Starting Strength

Academic Preparation

by

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The academic preparation necessary for becoming an effective coach is not being provided by the vast majority of Exercise Physiology programs in this country, and apparently abroad as well. This is a serious problem if you want to be a serious coach, and we need an approach to the situation that most efficiently provides the background material needed by a professional barbell strength coach.

Briefly, most – and by "most" I mean virtually *all* – Exercise Science degrees offered by institutions of higher education are essentially PE degrees. They are the academic equivalent of an Education degree – their required courses are lacking in academic rigor, they do not adequately expose their students to the basic sciences and math, and the program is largely devoid of lab hours.

The best programs would be administered by professors with hard science backgrounds, and would wash out the same number of unqualified and uncommitted students as the Chemistry department. The worst programs are provided as graduation vehicles for scholarship athletes. The latter far outnumber the former.

So, in lieu of complaining to people who continue their employment by denying the reality of the situation, or who just do not care, what's a motivated kid to do?

First, a motivated kid does not waste his college years and college tuition on a worthless degree. The easier the degree is to obtain, the less it means after graduation. By all means, get an undergraduate degree, but get one worth having – one that qualifies you for more than just setting pins in the machines at Gold's Gym. You cannot back up and be 21 again, and I assure you that hard stuff is easier to learn when you're younger.

Human performance is about biology, physics, and chemistry, since these sciences reveal the heart of the matter. If you *really* want to be a strength coach, get a hard science degree – biology with a physiology emphasis, or chemistry, or one of the other sciences that you can supplement with biology electives or a biology minor. A real science degree can be used later if circumstances or your interests change – an undergraduate degree in Exercise Physiology might as well be a Sociology degree, or Criminal Justice, Elementary Education, Art History, or Women's Studies.

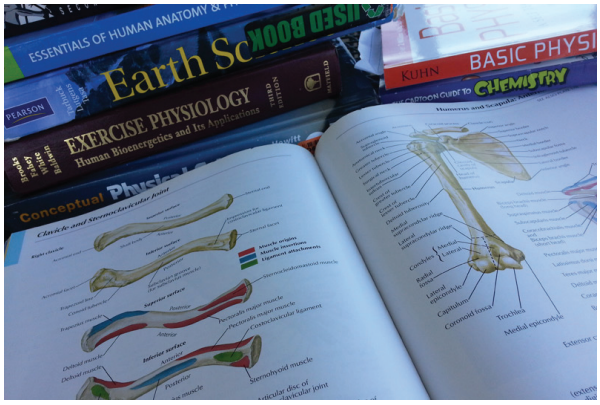
A science degree equips you to do many things that an Art History degree does not. The diploma is a statement of your ability to finish a long-term project, and the more complex and difficult the project, the more significant its completion becomes. A science degree composed of many advanced laboratory hours, calculus, physics, general physiology, and an exposure to other physical sciences is

quite a bit more persuasive as a statement of your ability to finish a project than a social science degree. Or a PE degree.

A university curriculum provides time to explore the various questions that inevitably occur to an interested student as he studies. Learning is also a discovery process, and the environment at a good school encourages the dendritic processes of mental development that happen in the growing young mind. An immersion in the natural sciences can spark lifelong interests in topics outside the student's major field of study, and the university has traditionally been the home of this type of intellectual growth. Self-taught has its advantages, but it cannot replace the educational experience of a quality university degree.

But many universities have degenerated into interesting little social experiments, and recent events effectively argue against even attending college for some people. As valuable as a hard science degree is, circumstances may dictate a different approach. You may not have the patience for the interruption of your scholarship by the undisciplined children inhabiting the campus. You may have passed the age where it's feasible to stop what you're already doing and go to school. You may already have an undergraduate degree in a non-useful field and now lack the resources to go back to school, but have the advantage of knowing how to study. Coaching may represent a career change, and your time and money may be committed elsewhere. That's fine – a coach just needs the information, and it's possible to obtain this yourself.

Self-directed education has never been easier to pursue. The internet makes possible the rapid acquisition of information on every topic, in either great specificity and detail or in the most superficial of treatments – often to the detriment of an uninformed person's attempt to learn. Content on the web is usually free, easily accessible, and perhaps even interactive, so there are positives and negatives to web-based self-directed learning.



But in my opinion, textbooks are still the best way to effectively address the systematic acquisition of information on an important broad topic with which the student is unfamiliar. An expert or group of experts teach you the material in an ordered fashion, leading you through the topic in a book that has most likely been refined through several editions and guided by a career spent presenting the material in class to students at your level. It requires no electricity, it's emminently portable, it cannot crash, and it's easy to find your place with a bookmark.

With that in mind, we'll assume you're new to the topic of the physical and biological sciences, and aren't going to school. Most books are available on Amazon, and don't be afraid to buy used ones; this has gotten many a poor student through college. You can take your time and read through them slowly, or read through them several times, absorbing a little more with each exposure, depending on your reading speed, retention ability, schedule, and discipline.

Some of you may be disappointed that I'm not going to recommend a quantitative treatment of these science topics, because of the type of person who will typically take this approach and what the information will be applied to. An adult learner who wants to coach does not need the calculus that a younger college student should take with the usual physics courses as a freshman/sophomore science major. Calculus gets actually used in a handful of technical disciplines, not in the weight room, and for

most educational programs its purpose is to order the thinking, not because derivatives and integrals will be used at work. For our purposes, a solid understanding of the concepts, not the calculations per se, is necessary. We are *leveling* here, not preparing a 21-year-old student for medical school.

The basic science preparation you will need comes from the physical sciences, because they are fundamental to understanding about moving things around, and because they are the ultimate basis for the chemistry and biology you must know. Get a basic college-level physical science text. A little poking around on Amazon resulted in *Conceptual Physical Science, 4th edition,* by Hewitt, Suchoki, and Hewitt. A broad, well-written and well-organized treatment of this important topic, it can be mined for information for a long time. And if you're doing this on your own, you can't be in a hurry – remember, school takes years, not weeks.

After you have a good command of this material, we can get more specific to the biological task at hand with an Anatomy and Physiology text – "A&P" in college curriculum vernacular, the introductory college level to the topic of human biological science. A widely-known text is *Essentials of Human Anatomy and Physiology* by Elaine Marieb. This gets the same treatment you gave the physical sciences – take your time and get very familiar with this basic material. Marieb and Hewitt have enough exposure to chemistry that I won't recommend a separate text for the purpose – again, for the post-college or non-college leveling work I'm suggesting here, their treatment of chemistry is sufficient for our purposes.

The next step in the academic process is usually "General Physiology" as a more in-depth treatment of the chemistry-dependent topic of living systems and their organization and control. A step up from A&P, this course is designed for pre-med and physiology majors, and while it's a damn good idea under degree-track circumstances, I'm going to advise that you skip to the basic exercise physiology text, *Exercise Physiology*, by Brooks and Fahey. Usually referred to as simply "Brooks and Fahey," this is an important text for any strength coach that wishes to participate in academic-level discussion of the profession. I see no point in wasting time on an intro-level ExFizz text – which a good A&P text renders pointless – and I think it is approachable enough that a sharp individual can deal with it in the absence of General Physiology. I did.

At any point in this process, Netter can be started. *The Atlas of Human Anatomy* by Frank H. Netter has a well-deserved spot on the library shelf of every doctor in the world, it being the most widely used introductory anatomy text in print. The topic is exhaustively covered in hundreds of very detailed and quite beautiful hand-painted plates produced over Dr. Netter's long career as an anatomical illustrator. Get a used copy of the 3rd or 4th edition and keep it handy, referring to it often and anytime an injury question arises in the gym. It has the ability to teach you for years.

I am embarrassed to say this, but our two major texts, *Starting Strength: Basic Barbell Training, 3rd edition*, and *Practical Programming for Strength Training, 3rd edition*, are the only books in print specific to barbell strength training that treat the subject in the detail it deserves. It embarrasses me to have to say this, because such a topic deserves more than the other cursory nonsense that purports to serve it.

Along the way, you may find that an interest in other sciences has developed. Indulge this interest in other books, perhaps a geology, zoology, paleontology, or astronomy text or three. Any science you are exposed to will be beneficial to your ability to think and analyze scientifically. And it also makes you a more interesting and *interested* person. Remember that broad exposure to the natural sciences usually takes place during a science degree, so take the opportunity create this environment for yourself with your reading. This is where the internet is particularly handy.

This short list is neither exhaustive nor complete, and there will doubtless be better suggestions in the comments. It is merely meant as an approach to the problem of acquiring the basic science background necessary to effectively practice strength coaching. The other aspects of that preparation are *experience* – both personal, as a lifter, and professional, as a coach of lifters – and communications *talent*, which is unfortunately difficult for some people to develop. The best advice I can give the aspiring strength coach is to get strong yourself, read everything you can get your hands on, and help other people with their lifting whenever you can. Hopefully, my suggestions about academic preparation will help. Eventually you will be good enough to pay.

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