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Table of Contents

INTERVIEW:

Brandon Roberts, PhD

You're an avid lifter and I presume that may have something to do with why you decided to pursue a career in muscle biology. Could you tell us a little about what you studied in undergrad, what your interests were, and how you decided on the career that you did?

I was like a lost puppy in undergrad. I had an idea of what I wanted to do, but struggled to find my way. I always enjoyed science so I chose microbiology as a major. Like most science students I thought I wanted to be a physician – it seems like everyone wants to be a physician until they realize they can't. I was one of the students who didn't have the grades and didn't love studying enough to elevate them. What I really loved was sports and lifting.

I finished my undergrad and went looking for a PhD program. I wanted to learn how to think critically. It just wasn't taught in undergrad. I also knew I needed to find something I was passionate about. One of my TAs in physiology pointed me towards Dr. Dodd. From there I started down the muscle biology path. My advisor wanted me to enroll in a master's program, which was a brilliant decision in retrospect. He didn't have funding, so once I proved I could put in the time and effort he gently pushed me towards a lab that was about to be well funded and very understaffed.

Enter Dr. Judge. He was my PhD advisor and really taught me how to think. It wasn't always rainbows and butterflies, but I cannot express how much I learned during those four years. We studied muscle atrophy in multiple disease models such as cancer cachexia, sepsis, disuse, denervation, and spinal cord injury. I was on an ideal academic path, but I still wasn't happy. I knew I wanted to study resistance training and hypertrophy on a big scale. There was only one place that fit the description – UAB.

I was fortunate enough to be receive a T32 fellowship under Dr. Bamman. We hit the ground running, publishing a book chapter two months after I arrived. I then began to write an F32 fellowship, which scored well. The next few years will be a lot of fun.

Could you expand a little more on your research and what you've found?

Our lab's focus is resistance training in aging. I say "our" like I've been here a long time, but it's only been a year. The research that brought me here is focused on non-responders. We now call them low-responders because the original name didn't send the right message. We were only referring to

those who had no increases in muscle fiber size after resistance training.

Recently, we completed a clinical trial on optimizing the exercise dose in an older population (65+) over 35 weeks. However, even with this optimized protocol we still had low-responders. Therefore, I wrote a fellowship to identify the mechanisms that could cause the low-response. My preliminary data suggests these low-responders don't adapt to the heightened inflammatory stimulus caused by resistance exercise. I hypothesize that this prevents ribosomal biogenesis, and in turn, blunts or slows muscle growth. I'm still working on this project and we have promising results thus far.

What is publishing like in exercise science as an academic? How would you compare it to most other fields? And what advice would you give to any potential exercise scientists?

Publishing in exercise science is a tad easier than other fields. The main reason is you can't order another batch of mice or run more cell experiments if you're doing a human study. After you collect all the data that's it. You may be able to analyze it differently, but it's hard to run a whole cohort through the program again. It gets expensive very quickly.

I'm going to pre-apologize for this because it may be controversial. For some reason the field is behind. It seems we aren't the first choice for the brightest students. This is slowly changing. The likes of Nuckols, Trexler, and others will elevate the field to new levels. We also have the benefit of social media where we can interact or get feedback from the top minds in the field (Phillips, Schoenfeld, Helms, etc) which is rare. You just don't see that in other areas.

My main advice to potential exercise scientists is be skeptical. Also, be willing to change your mind when presented with new data. I can't count the number of

times people have proved me wrong with data or publications on social media. I embrace it. Always be willing to learn and grow. It's OK to be wrong.

Could you quickly summarize the HMB study that recently came out of Wilson's lab and your take on it?

Wilson and colleagues found extraordinary gains using HMB-FA versus placebo in 2016. For a refresher on the benefits/effects and further information on HMB check the Examine page. For a good history of the HMB controversy I also direct you to Greg Nuckols' page.

The Wilson study has several strengths: double-blind, placebo- and diet-controlled as well as a 12-week training period. The training protocol was unique since it incorporated an overreaching phase followed by a taper. They even recruited 17 well-trained subjects. If you're going through the manuscript it's very well laid out, with details on what I would consider "required" for publication. Even the statistics are done correctly.

However, the results are intriguing. The HMB-FA group gained ~18lbs of lean mass over 12 weeks while simultaneously dropping ~8% body fat. Comparatively, the placebo group gained ~4lbs of lean mass and lost ~2% body fat.

Looking at strength gains they are equally disparate. The HMB-FA had a 20% increase in bench press, 30% increase in squat and 22% increase in deadlift. The placebo group had a 5% increase in bench press, 5% increase in squat and 8% increase in deadlift.

These findings rival testosterone (Bhasin et al. 1996) and are hard to believe. I won't say their made-up or false, but something is off. If I take their data and compare it to our young, untrained, high-responder data it still outperforms what we find. One of the main issues I have with this study is the lack of raw data. The study has been addressed with a letter to the editor. You can find the unedited version here.

What are some of the most common mistakes and/or difficulties that lifters run into?

The most common mistake I see is not deloading. People tend to run 12-16 week blocks with no deloads and wonder why they end up with an overuse injury or don't recover properly. The other common issue I see is a lack of patience. Muscle takes a long time to grow so we have to consistently put in the time and effort in the gym. Lastly, program hopping is a common mistake I see with athletes that inquire about training. I understand this problem because I also struggled with it when I first started. It's way more fun to hop around on different programs, but ultimately it might attenuate adaptations.

What does your training regimen look like? What about your diet, and do you take any supplements?

Currently I'm in the offseason, so I'm focused on muscle hypertrophy. I competed in two bodybuilding shows last fall which helped me to prioritize my training. Some of my weaker areas were glutes, hamstrings, and arms. Since I coach people and do science I've hired my own coach (Jeff Alberts) to help keep me on track. We've been together almost two years now. He's been great in helping with the experience side of things as well as being an excellent mentor for the bodybuilding lifestyle.

As for my diet and supplements – I'm currently eating ~2800 kcal per day. My macro split is roughly 200 g protein, 350 g carbs, and 70 g fat. I still track my macros in the offseason because it helps me to stay cognizant of what I'm eating. I take the basic supplements such as fish oil (2-3 g), creatine (3-4 g), a multivitamin, and occasionally whey protein if I'm traveling. I also have about 250-500mg of caffeine during the day, but seldom pre-workout. ◆

Brandon Roberts is a postdoctoral fellow at the University of Alabama at Birmingham. He was trained as a muscle biologist in the field of cancer cachexia at the University of Florida. He currently studies the molecular and applied adaptations to resistance training. His work specifically focuses on the inter-individual variability that occurs with training due to the inflammatory response. He is also a coach and research consultant with The Strength Guys where he applies evidence-based practice to all levels of powerlifters and bodybuilders.