .01$), as compared to their precondition. The opposite arm and leg skipping significantly increased the energy level as compared to the slouched walking ($p < .01$) as shown in Figure 2. There were no significant differences between men and women.

For all students, the average self-rating of all depression was 3.4 ($SD = 2.2$) on a scale from 1 (never) to 10 (all the time) as shown in Figure 3.

We compared the effects of slouched walking and opposite arm and leg skipping on energy levels, for the students with the highest 20% of depression scores by self-rating (average self-rating of depression score of 7.2), to the effects for the students with the lowest 20% of depression scores by self-rating (average self-rating of depression score



Figure 1. Illustration of slouched walking (left) and opposite arm and leg skipping (right).

of 1). There was no statistically significant difference in their pre-energy levels or their self-ratings after opposite arm and leg skipping. There was a tendency to have lower energy at the pre-level rating for the group with the highest 20% self-rating of depression. There was a significant

decrease ($p < .05$) in energy at the end of the slouched walk for the students with the highest 20% of depression scores, and no significant change from baseline for students with the lowest 20% of depression scores. For both groups, the opposite arm and leg skipping significantly increased their

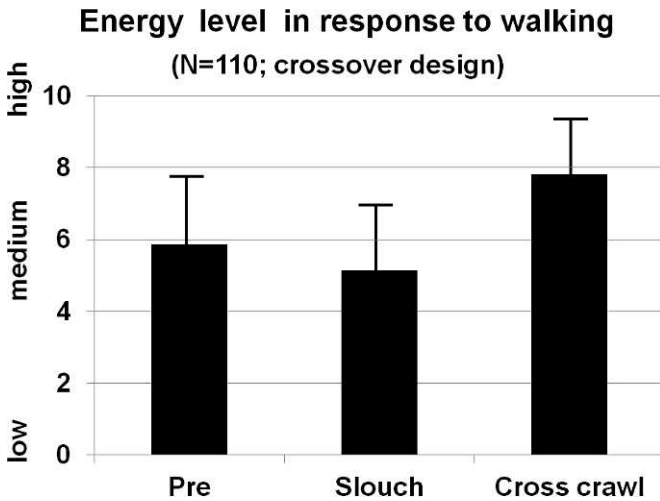


Figure 2. Self-rating of subjective energy following slouched walking or opposite arm and leg skipping.

energy levels, as compared to slouched walking ($p < .01$), as shown in Figure 4.

Almost all participants reported that the subjective experience of opposite arm/leg skipping felt more energetic, happier, positive, or evoked happy childhood memories. They reported that the subjective experience of slouched walking often felt sad, lonely, isolated, sleepy, accompanied by a feeling of “wanting to just sit down,” or “zombie-like.”

Discussion

Feeling depressed is commonly associated with having less subjective energy. This study demonstrated that opposite arm and leg skipping, in which the person tends to look

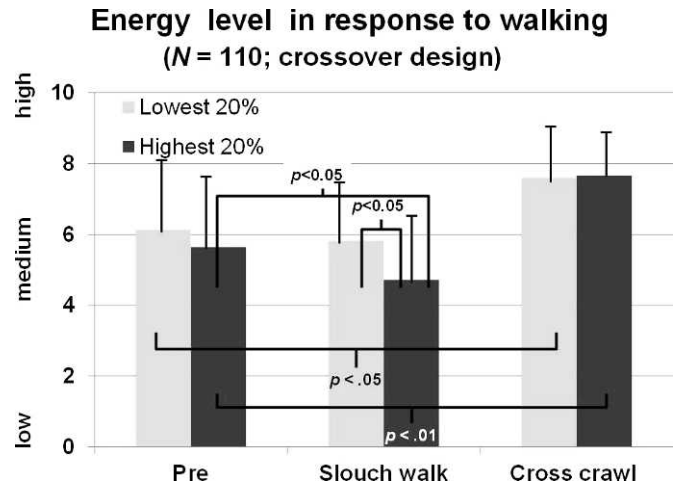


Figure 4. Self-rating of energy level for the top and bottom 20% of the students' self-rating of depression.

upward toward their hand reaching toward the sky, rapidly and significantly increased the subjective energy level of participants as compared to slouched walking. The opposite arm and leg skipping most likely would also increase heart rate, while slouched walking would not increase the heart rate. Thus, skipping may trigger similar biological pathways as HRV training for the treatment of depression. More importantly, if the participants had self-reported a history of depression, then slouched walking significantly decreased their energy, which did not occur for the people who did not self-report a history of depression.

This finding suggests that for persons with a history of depression, energy level may covertly increase or decrease depending upon posture. When individuals have less energy, they feel that they can do less, and this feeling tends to increase depressive thinking. Persons with a history of depression tend to experience a decrease in energy at the onset of depression, instead of experiencing this lower energy state as a state of fatigue. The awareness of lower energy and depressive state tends to evoke depressive memories, thoughts, and feelings, which escalate the experience of depression. This process could possibly be interrupted and reversed by guiding the person to shift body posture and perform movement.

This study may offer an explanation for how the environment (e.g., ergonomic positions) may contribute to increasing the tendency towards depression for those who have a history of depression. Wilson and Peper (2004) showed earlier that “sitting collapsed” allowed much easier access to hopeless, helpless, powerless, and negative memories, and the current study adds the finding that a “slouched walk” decreases energy, suggesting that posture

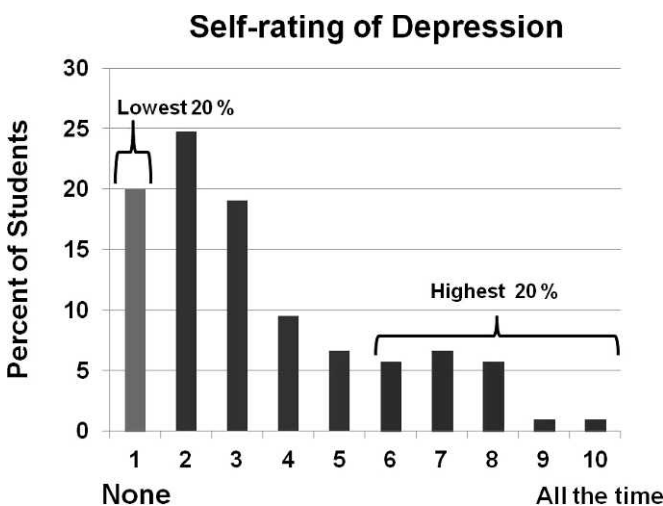


Figure 3. Distribution of self-rating of the occurrence of depression.



Figure 5. The “sitting collapsed” posture may, over time, decrease energy and evoke depressive symptoms.

is a significant contributor to depression. Many people, without self-awareness or recognition, walk in a slouching pattern, sit for hours collapsed in front of a computer or TV, and collapse forward while texting or working on smart phones, as shown in Figure 5. These are all “culturally conditioned” positions that may evoke negative hopeless memories and reduce subjective energy if the person has a history of depression.

It may be possible that the decrease in physical activity and the increase in passive collapsed sitting and walking are factors that have contributed to a significant increase in depression over the last 50 years (Cross-National Collaborative Group, 1992; Hagnell, Lanke, Rorsman, & Ojesjo, 1982; Olfson & Marcus, 2009). Even most chairs in therapists’ offices encourage clients to sit in a collapsed posture—a state that encourages evocation of hopeless, helpless, powerless, and negative memories. In contrast, the

acts of sitting up straight, looking upward, and performing skipping movements tend to raise subjective energy, as long as the movements are not slouched.

Although skipping significantly increased energy, it is possible that a confounding factor is the increased physical effort during skipping as compared to slouched walking. This confounding factor may be explored in future research by having subjects skip in two different body postures: looking upward or slouched.

This study and the earlier findings that exercise by itself can significantly reduce depression suggest that energy levels and depression are modulated not only by cognitions, but also by body posture and movements. Thus the mind-body relationship is a two way street: mind to body and body to mind. We strongly recommend that therapists, teachers, and clients include body posture and movement as

an additional healing strategy to increase energy and enhance health.

I felt depressed when I looked down walking slowly. I realized that I walk like that all the time. I really need to change my walking pattern. When doing opposite arm and leg skipping, I had more energy. Right away I felt happy and free. I automatically smiled.

—Student

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