Physical Exercises that Boost Brainpower in the ELL Classroom, Part II

by Patrick T. Randolph

This is the second of a two-part series on how physical exercise can help the brain and motivate language learners to excel at impressive rates.

I. Introduction—Reviewing the Benefits of Physical Exercise

"Exercise… does more to bolster thinking than thinking does."
—Gretchen Reynolds

There is no better activity for the brain than physical exercise (Jensen, 2008; McPherron & Randolph, 2014; Ratey, 2010; Reynolds, 2012). In order for our students' brains to function at their optimum levels, they need to fuel those beautiful networks of neurons with two essential things—glucose and oxygen. Exercise is the perfect source for the latter ingredient. The more we have our students exercise, the more blood is sent to their brains; and the more blood, the more oxygen there is to help our students learn and remember the information from the classroom.

In the 2015 winter issue of the *College ESL Quarterly*, I reviewed a number of benefits that physical exercise has to offer. In addition to supplying the brain with the needed amounts of oxygen to function effectively in the classroom, we learned that exercise also benefits the brain in the following ways.

(1) Exercise helps neurons to wire together, allowing our students to learn new information (Ratey, 2010).

(2) Exercise is the major force behind *neurogenesis* (the creation of new neurons); this also facilitates better learning, a stronger focus and ability to pay attention, and it helps our students remember more of the necessary language skills (Medina, 2009).

(3) Exercise produces one of the most potent neurotrophins currently known in the neuroscience community—*brain-derived neurotrophic factor* (BDNF). This protein helps in three highly significant processes: (1) it promotes neurogenesis, (2) it strengthens already existing neural connections, and (3) it creates the optimal neural environment for learning (Ratey, 2010).

(4) Exercise releases vital neurotransmitters that increase memory retention and higher levels of learning (e.g., acetylcholine, adrenaline, dopamine, and serotonin) (Jensen, 2008; Medina, 2009).

(5) Exercise helps students stay awake and make the most of their classroom experience.

The above benefits are but a few of the impressive consequences of physical exercise. In order to make sure that English language instructors can take advantage of these benefits, by being able to promote a healthy repertoire of physical activities before and during their lessons, I would now like to focus on some simple yet effective activities that I use to motivate and increase learning in my own classes.[1]

II. Physical Exercises that Work

"Walking is the best possible exercise."
—Thomas Jefferson

I have always found it both useful and important to tell my students what we are doing and explain why we are doing it—the ELL communal classroom exercise component is no exception. I explain that our classroom exercises will benefit them in two essential ways: one, it will lengthen their lives (Randolph, 2015); and two, it will help them focus on

[1] A variation of the list I will present here was first published in the summer issue of the *ITBE Link*, 2013.

the class material and learn more. The consequences of these two benefits include a strong sense of self-worth and a positive and happy outlook on life.

I have divided the following list of activities into two categories: Pre-Class Exercises and During-Class Exercises. These categories, however, are by no means mutually exclusive. These activities can be used at any time during a lesson. In fact, I strongly recommend doing any of these activities right before teaching important points or essential information.

A. Pre-Class Exercises

The Happy Hall & Clever Classroom Walk

Thomas Jefferson's famous quote on walking, "Walking is the best possible exercise," is, in fact, as close to the actual truth as any statement could possibly get. And what's more, not only is walking "the best possible exercise" for the body, but it is most likely the best one for our cognitive development. According to Adams (2011), the Harvard Medical School concluded that walking is the most effective and efficient exercise for the brain because it creates and sends the needed levels of oxygen to the brain *and* because it does not drain the body of precious fuel. That is, more amounts of oxygen and glucose can go straight to the brain versus having to replenish other muscles in the body as is the case after doing strenuous activities like running or biking.

With this in mind, I often begin class by having my students line up at the door. We then take a one-to three-minute "Happy Hall Walk" as briskly as possible. The key goal here is to increase the students' heart rates so that the exercise creates a good oxygen boost for their brains.

If your classroom is large enough, you can also walk the perimeter of the classroom a few times and do what I call the "Clever Classroom Walk." I do this when I want to exercise and simultaneously review the previous day's material. This is especially effective for reviewing vocabulary definitions and eliciting example sentences for the terms. The balance of exercise and cognitive recall is great for enhancing and strengthening our ELLs' long-term retention of lexical items and for fostering quick retrieval and usage of the terms. (See also Schmidt-Kassow et al., 2013.)

Sweet and Simple Tai Chi Variations

Thanks to my parents' influence, I studied *tai chi* and I have come to appreciate both its benefits for the body as well as its beauty in terms of its eloquent physical poetics. And although we do not have time in class to go through the whole routine that you often see in the parks of our towns and cities across the country, I do have my students perform very simple tai chi variations as a warm up before class. These are basically minimal exercises

mixed with some light stretching moves. Perhaps the most effective element of this particular exercise is that it is fun and memorable. In fact, if and when I forget to do this particular exercise, the students are quick to point out that we missed our warm up. "Mr. Randolph," they will say, "we skipped our brain food today! Can we do it now?" An example of this exercise can be accessed at Patrick T. Randolph's Exercise for the Brain (http://www.youtube.com/watch?v=E65StVJTzVU).

Nifty Knees & Jumping Jack Jamboree

This exercise is divided into three, 30-second segments. First, the students and I begin by slowly running in place, and then we gradually lift our knees higher and higher. After a good 30 seconds, we slow down again and stop. Next, we start doing jumping jacks. We do five standard side-straddle ones and then alternate by putting the right foot forward and left foot backward. We do five of these and then switch legs so that now the left foot is out front and the right foot is back. Again we do five of these types of jumping jacks. We do the jumping jack portion for 30 seconds as well. We conclude the last 30 seconds by running in place and lifting our knees gradually higher and then lower; and then we slow down to a gradual stop.

Blissful Big Breaths

The Blissful Big Breaths exercise is as simple as one, two, three. I merely have the students stand up straight and take three, deep breaths with brief pauses in between. We do three sets of these and then finish with everyone singing together, "We love learning!" This short exercise is fun, and it creates a great atmosphere for learning.

B. During-Class Exercises

Source: www.pixabay.com

Exercise Stations

In John Medina's wonderfully inspirational book, *Brain Rules*, he suggests that we replace classroom desks and chairs with a more exercise- or brain-friendly device—treadmills! I truly love this idea, but financially it just doesn't seem plausible. After reflecting on such a scenario, however, I came up with a practical and logical alternative—*Exercise Stations*.

I define Exercise Stations as "designated corners of a classroom (usually the back) where students can go to do their own, individual exercises when they are in need of an oxygen boost for their brains" (Randolph, 2013b, p.18).

During the first or second class period of each semester, I explain to my students that recent research in neuroscience has discovered students function cognitively better if they get up and move around every 20 minutes (Jensen, 2008). I go on to explain what my Exercise Stations are and tell the students that they should feel free to use them at any time during class. Since I have started using these in my lessons, I have found a significant number of students will get up, go to the designated Exercise Station area, exercise anywhere from one to three minutes, and then return to their seats without disrupting the class. They merely use them and then sit back down. One interesting note to point out is my top performers in class are most often the frequent users of the Exercise Stations. In short, there does seem to be correlation between success and my Exercise Stations.

Stand & Deliver

Last semester, due to the confines of having a relatively small classroom, I was severely limited with respect to the kinds of exercises I could do with the students. In addition, the number of enrolled students was very large. We were limited to walking/running in place and doing the Blissfully Big Breaths exercise. After the first week of classes, I asked the students to stand whenever they asked or answered a question. I was both excited and intrigued with their response to my request. Not only did they do this with humor and enthusiasm, but they also stated on a number of occasions that it was a way to show respect to the instructor and also become focused on the moment. In addition, many commented that it increased their heart rate. We may recall that an increased or excited heart rate helps elicit very important neurotransmitters like adrenaline, dopamine, and norepinephrine. As above, these are all extremely significant neuro-chemicals that help in memory, attention, and learning. So, even the simple exercise of "Stand and Deliver" can benefit our students in a profound yet subtle way.

The Class Clap—The Music of Motivation

Another very simple but highly effective exercise is the "Class Clap." When one of my students gives an impressive answer to a question, or more important, asks a profound or insightful question that gets me or the class to reflect for a moment, I always have the class clap for the student. This motivates and helps everyone in a number ways. First, the act of clapping is a great exercise and moves blood to the brain (Jensen, 2008). Second, the clapping students feel a "communal pride" and are happy that their classmate is successful. Third, the act of being praised also excites healthy neurotransmitters that motivate learning. Fourth, when the clapping is going on, I also notice a number of smiles and feel a positive energy in the room. This motivates all of our learners. And fifth, the short, momentary act of clapping gets the whole class to "refocus" on the moment, the material, and the lesson. In short, the "Class Clap" is a true "win-win" situation.

III. Concluding Remarks

"The human brain became the most powerful…where motion was a constant presence."
—John Medina

Eric Jensen (2008) has made the insightful claim that "Given all the activations happening at once, physical performance probably uses 100 percent of the brain. There is no known cognitive activity that can claim this" (p. 39). Moreover, research on exercise and its impact on cognitive functions would most certainly support my opening statement: there is no better activity for the brain than physical exercise.

Movement is one of the most essential ingredients for survival, spiritual rebirth, and success. In fact, all living things in the physical world are in a constant state of movement and growth. Movement is at the core of who and what we are as evolving creatures of the human race. If we make movement a relevant part of our learning environment, we are sure to cultivate a strong sense of emotional bliss and physical health in the ELL classroom.

Unfortunately, however, our Intensive English Programs across the globe do not—to my knowledge—offer a daily physical education class. Such a course is something I would like to see IEP administrators and curriculum coordinators consider and implement for the betterment of the students and the instructors. In the meantime, it is up to each of us, as language instructors, to encourage the use of physical exercise in the classroom as a means to create better bodies and better brains. In the process, I think we will also motivate our students to see and understand the importance of exercise as a vital source of power that can enhance their present and future academic careers.

Correspondence concerning this article can be addressed to patricktrandolph@yahoo.com.

Patrick T. Randolph was awarded the "Best of the TESOL Affiliates" for his presentation on vocabulary pedagogy in 2015. He teaches in PIESL at the University of Nebraska-Lincoln and specializes in vocabulary acquisition, creative and academic writing, speech, and debate. He has created a number of brain-based learning activities for the language skills that he teaches, and he continues to research current topics in neuroscience, especially studies related to exercise and learning, memory, and mirror neurons. Randolph has also been involved as a volunteer with brain-imaging experiments at the University of Wisconsin-Madison. He lives with his wife, Gamze; daughter, Aylene; and cat, Gable, in Lincoln, NE.

Randolph and McPherron's book, *Cat Got Your Tongue?: Recent research and classroom practices for teaching idioms to English learners around the world* is available on Amazon:

http://www.amazon.com/Tongue-Teaching-Idioms-English-Learners/dp/1942223226/ref=sr_1_fkmr0_2?s=books&ie=UTF8&qid=1449810804&sr=1-2-fkmr0&keywords=cat+got+your+tongeue%3F

and at TESOL Press: https://www.tesol.org/BookLanding?productID=196

* Chapter Eight of this book offers 13 lesson plans for teaching vocabulary and idioms. Many of these activities are movement-oriented and very effective.

References

Adams, G. (2011, January 20). How to increase oxygen to your brain with exercise. *Livestrong.com*. Retrieved from http://www.livestrong.com

Jensen, E. (2008). *Brain-based learning: The new paradigm of teaching.* Thousand Oaks, CA: Corwin.

McPherron, P., & Randolph, P. T. (2014). *Cat got your tongue?: Recent research and classroom practices for teaching idioms to English learners around the world*. Alexandria, VA: TESOL Press.

Medina, J. (2009). *Brain rules: 12 principles for surviving and thriving at work, home and school.* Seattle, WA: Pear Press.

Randolph, P.T. (2013a). The magic of movement: Exercise's phenomenal impact on the language learner's brain. *The ITBE Link, 41*(2), 1-7.

Randolph, P.T. (2013b). Exercise stations in the ELL classroom: Strengthening the mind, body, and neural connections one step at a time. *CATESOL News Quarterly, 43*(3), 18-19.

Randolph, P.T. (2015). Benefiting the brain and language learning through physical exercise. *College ESL Quarterly,* 1-6.

Ratey, J. J. (with Hagerman, E.). (2010). *Spark! How exercise will improve the performance of your brain*. London, England: Quercus.

Reynolds, G. (2012, April 18). How exercise could lead to a better brain. *New York Times*. Retrieved from http://www.nytimes.com/2012/04/22/magazine/how-exercise-could-lead-to-a-better-brain.html?_r=0

Schmidt-Kassow, M., Deusser, M., Thiel, C., Otterbein, S., Montag, C., Reuter, M., Banzen, W., & Kaiser, J. (2013). Physical exercise during encoding improves vocabulary learning in young female adults: A neuroendocrinological study. *PlusOne,* doi: 10.1371/journal.pone. 0064172