

This is an excellent example of an essay organized around a theme. The result is an idea (chaos theory) and a story (injury and then triumph) interwoven into an interesting whole.

This scholar brings a rigorous approach to methodology in an area with "a paucity of research," always a promising combination.

### ESSAY #47: "Chaos Theory, Biodynamics, and the Law of Unintended Consequences"

#### Statement of Purpose—Alan Williams

Chaos theory suggests that tiny, imperceptible events, over time, are responsible for extraordinary changes that otherwise would never occur. It seems incomprehensible that a single sentence, muttered eight years ago by an unknown bystander watching me run laps to improve my faltering P.E. grade, could have such a profound impact on my life. As I loped by this ancient man sitting on the cold concrete steps for perhaps the tenth time that lonely morning, I caught what I interpreted as, "You are a natural runner." Short, sweet, and barely audible, those "chaotic" words were a blessing to me, inspiring me to achieve at something of which I had no prior conception.

The definitive role running has assumed in my life has instilled within me the ability to endure, in both a physiological and a psychological context. It has given me an appreciation for the human body, from both a scientific and an aesthetic frame of reference. Driven by the popular contention that the human species seeks to avoid discomfort, running has given me a confidence that I am able to do something most people cannot. Most important, running has introduced me to the field of human biodynamics, intriguing me to participate at a rigorous level in the discovery and teaching of new methods leading to increased human performance.

Biomechanists love running for the very same reason I do. In its apparent simplicity, there is a wealth of knowledge to be learned from watching running, analyzing its component pieces, and experiencing it. Running is remarkable in that humans have it so deeply ingrained in their neuromuscular pathways that the combined motion of individual body segments succeeds in orchestrating a smoothly coordinated whole, with relatively little conscious thought.

I majored in kinesiology because I found its interdisciplinary analysis of the human mind and body to be both fascinating and useful. I have had the opportunity as an athlete to apply the integration of these concepts to my own athletic venue, so that I may improve and help others improve as well. Presently, in response to a paucity of cross-training research and the debate over whether American running is experiencing a "downfall" as a result of reduced running mileage, I am conducting a study that seeks to address the question of specificity of training in distance running, in particular whether cross-country skiing is an adequate supplement to a distance running training program. Through an electromyographic and kinematic comparison I hope to quantify the differences and similarities between key neuromuscular recruitment patterns in both modes of exercise.

My own running was the inspiration for this research. Over the years, eleven thousand miles of pounding pavement were not without a price to pay. Once, a severe inflammation of the tendons sweeping over my feet forced me to the sidelines just as I was experiencing a great deal of success in running. I had no choice but to adjust my training to accommodate the injury.

#47: "Chaos Theory, Biodynamics . . ."

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Transplanted into an entirely unfamiliar medium, I skied, swam, cycled, and attacked my studies. From this new perspective, one without the overwhelming emphasis placed on running, I saw myself shifting first from athlete to scholar, and finally to scholar-athlete. I began to realize that the two were not mutually exclusive. Driven by a newfound stimulus, one more thoughtful and well-rounded, I taught myself to persist as a person, not just as an athlete. Simultaneously, my running began to surpass what I had ever run before. Any preconceived path I had expected to take toward success as an athlete was forever changed. Had I been forewarned, I would have never conceived it possible to achieve All-America status in the two consecutive years following the injury.

As a goal-oriented individual capable of overcoming unforeseen barriers, I envision myself as a motivator and an innovator. I look forward to the challenge of ultimately earning a doctoral degree in human biodynamics with an emphasis in locomotory biomechanics. As far as long-term plans, I see a natural marriage between my experiences and the teaching of the philosophy and physiology of human movement. I view the pursuit of a higher degree in this field as an extension of what I have already learned from the sport of running and the undergraduate classroom, as well as an opportunity to enjoy a lifelong career. Somehow, I doubt the old man on the concrete steps could ever imagine the ramifications of his simple passing thoughts.