

## Internalizing the Benefits of Physical Exercise through Critical Research, Part III

by Patrick T. Randolph

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

### I. Introduction—Internalizing the Benefits of Exercise through Research



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“Your life changes when you have a working knowledge of your brain.”

—John J. Ratey

Physical exercise’s faithful and inspiring marriage to learning has been the focus of this series on exercise and the brain. In Part I, we examined a myriad of benefits that physical exercise bestows on the brain (Medina, 2009; Ratey, 2010), and we looked at how exercise positively and effectively supports learning better than any other activity known to the neuroscience community. Reynolds’ research reminds us that “[e]xercise... does more to bolster thinking than thinking does” (2012, para.1).

In Part II, we surveyed seven brain enhancing physical activities that help our ELLs focus on class material and learn language skills more efficiently. These in- and during-class exercises promote the kind of heightened learning inspired by the research of Schmidt-Kassow et al. (2013) and Winter et al. (2007). Their studies showed that moderate exercise before or during the encoding stage of learning lexical items helped language learners acquire and store more of the items in their long-term memory.

This third and final installment of the series offers two academic-based activities that help ELLs<sup>1</sup> internalize the benefits of physical exercise through conducting their own research. I find this component to be pivotal in the learning process, for it reinforces, via

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<sup>1</sup> I use these activities for intermediate and high level students in my IEP and also for ELLs in our credit-bearing university bridge program classes.

current research and student-generated interviews, how important physical exercise is for the body and the brain.

Students intuitively know that exercise is good for them, but by investigating the current research in neuroscience and conducting their own research, they begin to understand the particulars of why it is crucial for their biological and spiritual well-being. Let us now turn to the two research-based activities that instructors can implement in their classes.

It should be noted that although these two activities can be done interchangeably, I recommend doing them in the order in which I am presenting them here. For other ideas on additional activities, see Appendix B.

## II. Two Research-Based Activities

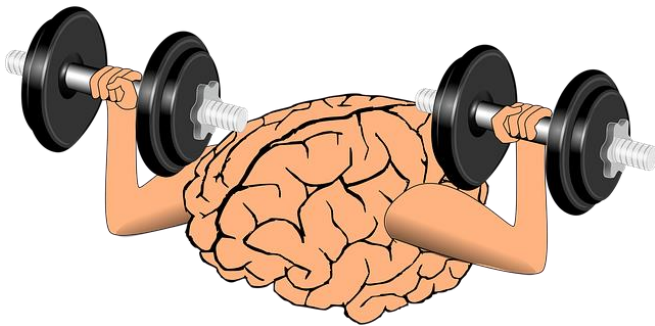


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“Descartes should have said, ‘I exercise, therefore I am.’”

—Patrick T. Randolph

### Activity 1—Articles and Analyses: Implementing a *One-Point Multiskills Analysis* for Physical Exercise

One way to augment the knowledge concerning the benefits and reinforce the importance of exercise’s consequences is to have students read and analyze (through spoken and written activities) current articles or book chapters on the topic.

To make this particular activity as interactive as possible, I organize it into four steps that follow a “speaking and thinking → reading and thinking → speaking and analysis → writing and analysis” process. That is, first, I introduce the article or book chapter through a question and answer-based mini-lecture. This is sometimes varied by using an interactive true and false quiz to initiate thought and discussion on the topic. Second, I assign the piece as reading homework with three to four comprehension and/or reflection questions. Third, we discuss the reading and assigned questions in the next lesson: first, I have students pair up and discuss the assigned questions, and then we discuss and analyze the reading together as a class. Fourth, I have the students write what I call a One-Point Multiskills Analysis (OMA) of the reading.

I have developed the OMA to help my students learn to focus on a specific point in academic texts and analyze that point as deeply as possible from multiple perspectives. The use of the OMA is perfect for this topic because the students can look at how physical exercise benefits them on a number of levels while simultaneously developing their critical thinking skills and analyzing the topic from different viewpoints. To understand how students accomplish this, let me briefly outline what constitutes this kind of analysis.

The OMA is unique and distinct from the typical research paper in that it is a concise, six-paragraph analysis that includes the following features:

**(1) The One-Point Summary Paragraph**

This focuses on one major point in the article/book chapter and explains the significance of that point. This point is essentially the thesis of the OMA.

**(2) The Paraphrased Example Paragraph**

This is a detailed paraphrase of an example in the article/book chapter that supports the main point discussed in the one-point summary.

**(3) The Constructive Analysis Paragraph**

This is a constructive or positive critique of the content of the paraphrased example or a favorable explanation of how the example helps reinforce the main point.

**(4) The Critical Analysis Paragraph**

This paragraph can either focus on a question relating to the example (e.g., why did the author choose research from one institute over another?), or it can critique the example in a critical yet fair and polite manner (e.g., why did the author not take more variables into account when such information was available?).

**(5) The Reflection and Application Paragraph**

This paragraph allows students to reflect on how they can apply the main point or selected example and use it in their current lives. It helps them own the topic in a very concrete way.

**(6) The Conclusion**

This is a summary of the complete analysis.

For a detailed discussion of the OMA, please see my article in the *TESOL Second Language Writing News* at [newsmanager.commpartners.com/tesolslwis/issues/2016-02-26/2.html](http://newsmanager.commpartners.com/tesolslwis/issues/2016-02-26/2.html).

After writing an OMA, students clearly understand the importance of a particular attribute of physical exercise and how it relates to their brain and body's well-being on a

pragmatic and personal level. It also encourages students to reflect on why physical exercise is a necessary activity in order to maintain a healthy personal, cognitive, and physical life in and outside of the classroom.

I have included a list of articles and books in Appendix A that my own students have found to be accessible and helpful in terms of understanding the significance of physical exercise.

We now move on to the second activity, which allows students to develop their own research-based questions, interview respondents, and analyze the data from the results of the interviews on physical exercise.

### **Activity 2—Interviews and Analyses: Making Connections with Interview-Generated Data**

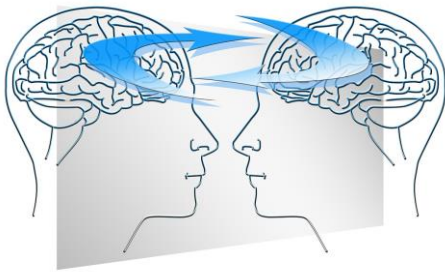


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Conducting interviews on physical exercise encourages our ELLs to use both creative and critical thinking skills to develop questions based on their own interests in physical exercise, practice their spoken English (and cultural gestures) by talking with their cohorts during the interview process, gather the information from the interviews, and analyze the data through critical reflection. I have found that this activity works best after my students have read and analyzed the literature discussed in Activity 1. Having prior knowledge about the science behind physical exercise and understanding its benefits for the brain will allow the students to create more developed and focused questions for their interviews. In addition, they will be able to make more connections and have more insights when examining the collected data.

I start the interview activity with a brainstorming session in class. First, I introduce the topic and explain the activity. Then, I ask my students to pair up and discuss what questions they would like to ask other students on campus regarding physical exercise and its benefits for the brain. I then write their questions on the board. Next, as a class, we decide which questions are best in terms of eliciting what and how their respondents might feel about physical activity. This step helps cut any duplicate or redundant questions, edit

the grammar, discuss any culturally sensitive issues, and select the best questions. Below are examples of some selected questions my students have generated for their interviews.<sup>2</sup>

- (1)** Do you think Americans, in general, like to exercise?  
\* If yes, why? If not, why? Please explain.
- (2)** Do you think that appreciating the importance of exercise is a core part of American culture?  
\* If yes, why? If not, why? Please explain.
- (3)** Do you like to exercise?  
\* If yes, why? If not, why? Please explain.
- (4)** Do you think physical exercise is beneficial?  
\* If yes, why? If not, why? Please explain.
- (5)** Do you think that physical exercise improves the brain's performance?  
\* If yes, why? If not, why? Please explain.
- (6)** Do you think you study/think better after exercising?  
\* If yes, why? If not, why? Please explain. Could you offer an example?
- (7)** Have you ever researched the benefits of physical exercise on the brain and learning?  
\* If so, what did you find out?

After we decide which questions we will use for the interview, I write them down and type them up for the interview activity. I distribute these to the students in the next class and give them a week to interview three to four students on campus (in English, of course).

Then, in small groups of three, the students present and discuss their findings. I also ask them to look for patterns in their data. For example,

- Are there any commonalities among the respondents?
- Did the female students answer similarly or differently than the male students?
- Were there any shocking responses?
- Did the results confirm or deny the research in the articles/book chapters we read earlier in the term?

Discussing the results based on the above questions can help students find interesting commonalities and contrasts in their data. It also allows them to become more aware of how their cohorts perceive the whole idea of physical exercise as it relates to their lives. For example, ELLs have discovered that some of their friends exercise for both mental and physical health. In addition, many of their counterparts are also concerned with calorie intake.

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<sup>2</sup> Note: Some of these questions were first published in my article, *The magic of movement: Exercise's phenomenal impact on the language learner's brain*, in the *ITBE Link*, 41(2).

In the next lesson, we discuss the results as a class and analyze the collected data. This session often opens the door to breaking stereotypes about how some groups view exercise. In addition, the discussion also highlights positive perspectives on how the ELLs view physical exercise after doing their interviews and how exercise relates to their current academic performance.

I conclude this activity by asking my students to write a Summary and Response Analysis about their interview results and how these results compare/contrast to the research we read and analyzed in the articles or book chapters earlier in the term.

Below is a brief outline of the analysis and the points I require the students to address.

### **Paragraph 1: The Introduction**

This paragraph includes an introduction to the topic (interviewing students about physical exercise), a brief explanation of the method used to conduct the interviews, and the number of respondents that were included in the study. The thesis statement centers on the most important new piece of information that was discovered.

### **Paragraphs 2-3: The Interview Results**

These paragraphs focus on the reason for conducting the interview and highlight some of the most interesting responses.

### **Paragraph 4: Comparing/Contrasting the Research**

This paragraph centers on one piece of information from the interview that supports or contradicts research we studied in a previous article/book chapter.

### **Paragraphs 5-6: Reflection**

This is the response section. It gives the students a chance to discuss what they learned from the activity and what data from the interview interested them the most and why.

### **Paragraph 7: Conclusion and Summary**

The final paragraph ties all the previous ones together and offers a concise summary of the importance of the activity as it relates to the students' perception of physical exercise and its benefits.

### III. Concluding Remarks

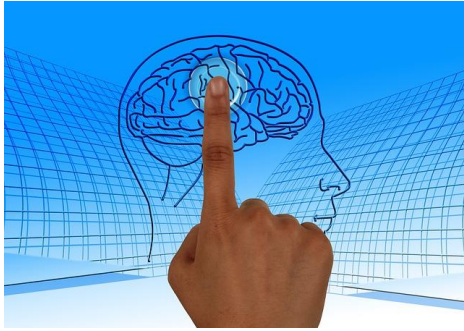


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“The greatest discovery of my generation is that man can alter his life simply by altering his attitude of mind.”

—William James

Talking about and doing physical exercise are, without doubt, two crucial steps in helping students understand the significance of exercise and how it impacts the brain and learning. In order to drive the point home, however, and help both teachers and students truly internalize and genuinely embrace the consequences of physical exercise, I feel we must encourage analytical thinking and student-generated research about the topic. All three components—talking about it, doing it, and researching it—will help create the optimal understanding of how important exercise is for promoting the joy and benefits of active learning.

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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+tongue%3F](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+tongue%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.



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- Winter, B., Breitenstein, C., Mooren, F.C., Voelker, K., Fobker, M., Lechtermann, A., Krueger, K., Fromme, A., Korsukewitz, C., Floel, A., & Knecht, S. (2007). High impact running improves learning. *Neurobiology of Learning and Memory*, 87, 597–609.

## Appendix A

Below is a list of accessible and useful articles and books on physical exercise and its benefits.

### Articles

- Godman, Heidi. Regular Exercise Changes the Brain to Improve Memory, Thinking Skills.  
See <http://www.health.harvard.edu/blog/regular-exercise-changes-brain-improve-memory-thinking-skills-201404097110>
- Reynolds, Gretchen. How Exercise Could Lead to a Better Brain.  
See [http://www.nytimes.com/2012/04/22/magazine/how-exercise-could-lead-to-a-better-brain.html?\\_r=0](http://www.nytimes.com/2012/04/22/magazine/how-exercise-could-lead-to-a-better-brain.html?_r=0)
- Reynolds, Gretchen. How Exercise Can Help Us Learn.  
See <http://well.blogs.nytimes.com/2013/08/07/how-exercise-can-help-us-learn/>

### Books

- Horstman, Judith. *The Scientific American Day in the Life of Your Brain*.  
See pp. 85 and 102-04.
- Jensen, Eric. *Brain-based Learning: The New Paradigm of Teaching*.  
See pp. 38-41.
- Medina, John. *Brain Rules: 12 Principles of Surviving and Thriving at Work, Home, and School*.  
See Chapter 1, pp. 7-28.
- Ratey, John, J., & Eric Hagerman. *Spark! How exercise will improve the performance of your brain*.  
See Introduction, pp. 3-8; Chapter 1, pp. 9-33; and Chapter 2, pp. 35-56.



## Appendix B

Below is a list of four additional activities that English language teachers can do to encourage their students to internalize the benefits of physical exercise.

### **(1) Articles & Debates**

Hold formal debates on the pros and cons of the research addressed in the articles/book chapters on physical exercise.

### **(2) Dialogs on the Research**

Pair students up and have them create skits where one student is the news reporter and the other is the researcher who discusses his/her latest findings.

### **(3) Ethnography/Ethnomethodology Projects on Exercise**

Have students make cultural observations about Americans' exercise habits and attitudes. Then, have students make hypotheses and conduct interviews with selected respondents to test the hypotheses. For two detailed articles on this activity, please see (1) McPherron and Randolph's article at [onlinelibrary.wiley.com/doi/10.1002/tesj.80/abstract](http://onlinelibrary.wiley.com/doi/10.1002/tesj.80/abstract) and (2) Randolph's article at [newsmanager.commpartners.com/tesolc/issues/2016-01-01/2.html](http://newsmanager.commpartners.com/tesolc/issues/2016-01-01/2.html).

### **(4) Presentations Based on the Interviews**

Have students present on their findings from the interviews on physical exercise. The outline of the presentations can follow the same order of the Summary and Response Analysis.



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