



# SPECIALTY REPORT

In This Issue | Orthopedic Surgery



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# Michael McKee, MD

## Chair and Professor

Department of Orthopedic Surgery

Banner University Medical Center

University of Arizona College of Medicine – Phoenix



*Dr. Michael McKee attended the University of Toronto for both medical school and his orthopedic surgery residency. He completed a general orthopedic fellowship at Toronto East General Hospital, followed by a fellowship in orthopedic trauma and lower and upper extremity reconstruction at Massachusetts General Hospital. He was recently named the president of the Orthopedic Trauma Association.*

### What drew you to orthopedic surgery? Did you have any interest in other specialties when you came to medical school?

My father was an anesthesiologist, so I had some interest in that. I ended up thinking that anesthesia was a bit too passive for me. I enjoyed the orthopedic side of things because it is often a technical challenge. It also gives you some instant gratification with results you can immediately see in front of you, which attracted me to it.

If you like a technical challenge and something that combines making and executing a game plan, this may be an appealing field for you. In my opinion, all of surgery boils down to two things: having a good game plan and being able to execute the plan properly.

### What do you look for in residency applicants?

We are looking for people who are bright problem-solvers, who are capable of applying medical knowledge to a set problem and working through to a given solution. You also need the physical skills to effect that solution. That does not mean you have to be overpoweringly strong, but an inclination for working with your hands and good coordination help.

On the research side of things, we are looking for innovative people with new thought processes. A lot of the things that I do now, I didn't do twenty to thirty years ago. The playing field and procedures have changed over the years. You also have to have a degree of determination. Orthopedics has a reputation

of being a very busy practice. We see a lot of patients and often start early and stay late.

Lastly, we are looking for people who are collegial—who can work in a team environment, are able to disagree with each other without being disagreeable, and are able to discuss complex cases with colleagues in a productive manner.

### How have you seen the field change throughout your career and how do you think it will change in the future?

During my medical education, I was taught so-called facts by very smart people—some of the “giants” in orthopedics. We were taught to memorize and apply this knowledge. For example, I was taught that if a patient has open growth plates in their tibia or femur, they could not tear their ACL. Yet, we know now that this is incorrect. Today, there is research that tells us there have been many cases of children with open growth plates who have torn their ACLs. What was once deemed an absolute fact is now known to be wrong. This has occurred numerous times throughout my career. One major thing that I have learned through my life is that almost nothing you learn is a static or an unquestionable fact.

Also, I've learned that there is a lot of information you will be bombarded with that will be untrue and/or poor science. No one in this specialty can possibly read every journal or attend every webinar, so you have to become a critical thinker. We try to teach our residents how to be critical thinkers, how to appropriately evaluate research, and to be unafraid of

questioning things. In the past, you'd never question something that was taught to you; whereas, now it is encouraged. I don't know what the future will hold, but I think that this pattern will definitely continue.

I also think that the landscape of orthopedics—as far as the people in it—is going to become more diverse with a greater number of females and underrepresented minorities. My wife is an orthopedic surgeon as well, and we are very interested in promoting diversity in our faculty. As you know, orthopedics has been a very male-dominated specialty, but things are changing in this regard. I think the more closely the faculty represents the population it serves, the better it is going to be for a variety of reasons. Our program has made a real effort to increase diversity in our acceptances. For example, of the four people we took this past year, two were female.

#### **Do you anticipate any future challenges in the field of orthopedics?**

I think one of the main challenges is the expense. We have progressed rapidly and have a number of treatments now that we didn't have in the past. On one hand, these advances are great for patients. On the other, they are expensive.

#### **Can you tell me a little bit more about your role and responsibility as department chair?**

My main role is to make sure that the department of orthopedics here is a collegial and educational environment for our students, residents, and staff. I aim to ensure that they leave the residency well-trained and prepared for their practices. This includes confirming that the fellowships our residents select and obtain are at good programs. It also involves recruiting faculty who will increase the scope of our entire endeavor. Some other important goals the department has include being academically productive, enhancing community outreach, and maintaining the academic environment. We accomplish these objectives in many ways, including resident selection, research efforts, ensuring that we coexist well with other departments, and more.

I also have a fairly significant clinical role. I believe very strongly that in order to lead and understand the needs of a field at a higher level, you need to understand what is going on at the doctor/patient level.

#### **Do you feel that research experience is important when choosing orthopedic residents?**

Yes, I do. It is important on a number of fronts. For one, if you do a research project with some of the faculty here, we get to know you. The research doesn't have to be with us, but it is helpful if it is. We get to see if you're a problem solver and a finisher. We get an idea of your qualities and your capabilities.

Secondly, we are always on the lookout for academic people. Having someone who is a strong researcher who is able to identify, focus on, and solve a problem is very beneficial in an academic environment.

#### **Do you feel research in orthopedics, specifically, is important to have?**

No. It doesn't need to be orthopedics, specifically. We want to see people who are successful at conducting and performing research. If an applicant has a lot of basic science research and has published ten to twelve papers, that is going to put him/her in good standing with us. This shows us that the applicant has the ability to critically think, problem solve, and finish research.

Medicine and medical education aren't so much about the accumulation of static facts anymore.

It is more about having the ability to think critically with a desire to pursue answers. Any kind of research experience is good because it can help illuminate these qualities in an applicant.

#### **What is your favorite part about being an orthopedic surgeon?**

In the past, I would have said that my favorite part about orthopedics was when I had a complex case where I made a game plan based on my experience

**“We try to teach our residents how to be critical thinkers, how to appropriately evaluate research, and to be unafraid of questioning things.”**



and the literature, and went on to execute my plan successfully. Now, the most rewarding part of my job is when I'm at rounds and we have a complex case and one of my senior residents or fellows reasons through and executes their own game plan effectively.

### What do you do to balance your professional and personal life?

I like to stay active outside. It is important that you remember that medicine is only one part of your life and that the average person has to have some outside interests to keep them balanced.

I've seen many extremely accomplished and admired orthopedic surgeons through the years who, when it came time to retire, did not leave gracefully because medicine was all they had. They didn't have an outside hobby or interest. Their entire level of self-worth was based on what they did in the O.R. that day or what paper they published last week. To

this end, I think it is very important to remember that someday you will retire, and you need to have something else going on in your life when that time comes. For these reasons, I keep active outside of orthopedics. I have some sports that I do. I also have a fairly large family and spend a lot of time with them. I take dedicated time off to be with them.

I also work to keep a level perspective. If a case goes particularly well, that's great. If a case doesn't go well, I work to reflect on what didn't go well, learn from it, and move on.

Inevitably in our business you will have periods of time in your life where there is very little balance, but when you come out of those times, you must recognize it and try to regain balance. When things are really tough, do the work and don't complain. When things are easy, enjoy it, get away from work, and don't feel guilty about it.

– Amanda Schaaf, MS2

**“Now, the most rewarding part of my job is when I'm at rounds and we have a complex case and one of my senior residents or fellows reasons through and executes their own game plan effectively.”**

## Etymology of *Ortho*

In print, there are two spelling options for this specialty: *orthopaedics* and *orthopedics*. The former is known as the British and more academic spelling. The latter is the Americanized version. Both are generally accepted as correct.

The term *orthopaedics* was coined by Nicolas Andry, a professor of medicine in France in the 18th century. He attributed the name to the Greek prefix *ortho-* meaning straight, true, correct, or regular, and the Greek word *paidion* meaning young child. The combination harkens back to an early focus of the specialty on correcting musculoskeletal deformities in children, especially scoliosis. As this issue demonstrates, orthopedics today treats a much wider variety of conditions.

The majority of professional organizations utilize the spelling *orthopaedics*. This is perhaps a way to call back to the origins of the term and the origins of the specialty; however, both spellings can be used interchangeably. For this issue of our newsletter, we chose to utilize *orthopedics*.

Source: Jones AR. Etymology of “Orthopaedics.” *Br Med J.* 1926;1(3399):349-350.

# Norman Chutkan, MD

**Program Director and Professor  
Department of Orthopedic Surgery  
Banner University Medical Center  
University of Arizona College of Medicine – Phoenix**



*Dr. Norman Chutkan serves as the Program Director for Orthopedic Surgery at Banner Health. He attended medical school and completed his residency at the Howard University College of Medicine in Washington, DC. Dr. Chutkan further specialized in spine surgery through a fellowship at Louisiana State University Medical Center.*

## **What drew you to orthopedics while you were in medical school?**

My father was an orthopedic surgeon, and initially in medical school I was drawn to the surgical specialties. I was thinking about orthopedics among a number of different specialties. However, when I rotated in orthopedics as an away rotation, I did not have a particularly good experience, so I thought I was going to do something else. I actually started off as a categorical surgery resident, thinking I would go into plastic surgery or cardiothoracic surgery. A couple of months into my internship, I decided that was a mistake and I wanted to go into orthopedics. Fortunately, at my program, the orthopedic department had four residency spots and they had one spot that wasn't filled yet. The chair of surgery was gracious enough to put in a good word for me, so I was able to get that spot. I only applied to one Orthopedic program. I don't recommend anybody trying that.

I was attracted to orthopedics because of the types of surgeries and the spectrum of patients that we take care of. In orthopedics, we see patients that range from babies up to geriatrics. Even though we are now much more sub-specialized, there is still a wide breadth of patients that we see. It is a very fulfilling specialty. I've enjoyed it.

## **Do you feel you have some continuity of care with orthopedics?**

Certainly. Once I have a patient, they stick with me for long periods of time. I see their family members. I treat kids as well as adults, so I get to see full range

from kids with spinal injuries to geriatric patients with insufficiency fractures. For that reason, I have a very diverse practice, which I find very enjoyable because there is always something new.

## **How did you know that you wanted to sub-specialize in spine surgery?**

We generally pick our sub-specialty in the fourth year of residency. When I was doing my residency in Washington, DC, our pediatric orthopedic rotation was at the Children's National Medical Center. I was fortunate to work with someone, who is now a good friend of mine, who specializes in scoliosis surgery. I decided I wanted to do spine surgery because I wanted to work with scoliosis and spine deformities, but I didn't really want to do pediatric orthopedics, because my main interest was spine surgery and not the other things that pediatric orthopedics deal with. I did a fellowship that was half a year of pediatric spine and half a year of adult spine. While my practice now is more adult spine, I still perform surgery on pediatric patients as well.

## **What is your favorite part of being an orthopedic surgeon?**

My favorite part is the patients. I like taking care of patients. I like clinic. I love surgery, but it is an honor and privilege to take care of patients and I try not to forget that. That was drummed into me by the chair of surgery when I was a medical student and resident at Howard, and I try to remember that.

## What is your favorite part of working in academic medicine?

The residents and medical students. My whole career has been in academics, which is 20-plus years. I have seen many medical students and residents become surgeons and it's been fun.

It was a lucky choice that I ended up in academic medicine. When I finished my fellowship, I had the opportunity to stay on as faculty at LSU and I also had a job offer from a private practice in Florida. I had both opportunities, but decided to stay where I was at LSU, which turned out to be one of the best decisions I've made in my career. Once I started in academic medicine, there was nothing else that I wanted to do.

## What does your day-to-day schedule look like in terms of balancing academic medicine and clinical practice?

I have had a relatively unique position for the last five to six years while here in Arizona. My career up until I moved here had been very traditional. I started out as an Assistant Professor, became a Program Director at LSU, and then moved up and became a Professor, Chief of Service, and, finally, Department Chair for several years in Georgia. I have a unique position here because I work for the CORE [Center for Orthopedic Research and Education] Institute. I am employed by a large private practice, but I also have half my time leased from Banner and the University of Arizona to be Program Director. It doesn't make much of a difference in running my day-to-day practice. A traditional setup has the Program Director employed full-time by the university, with a certain percentage of time dedicated to the program director role. It is not all that different from my setup.

I have clinic days about three times per week and operate two days a week, sometimes on those same days. I typically have a resident and/or medical student with me. From June to November, we will have

a lot of medical students on our service. Due to my responsibilities as Program Director, I have a fair amount of time set aside for administrative and resident program director issues. I supervise the residents on their academic days. I have time for office hours set aside to work with the residency coordinator and ensure all the things needed to run the residency program get done. It has been a fun and interesting arrangement.

## What are the most challenging aspects of orthopedics? Do you see those challenges being addressed on a larger scale in the coming years with healthcare reform?

Orthopedics is a highly technology-driven specialty. We use a lot of navigation, computer driven technology, implants, and biomaterials. Technology is a lot of what we do. One of the challenges is balancing the cost of technological improvement with the clinical benefit for patients. If you think of spine surgery as an example, we now use techniques and equipment that are exponentially more complex and expensive than we did 10-15 years ago; however, we are not always able to show corresponding benefit in terms of patient outcome. Being able to justify the cost of what we do with actual patient benefit is challenging. This is going to be the challenge for the next generation of orthopedic surgeons because the money in healthcare is not going to increase, but the number of patients and the pressure to show the value in what we do will both increase, and we are an expensive specialty. We will feel that pressure, and rightfully so, because we should be able to show the value of the services we provide.

## What do you think has been the most impactful development in terms of surgery since you have been practicing?

If you look at orthopedics as a whole, the most significant changes have been the advancements in total joint replacements. There has been a transition from massive procedures where people stay in the hospital for five to six days to now performing total

**“Once I started in academic medicine, there was nothing else that I wanted to do.”**



hip and total knee replacements as outpatient procedures. We are able to significantly improve quality of life with much less morbid surgeries. We see the same trend in spinal surgery through minimally invasive and smaller procedures that allow us to get our patients up and moving in a much quicker and easier fashion than we did 20 years ago. When I was training, a simple cervical fusion would mean staying in the hospital for two to three days, followed by use of a collar for eight weeks. Now we are able to complete a one level cervical fusion as an outpatient procedure without any collar use, and the patient is back to work in a week or two. There has been dramatic improvement over the last 20 years that enable us to perform many of those surgeries in a much less morbid, more cost-effective, and quicker way than in the past. I can see the difference in how we do things now compared to when I was a resident, and it is dramatically different in a good way, which is ultimately a benefit to patients.

### **What are you looking for in the next generation of orthopedic medicine physicians?**

If we exclude this year, which will be a unique and challenging year, in general what we are looking for in orthopedics is a more diverse group of residents. Over the years, orthopedics has been a residency predominantly composed of white males. Now there is a huge push from the national academy level and across various societies to improve diversity so that our specialty reflects society more closely than it does now. That has been a challenging problem to tackle, but we have made a lot of headway. One of the biggest things we look for is gender and racial diversity by evaluating for diversity in background and points of view. We are fortunate that orthopedics is a very attractive specialty, so we get very competitive and smart medical students who want to join our specialty. It has been challenging when you have 700 applicants who are all outstanding students but

can end up with only 4 residents. But in general, we are trying to diversify our residents to more closely resemble society. We have been at this for 10-15 years and we have been making some progress. But it has been challenging because people tend to be attracted to specialties that reflect their background. So, we need to build enough of a critical mass so that we seem welcoming to everyone and people get the idea that you don't need to be a strong jock to do orthopedics.

There is a tremendous need for gender diversity in our specialty. In the last four years or so, a majority of our top ten ranked medical students have been women. We were fortunate enough this year to have matched two women. Last year, we had one woman match. We are able to recruit some competitive female applicants, but all the different orthopedic programs are also trying to recruit competitive female medical students. If you happen to be a competitive

female medical student interested in orthopedics, there is no better time than right now. You will be highly recruited and sought after.

### **What makes a competitive applicant for an orthopedics residency?**

Unfortunately, orthopedics is just a very competitive field. Most programs average between 600-800 applicants for four to eight spots. It is a highly competitive field and there are very few objective things to differentiate one student from the next. Letters of recommendation tend to be universally good. Rarely is somebody going to write a medical student a bad letter, so it is difficult to use that as a way to stratify students. Since medical schools have gone to pass/fail grades, the best way for a student to stand out comes down to one thing that every medical student has: USMLE board scores. Now that STEP 1 is going to be pass/fail as well, that is going to push even more emphasis on STEP 2. I can see residencies

**“ If you happen to be a competitive female medical student interested in orthopedics, there is no better time than right now. You will be highly recruited and sought after.”**

holding back invitations to interview medical students until STEP 2 scores are turned in. There is just no other way of getting through the numbers of applicants each year. Other things like research activities and so on will be very important in determining who receives interview once STEP 1 is pass/fail.

### **What does the residency look like for orthopedics?**

In the past, the first year of orthopedics residency was structured similarly to the first year of a general surgery residency, which consists of training in foundational skills and background knowledge. Several years ago, the Orthopedic RRC [Residency Review Committee]/ACGME [Accredited Council for Graduate Medical Education] mandated an Orthopedic internship year to include six months of orthopedics rotations and another six months consisting of a mix of non-orthopedic surgical specialties, including general surgery, anesthesia, etc. During that time, there is basic surgical skills training that is spread over the year like it is here at Banner, or as a one-month block. After internship, you enter your residency as a junior resident for the second and third years of residency, during which time you take most of the in-house call, which will expose a resident to a variety of subspecialties. During the fourth and fifth years of residency, the trainee is considered a senior resident. Rotations for orthopedic surgery vary depending on the program, but a vast majority of orthopedic programs are sub-specialty driven. In the Banner residency, for example, the second year includes a combination of three-month rotations in trauma, joints, pediatrics, and hand. During these three-month sub-specialty rotations, the resident will be solely focused on sub-specialty. As a third-year resident, rotations consist of three-month blocks of joints again, trauma again, foot and ankle, a research block, and another elective. As a fourth year, a resident will rotate in spine, trauma, and some other repetition. In total, after the completion of the five-year residency, an orthopedic resident would have rotated in spine surgery once, pediatrics orthopedics twice, total joints twice, hand surgery

once, oncology orthopedics once, foot and ankle once, and lower extremity once.

### **What kind of fellowship options are there after orthopedic residency?**

The most popular fellowships will be things like total joints, sports medicine, hand, spine, pediatrics, oncology, and trauma. Total joints are one of the most common. The two that require ACGME fellowships because they have a CAQ [Certificate of an Added Qualification] are sports medicine and hand surgery, which you can get to through residency in orthopedics, plastic surgery, or general surgery. The other fellowships have a mix of ACGME accredited and non-accredited fellowships depending on the institution and how they fund their fellowships. Right now, about 96% of all residents end up doing a fellowship, so it ends up being almost a six-year training program since about 90+% of fellowships are one year long. Most of the fellowships are not ACGME accredited, so it does not run like a residency for that fellowship year. For example, here we have two fellowships that are associated with our program. Our ACGME hand program needs to run like a residency, meaning there are certain benchmarks and checkpoints put in place. We also work with a total joint fellowship in association with the CORE Institute, which does not run like a typical residency since the fellows perform more like junior attendings. Those fellows get privileges at all the hospitals as attendings and work with the total joint attending and can have independent practices because they are all board-eligible orthopedic surgeons.

There are some fellowships you can complete and still work with general orthopedics. It is very common for trauma surgeons, sports medicine surgeons, and oncology orthopedic surgeons to perform total joint replacements along with their other work. Some total joints surgeons may treat sports and ACL injuries. The three subspecialties that rarely do work outside of their sub-specialty are pediatric orthopedics, spine surgery, and hand surgery. Most of the hand surgeons do just hand. They may do elbow and shoulder surgeries, but they mostly stick to hand and upper extremity. It is rare that anybody would per-



form spine surgery without having the training in a spine fellowship.

**Anything else you would like to share about your own personal interests within orthopedics medicine?**

I think I am extremely lucky in being able to do what I love. I tell my residents all the time, that it is a privilege to take care of patients and they should never forget it. You should pick something you love and do that. There is a lot of noise about how much money you make and that can distract you from why you are

here. That should never be your motivation. There is not one orthopedic surgeon I know who does not make a comfortable living. If this is what you love, you should do it. Make sure it is what you love and do not get caught up in the hype of orthopedics because we use really cool stuff. Ultimately, we need to focus on taking care of people with orthopedic problems. If all you care about is doing orthopedic surgery, but you don't like to take care of people with orthopedic problems, you are not going to be a good orthopedist or a good doctor.

- Leeann Quibain, MS2

**Match Summary for MD Seniors Applying to Orthopedic Surgery–2020**

No. of Programs	Positions Offered	Unfilled Programs	No. of Applicants		No. of Matches		% Filled		Ranked Positions	
			MD Seniors	Total	MD Seniors	Total	MD Seniors	Total	MD Seniors	Total
203	849	5	867	1,192	686	844	80.8	99.4	9,744	11,191

Source: National Resident Matching Program, Results and Data: 2020 Main Residency Match®. National Resident Matching Program, Washington, DC 2020.

**Matches by Applicant Type for Orthopedic Surgery–2020**

No. of Positions	Number Filled	MD Senior	MD Grad	DO Senior	DO Grad	Others	U.S. IMG	Non-U.S. IMG	Number Unfilled
849	844	686	28	112	6	0	5	7	5

Source: National Resident Matching Program, Results and Data: 2020 Main Residency Match®. National Resident Matching Program, Washington, DC 2020.

## Alumna: Alysa Birnbrich, MD

### Resident, Department of Orthopedic Surgery Houston Methodist Hospital



*Alysa Birnbrich was born and raised in Tucson, Arizona. She played volleyball at Arizona State University, where she completed her undergraduate degree. She graduated with her MD from the University of Arizona College of Medicine – Phoenix in 2019. She recently completed her intern year at Houston Methodist Hospital.*

#### When and how did you know that you were interested in orthopedic surgery?

I felt like I was late to the game. A lot of people go into medical school knowing that they want to do orthopedics. That wasn't me—I thought that I was going to do neonatology or something with pediatrics. I love working with kids, so I just thought I'd end up in a specialty within that realm. I found out that I wanted to do ortho around the end of my second year/beginning of my third year when I did an elective in orthopedics on a rotation at Banner. There, I found out how much I liked it—I loved the operating room, the patients, the anatomy, and the surgeries.

I tried going through the rest of my rotations looking for a specialty that I liked more than ortho because I didn't initially think that I could be a mom and a surgeon due to the demanding hours. As I went through the rest of my third year, I realized there was nothing I liked more than orthopedics. I figured why would I work so hard to end up in a specialty other than one I truly enjoyed.

I was a little bit of a late comer because research is highly regarded when applying to orthopedics, but the school really helped me out with getting involved in research projects and with my application. I ultimately ended up at a great hospital and institution, so it all worked out. If I were giving advice, I would say knowing what specialty you wish to pursue earlier is easier because you're enabled to build your resume sooner, but you are always able to change your mind.

#### What advice would you give female students considering this field?

I don't think that gender necessarily should dictate whether or not someone gets into a field. I think orthopedics is working to accept more female students. Many people think of it as a male dominated field because of the strength required for certain aspects of orthopedics. However, I have found that I can do anything my male counterparts can do with the right angles, positioning, and leverage.

My advice for anyone pursuing ortho is to work as hard as you can and do really well on your exams. When you're on the interview trail, everyone is going to have scored well. So, at that point, it becomes about finding the right fit.

Work hard in academics, score well on your tests, and work very hard on your rotations. In your rotations, always be available and don't be afraid to go the extra mile. In your interviews, be yourself and find a program that likes you for who you are.

#### After deciding on orthopedic surgery, how did you prepare for residency applications?

As far as writing the applications, I worked in small increments over a long period of time. I took off one of my elective months in my fourth year right around the time that I submitted my applications.

I think one big strength I had in my application was finding my "why" for orthopedics and then writing about it in an eloquent way in my personal statement. I also personalized my statement for ten programs that I really wanted to go to. At almost all of those programs, they brought up my personal state-

ment during the interview, and I ended up at a program that I individualized my statement for. This is probably one of my biggest pieces of advice for writing residency applications.

### **Was there anything that you would have done differently with regard to prepping for residency applications and making yourself competitive?**

I would have gone to more interest group meetings and done more networking. I didn't go to a lot of events, especially first and second year, just because of where I was at personally—I had just had a baby. If I could do it again, I would go to more events. I would also try to get involved with more research. My application was not very research-heavy. It obviously worked out for me in the end, but I would get involved in a few more research projects if I could go back.

I think I had two orthopedic projects and two general surgery research projects, but I would have done a few more orthopedic projects if I could have.

### **How has your intern year been thus far? How are the hours?**

It has been rewarding and challenging. You can expect to log a lot of hours when choosing a surgical specialty. Some months are busier than others. I work 100 hours some weeks and 50 hours in others, which is much nicer and there is more opportunity for a balanced lifestyle. My residency program is pretty focused on work-life balance and wellness, but it is still tough. I went into residency expecting it to be very tough, so that way it would either meet my expectations or be better than what I expected.

Surgical specialties notoriously work more hours than other specialties, but my experience thus far has been awesome. I love orthopedics, and the program I'm in has continued to solidify why I went into this specialty. Overall, my experience has been great. I've learned a lot, worked very hard, and I feel very blessed to be in the heart of the Texas Medical Center. I've met a lot of cool people, seen a lot of cool stuff, and done a lot of cool surgeries.

As an orthopedic surgery intern, you do six months of orthopedics and six months of non-orthopedics. For the non-ortho months, people recognize hard work. You don't have to always know all of the answers. As long as you work hard, care about your patients and take ownership of your decisions, your attendings will notice and respond positively.

### **Can you describe a typical day for you during the orthopedic part of your intern year?**

I wake up at 4:00 a.m., walk my dogs, get to the hospital at 5:30 a.m., and pick up the pager. I round on my patients and get my notes done by either 6:30 or 7:00 a.m., depending on whether we have conference that day or if we go straight to the OR. We go to the operating room from 7:00 a.m. to 3:00-5:00 p.m., depending on the number of cases. In the middle of those, if I get a page from the ED or the floor about ortho patients—for instance, patients with fractures, concerns for septic arthritis, or with other musculoskeletal issues—I will either answer those calls between cases and go back to the OR or I will do them after all the OR cases. Then, I type out all of my consult notes. I usually hand off my pager around 6:30 p.m., though sometimes it's 7:00 p.m. Once I finish my notes, I head home. Usually, I'm home around 6:30/7:00 p.m. If it's a long day with a lot of consults, I'm usually home by 8/8:30 p.m. My program is cognizant about trying to get us out on time.

This is my schedule Monday through Friday. We get two weekends off a month, and for the weekends we work, we are rounding.

### **How many hours a week do you typically work?**

It's different for every program. In my program when I've been on a general orthopedics rotation, it is usually a 50-to-70-hour work week.

This is another thing about orthopedics—finding a program that suits you. You should look at program's hospital affiliations. If they are at a county hospital, you will likely see more traumas and uninsured patients and will work longer hours. If they are at a private hospital or one that is more academic, you will likely see more insured patients and less traumas



and may work less hours in a week compared to other programs.

My program is a mixture of these two scenarios. Our outpatient surgical center operates like a private surgical center, but we also have trauma. There are days when we can operate from 7:00 a.m. to 11:00 p.m. and other days when we operate from 7:00 a.m. to 3:00 p.m.

**Can you share your perspective on being a woman in the field of orthopedic surgery? Have you noticed any additional challenges?**

I think there is always the challenge that people assume you're weak and may not be physically capable of doing certain things, like reducing a hip. I also get called a nurse a lot, even when I walk in with the physician team. It bothered me at first, but now I see that it's really just due to a lack of exposure and knowledge. I'll just politely correct people and let them know that I am a resident physician and a part of the surgical team. I haven't really noticed within orthopedics any differences in the way that I am treated by colleagues.

**Where did you go for 4th-year elective rotations and how did you choose which ones to go on?**

For orthopedics, I did two away rotations and I rotated at Banner. For my two aways, I went to Ohio State and Mayo Clinic. I picked the programs I rotated at based on the type of program, connection to the geographical location, and proximity to family.

Make sure when you choose a program to rotate at that it is a place at which you could see yourself attending. Don't solely rotate there to open up a geographical location. Go somewhere where you may have a connection. I would have rotated at Houston

Methodist Hospital if I had another month available, but my schedule didn't match up with theirs.

**“Make sure when you choose a program to rotate at that it is a place at which you could see yourself attending.”**

**Are there any ways that medical students can connect with residency programs early on?**

You can always reach out to residency program coordinators and let them know

that you have an interest in their program and in rotating there during an elective rotation. You could also reach out to ask about getting involved with research projects. This can give programs the chance to become familiar with you and your interest in them.

**Do you know of a fellowship you might want to pursue?**

Yes. In orthopedics you pretty much have to sub-specialize now. There really aren't many general orthopedic surgeons any more. I will probably either sub-specialize in musculoskeletal oncology or hand and upper extremity. I will have to see how my rotations go, but those are two of my big interests right now.

**What do you enjoy doing for fun?**

I work out a ton. That's what keeps me happy and sane. One of the quotes I live by is: "If you want to do it, you'll make it happen. If you don't, you'll make an excuse." So, working out is always my non-negotiable. I worked out in every single rotation – it didn't matter if I worked 100 hours a week or 50 hours a week.

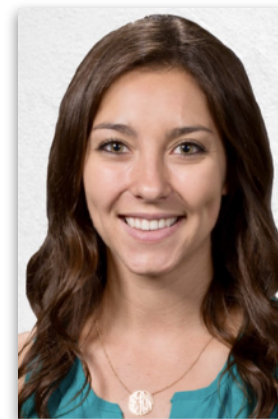
I also have my daughter, husband, and three golden retrievers. Between all of them, they take up most of my spare time, but we still find time to hang out with the other residents and new friends we've met in Houston.

**- Amanda Schaaf, MS2**



## Alumna: Bridget Ralston, MD

### Resident, Department of Orthopedic Surgery University of Arizona College of Medicine – Phoenix



*Bridget Ralston recently started her orthopedic surgery residency at the University of Arizona College of Medicine—Phoenix and is graduate of the University of Arizona College of Medicine – Phoenix class of 2020. She graduated from Santa Clara University in 2015 with a Bachelor of Science in chemistry and a French minor. She de-stresses by whipping up delicious treats (and subsequently devouring them), playing soccer, and cuddling with her cat, Tuxedo. She has a particular interest in healthcare for underserved communities.*

#### **When and how did you know you were interested in this orthopedics?**

During the first year of medical school, orthopedic surgery was one of the specialties I was interested in. I scribed for an orthopedic practice before medical school, but it was very different from the experiences I had in medical school. Shadowing during first and second year was valuable. During my third year orthopedic surgery rotation, I realized how much I liked the specialty and ruled out other specialties.

#### **What led you to pursue this field over others? How did your medical school experience impact this decision?**

Orthopedic surgery is where I felt most at home. I loved the operating room, and my personality matches well with the attendings and residents I worked with. I wanted a surgical specialty with a good quality of life, and I saw the attendings and residents were happy. Initially, I wanted to do general surgery/trauma surgery and was shadowing some docs during the PAL block. During that time, I also had the chance to shadow an orthopedic surgeon.

#### **Were there any resources on campus or mentors you found most helpful to solidify your decision to go into this field?**

I talked to alumni constantly, and the Banner residents were also super helpful. I enjoyed working with them and wanted to stay locally for residency. They gave me advice on away rotations and the residency application cycle.

#### **What advice would you give students considering this field and any general pieces of advice?**

Study hard—do well on clerkships and board exams!

#### **Can you tell us about your research experience?**

I became involved in research through the Banner orthopedic residents. I reached out to a couple that I had met at the hospital. After I was involved in a couple of projects, more residents were willing to reach out to me and have me work on their projects. By getting involved early in third year, I was able to work with several different attendings and residents and expand my research experience.

#### **What is your perspective going into this specialty as a female?**

The orthopedic surgeon I shadowed during the PAL block was female, and I saw that she was able to balance her career while having young kids. I also worked with great female residents and reached out to female alumni. They were all helpful and wanted to help encourage female students to go into the field.

#### **How did you prepare for your residency applications?**

I did a lot of prep work, researched programs heavily—where I wanted to apply, how to rank, etc. I looked at program websites and talked with people.

**What do you wish you would have done differently in the first three years of medical school to prepare you for now?**

There is not much I would have done differently. I kept an open mind and got to see a lot of specialties.

That made it easier to decide that orthopedics is what I wanted to do. Perhaps I would have started research earlier, but it ended up working out just fine.

**- Fathima Haseefa, MS2**

**Summary Statistics on U.S. Allopathic Seniors Applying to Orthopedic Surgery-2020**

	Matched (n=22)	Unmatched (n=96)
Mean number of contiguous ranks	12.3	7.0
Mean number of distinct specialties ranked	1.0	1.2
Mean USMLE Step 1 score	248	239
Mean USMLE Step 2 score	255	246
Mean number of research experiences	5.4	5.7
Mean number of abstracts, presentations, and publications	14.3	14.2
Mean number of work experiences	3.6	3.8
Mean number of volunteer experiences	8.0	7.6
Percentage who are AOA members	40.3	11.3
Percentage who graduated from one of the 40 U.S. medical schools with the highest NIH funding	33.6	25.8
Percentage who have a Ph.D. degree	0.8	0.7
Percentage who have another graduate degree	16.7	25.2

Source: National Resident Matching Program, Charting Outcomes in the Match: Senior Students of U.S. Medical Schools, 2020. National Resident Matching Program, Washington, DC 2020.



## Alumnus: Matthew Gulbrandsen, MD

### Resident, Department of Orthopedic Surgery Loma Linda University Hospital



*Matthew Gulbrandsen is a graduate of the University of Arizona College of Medicine – Phoenix class of 2020. He is completing his orthopedic residency program at Loma Linda University Hospital in Southern California. He was born and raised in Mesa, Arizona and attended Brigham Young University in Provo, Utah for his undergraduate degree in exercise science. He is married and has a 3 year old daughter and a 7 month old son. He was a leader of the Sports Medicine Interest Group while in school and was regularly found on campus playing video games in the student lounge.*

#### **When and how did you become interested in orthopedics?**

I have been interested in Orthopedics since I was a little kid. My little brother had Ollier disease, which required him to have a lot of surgeries to allow his legs to be the same size. Through attending all of his doctor visits I gained admiration for the orthopedic surgeons who treated my brother. Also, I played sports in high school. I broke my ankle, proximal humerus, and distal tibia, so I had lots of surgeries and was able to interact with orthopedic surgeons through those experiences. I thought the personality of orthopedic doctors was attractive. I felt like they were very similar to me and that they genuinely enjoyed their job, which intrigued me.

#### **Did you have any mentors or experiences during your path that helped solidify your interest in orthopedics?**

The most important mentor I had was Dr. Peterson, the physician for the football team at MountainView High School, who I assisted. Although he was a non-surgical orthopedics doctor, he taught me a lot. I arranged to have CCE with him as well. I ended up spending hundreds of hours in the office with him. He really loved his job and his patients which inspired me. Additionally, I was able to shadow the doctor who cared for my brother, Dr. Paley. At the time of my brother's surgeries, no one in Arizona was doing the surgeries he required. So, we flew out to Baltimore so that my brother could have the care

he needed. I was fortunate enough to be able to fly out to Florida, where Dr. Paley moved, to shadow him. I was able to see leg lengthening procedures that further developed my interest.

#### **What extracurriculars were you involved in during medical school?**

During medical school, my biggest extracurricular was research. I reached out to Mayo physicians during my 1st year. I completed research in the field of orthopedics but research in any field is important. The orthopedic residency programs want to see that you have an interest in research. I was also the student interest group leader for the Sports Medicine Interest Group. Additionally, I was the assistant to the team physician, Dr. Peterson, for the Mountain View High School's football team all four years of medical school. He allowed me to assist with physicals, concussion assessments, and suturing students after random cuts during games. However, for the most part, I focused on studying for Step 1 and doing research.

#### **What do you wish you would have done differently in the first three years of medical school to prepare you for now?**

Research is very, very important! I wish I had realized the importance of research earlier. Research can be the defining thing on your application. It can make or break you. When I was applying for residencies, another applicant and I had very similar applications except research was the one thing I had

that he didn't. It made me stand out and helped me get a residency in orthopedics. Additionally, research can help you develop relationships with orthopedic doctors. STEP 1 is the most important part of your application, but with the new STEP 1 changes I am not sure if that will change. I highly recommend that you develop relationships with orthopedic surgeons. Try to shadow them or do research with them. You never know when those relationships will help you down the road.

### **What advice would you give students considering a future in orthopedics?**

Be very proactive starting as early as your first year. Go out and meet orthopedic surgeons and ask them to be your mentors. Go out and find opportunities for yourself. A lot of the amazing experiences I had in orthopedics were the result of me making them happen. Also, get involved in research as early as you can. Lastly, get a competitive STEP 1 score. I highly

recommend using supplemental resources such as Sketchy and UWorld when studying for your board exams.

### **Is there a certain subspecialty within orthopedics you are interested in?**

Not yet, however, I find pediatrics and sports medicine very interesting.

### **What do you like about the residency program you will attend?**

There are many reasons I like Loma Linda University in California for residency. For one, my wife likes the warm weather. I also liked the feel of the program and the people who were interviewing me there. The doctors were all very nice. Additionally, it is close to home, which is Arizona. Also, the program has a good pediatric presence and it is a religious institution. All and all, I am excited to start the program.

**-Nisha Reiman, MS2**

## **Orthopedics Interest Group at UArizona College of Medicine – Phoenix**

### **Leadership Co-Chairs**

- Ty Carlson
- Colby Nielsen
- Aaron Tran
- Patrick Mayolo

### **Faculty Advisor**

- Dr. Alex McLaren, MD

### **Mission Statement**

The purpose of the Orthopaedic Surgery Interest Group (OSIG) is to provide medical students with information, resources, and experiences that will help them make educated decisions about a career in orthopaedic surgery. To do this, OSIG provides opportunities to interact with and learn from orthopaedic surgeons here in Arizona. Those activities include, but are not limited to: seminars throughout the year, opportunities to shadow orthopaedic residents and attendings, casting clinics, suture clinics, research opportunities, open forums, fundraising, and social activities.

<https://www.uacomps.org/orgs/med-focused/osig>

## Alumnus: Matthew Burnham, MD

### Resident, Department of Orthopedic Surgery University of Hawaii, John A. Burns School of Medicine



*Matthew Burnham is graduate of the University of Arizona College of Medicine – Phoenix class of 2020. He is completing his orthopedic surgery residency at John A. Burns School of Medicine in Honolulu, Hawaii. He graduated from BYU in 2013 with a degree in chemical engineering and was a process engineer in North Pole, Alaska, and Ames, Iowa, prior to entering medical school.*

#### What was the path you took to discovering your interest in orthopedic surgery?

I was a product of orthopedic surgery. I hurt my knee in high school and college and had several surgeries. That piqued my interest. I also hurt my knee my first year of medical school and had surgery again, and that helped solidify my career decision. The first surgery I had before medical school was a knee-scope for patellar instability. I had an osteochondral defect as a result of that procedure, so they did a lateral release, which is actually a surgery that isn't done anymore. My most recent procedure was an osteochondral allograft in my patella. A lot of the other aspects of my interest in orthopedic surgery come from my personal interest in woodworking, working with tools, and working with my hands. The technical aspects of the specialty appealed to me.

#### Was there a specific experience that solidified your interest in orthopedic surgery during medical school?

I've always been interested in orthopedic surgery. I started medical school with the idea of training in orthopedic surgery, but I tried to keep an open mind and almost went a few different directions. One experience that helped me decide happened outside of medical school. I was reading up about my family history and found a story about my great grandmother when she settled in the U.S. Their settlement was attacked by a mob, and her son was shot in the hip. My great grandmother cleaned out the wound, packed it, and made him lay on his stomach for 5 weeks, and his body grew a new hip so he was able to walk for the rest of his life. I read that and was so in-

trigued that my great grandma was doing that in the past. It felt like a calling at that point.

#### What would you have done different during your four years in medical school to prepare yourself for now?

I study differently now compared to when I first started, but if I were to go back and do it again I wouldn't necessarily change the way I studied. I am not sure if I would have been as successful if I changed things. If anything, I would incorporate some of the learning tools with block and for STEP exams. The big change for me would be getting involved in research earlier. I didn't start research until my 3rd year. I was playing a lot of catch up by taking on multiple projects to beef up my resume before applying. It would have been easier if I started earlier, took it slower, and established relationships. That would have made asking for a letter of recommendation easier. I also would have tried to enjoy school more because I stressed out about a lot of stuff that wasn't necessarily important. Medical school is a singular time in your life, and I think being able to enjoy it and doing things for yourself is important. Make sure to take time away for yourself. When all is said and done, you're still going to be a person, and if you haven't cultivated any of your hobbies, you won't know what to do with your life. You're just going to work, and you're going to be miserable.

#### What advice would you give to medical students?

Obviously, study hard. Don't waste time but at the same time, doing the things you enjoy isn't a waste of time. It's good for you. Don't sweat the small stuff.



These kinds of sayings you hear over and over again, but now being on the other side, those sayings are so true. It's all going to work out. Pick a specialty based not on what people think you should do or what is going to make you the most money. Pick a specialty you like, one you can see yourself doing for forever. There's something for everybody, and you'll know it when you find it. It takes faith and trust to keep going and know that it'll work out. There will be days when you ask yourself "why did I do this," but it'll all be okay.

### **What advice would you give to someone who is interested in orthopedics?**

The difficulty about this specialty is getting in the door, which means getting an interview. There is a minimum set of requirements that a lot of programs have before they even consider you for an interview. STEP 1 scores are one of them. Some won't interview you if your score is below a certain threshold. You have to make sure you're checking all the boxes, so having research is a part of that. If you can publish or present, it doesn't matter when or what, just do that. Make sure you also have hob-

bies and that you're not generic. Also, do away rotations where you think you might want to go for residency. Having an away rotation anywhere is better than not having one. I did one at the University of Iowa, a top 5 program for orthopedics, and I checked it out because I'm originally from Iowa. Had I have known that it was a top program, I probably wouldn't have applied there. I would have been too intimidated from the prestige of the program. However, I was shocked when I was there because they didn't expect me to know much. They care about if you're willing to work hard and get along with everybody. Don't short-change yourself, but at the same time try to go to a place that you would want to go. Iowa was a great place to raise a family and a smaller town. I even had some pretty serious conversations about matching there. If they know you for a month, you may not be the smartest, but if you work hard

and get along with everybody, that's what they'll value. When they interview someone, they aren't trying to decide how smart you are; they're trying to decide if they want to receive a call from this person at three in the morning about a surgery. Also, you have to evaluate them to see if they are a fit for you, and that you won't be miserable there. I have been to some places where I would rather match there than not match at all, but there were so many other programs that I would rather go that would be a better fit for me and a better fit for my family. You are interviewing them as much as they are interviewing you. During my interviews I was asking about how the schools in the area were for my kids, and they were surprised because they had never received a question like that before. Instead of asking generic questions that most applicants ask, if you make serious inquiries and interview them too, they'll pick up on that and realize that you're being serious, and it conveys your interest.

**“There will be days when you ask yourself ‘why did I do this,’ but it’ll all be okay.”**

I chose Hawaii as my number one choice. In the interview, they asked me about my plan to do research. In orthopedics, research is a big part of the field, but my

response was that I was not planning to do research. They responded positively. It doesn't exclude you, you just have to be honest. You don't want to sweet talk your way into a program that involves research when you hate it, and you're stuck doing that for the rest of your life. Life is too short to be miserable. People continue research for competitive fellowships such as hand surgery, spine surgery, etc. Depending on what work you've done and who you know, they will or will not choose you to be a fellow. We are always exposed to academics in surgical specialties, so many are involved in research. Capstones is huge because it gives you a real idea of what their lives are actually like. That's another reason why I chose orthopedics. It's unique because when bones break, you call the orthopedic surgeon. In a lot of other systems, general surgeons can do many of the procedures and potentially, multiple doctors. However, if there is an infected joint that needs to be replaced,

no one will touch that other than an orthopedic surgeon. Because you are highly specialized you have a lot of say in what you want to do and how much you want to work. You can work 80-90 hours and make a ton of money or work 40 hours a week and make a normal amount of money and love your life.

### **How did you prepare for your residency application?**

Getting into research and making sure to study well for STEP 1 and 2 are important. I started early on my application so I wasn't cramming because there are a lot of things to fill out on the application. You also have to complete a personal statement and add all of your schooling, experiences, leadership roles, volunteering, hobbies, work experiences, and dates, plus what you did and descriptions about each experience. The key for me was starting early because a lot of it can be tedious. I started in early summer writing parts of the application, then I would print it off and have people read them. I sent my personal statement to several residents and attendings who would help me edit it. What I started with and ended with were two completely different things, so making sure I gave it enough time to evolve was really important. If

you know what the aspects of the residency application are, then I think that each student will know how to prepare appropriately. As an example, my weak point was research. I had the fewest experiences compared to the average applicant. My volunteering and work experiences were fine. I worked before medical school as a process engineer at an oil refinery in Alaska and in biofuels in Iowa for 3 years before medical school.

Also, make sure you keep up with your hobbies. One thing that I do is make sourdough bread, and I've been doing it for the last decade. I got my starter from my dad, and it's a family tradition that we try to continue. I also completed the Ironman Triathlon, and I have to say that if you are preparing for an Ironman, don't do it the summer before your fourth year. I had to train during my away rotations, but it was a good talking point because people wanted to ask me questions about it. Those are the main aspects about it. Just knowing what the application involves lets you know what you need to do based on where you are at.

**-Nia Nikkhahmanesh, MS2**

### **Resources for Residency Applicants during the COVID-19 Pandemic**

Multiple specialties have released guidance regarding their upcoming 2021 application cycle, available on the AAMC website. Guidelines from the American Orthopaedic Association, Council of Orthopaedic Residency Directors, plus guidelines from more than twenty other specialty organizations, can be located at the link below:

<https://students-residents.aamc.org/applying-residency/article/specialty-response-covid-19/>

# Ian Singleton

**MS4**

**University of Arizona College of Medicine – Phoenix**



*Ian Singleton is a fourth-year medical student at the University of Arizona College of Medicine – Phoenix. He is originally from Santa Cruz, California and obtained his undergraduate degree in Microbiology from University of California, Santa Barbara. His hobbies include backpacking and snowboarding.*

## **When and how did you know you were interested in orthopedic surgery?**

My interest in orthopedic surgery started before medical school when I worked as a scribe at an orthopedics office in Santa Barbara, California. My interest was further confirmed while completing my elective third-year rotation in orthopedic surgery at the VA.

## **What do you wish you would have done differently in the first three years of medical school to prepare you for now?**

That's a tough one. I think I would likely make the same decisions, but I will say that for orthopedics, more research is always better. I was involved in research during my first three years of medical school, and I think it is a matter of finding good mentors. I was fortunate to have a very good one. It's important to have multiple projects going in case some of them fall through, so if I changed anything it would be starting more projects.

## **What led you to pursue this field over others? How did your medical school experience impact this decision?**

It was really my third-year rotation in orthopedic surgery at the VA that cemented my decision to pursue orthopedics. The orthopedic surgeons at the VA really enjoy having medical students around and they let me assist in a lot of surgeries. I really saw that the surgeries in orthopedics are a lot of fun. The procedures are very involved and interesting.

## **Were there any other fields that you considered or were you always focused on orthopedics?**

I considered all of the surgical fields at one point or another. I didn't rule out any other surgical specialty before my third-year rotations. Third-year will help confirm what you already know you want to pursue or change your mind. You're not going to truly know anything about a specialty until you actually shadow them or spend a month in their shoes. Then you can have a better idea if you could do this for the rest of your life or if this is just something you can do for a month or two and move on to something else.

A lot of people will change what they want to do when they complete third-year rotations. Many people go into medical school wanting to be a surgeon and actually see the hours and find them to be too much. Some people go into medical school wanting to do internal medicine and see something else that catches their interest in third-year and completely change their path.

## **What advice would you give students considering orthopedic surgery? Any general pieces of advice for all students?**

Orthopedic surgery is a relatively competitive field. If you think you want to go into it, you need to start putting the pieces together in your first years of medical school. As I mentioned earlier, finding research mentors in orthopedics is important. Making connections, especially with the home program, is important, too. And that advice applies to any field you might be interested in. Prioritize starting early and the pieces of the puzzle can come together as you

progress through medical school. If not, that's okay too, because perfect applications are not necessary.

In medical school, there are lots of opportunities that can pull you in different directions. It's important to stay focused on academics, like STEP exams, and third-year rotations. These are key to a solid foundation for your application. You can add on other pieces as you have time, but don't let yourself get stretched too thin.

### **How are you preparing for your residency applications?**

Going into your fourth year, and even your third year, it's important to have a strategy for your letters of recommendation. Identifying possible letter writers, even in third year is not necessary, but it makes the fourth year a little easier if you have one letter from 3rd year rotations. Figuring out how you are going to get the rest of the letters and asking letter writers well-before the deadline is also key. I think that's one of the most important parts of the application.

The other pieces of the application, such as personal statements, are good to start working on early, but you shouldn't stress too much. For personal state-

ments, it's just like applying to medical school; it's good to think about it ahead of time and have a general idea of what you want to write. For me, my medical school personal statement took a lot of thinking to figure out exactly what I wanted to write about. For residency, applications the personal statement is similar. It may take a little bit of time for the idea to come to you, so start thinking about it during your third-year rotations. Think about what

you want to express and who you want to portray yourself as to the residency programs.

you want to express and who you want to portray yourself as to the residency programs.

### **Is there anything else you would like to share?**

Orthopedics is a relatively competitive specialty, but keep in mind there are many parts to the application. Even if one part of the application is not as strong as it could be, that is not a reason to give up on orthopedics all together. I'm sure some people have perfect applications, but that is quite rare, so the key is to portray yourself as a well-rounded applicant. You can use the stronger parts of your application to make up for any weaknesses.

**-Nicole Boardman, MS2**

**“In medical school, there are lots of opportunities that can pull you in different directions. It's important to stay focused on academics, like step exams, and third-year rotations. These are key to a solid foundation for your application.”**

## **Anatomy Pop Quiz**

(answers on page 24)

1. A patient presents to the emergency department with a hip fracture. Which artery is most likely to be damaged?
2. A patient presents with a winged scapula. Which muscle is most likely affected?
3. For the patient in question 2, which nerve may be injured?



# Andrea Fernandez

## MS4

### University of Arizona College of Medicine – Phoenix

*Andrea Fernandez is a fourth-year medical student at the University of Arizona College of Medicine – Phoenix. She grew up in Northern California in the San Francisco Bay Area and completed her undergraduate education at the University of California Davis, where she studied Biochemistry and Molecular Biology. Before starting medical school, she spent a year doing research in the Biomedical Engineering Department at UC Davis.*



#### **When and how did you become interested in orthopedic surgery?**

Prior to medical school, I spent a lot of time observing family friends who are orthopedic surgeons in their practices. Most of them either had a total joint or sports medicine practice. I always enjoyed being in the operating room, and I related to the personalities of the orthopedic surgeons I interacted with. When I got to medical school, I knew generally that I liked procedural specialties where I could use my hands, but I wanted to keep an open mind. When I got to my third year of medical school, I absolutely loved my surgery rotation – especially trauma at Banner. I knew I wanted to go into surgery. After spending time thinking about the different types of surgical specialties and speaking to people who knew me best, I realized orthopedic surgery complements many of my personal and professional interests. I've always been an active person and have participated in various outdoor activities and sports. Being active and moving has always brought joy to my life. The idea of helping people regain their mobility seemed incredibly rewarding.

#### **What extracurricular activities have you been involved in?**

I have a lot of hobbies, sometimes I need to rein myself in! Focusing on hobbies I maintained during medical school, I participated in a couple of triathlons, which is how I kept myself happy while studying for exams. I also served as a medical volunteer at some of the USA National Triathlon events. PAL block was great because I had the opportunity

to do a Wilderness Medicine course in Northern California, which was a week of white-water rafting while learning hands-on wilderness medicine skills. I was also one of the editors for the Specialty Report in my first year, which was a great way to learn about different specialties. In terms of research, I am working on projects with orthopedic residents at the Mayo Program, a Foot and Ankle surgeon in the community, and at Phoenix Children's Hospital in the Trauma and Orthopedic Surgery departments.

#### **What advice would you give to students considering a future in orthopedic surgery?**

As I'm sure you have heard, orthopedic surgery is a competitive specialty. There is definitely an emphasis on performance academically and clinically, while juggling extracurricular activities like research. With that being said, I think it is important to avoid getting overwhelmed with how competitive it is and instead focus on how you can be the best that you can be in each of those domains mentioned earlier. There are multiple ways to navigate from point A to point B. There is no particular formula or "right way." I also want to preface this by saying, I am only a newly minted fourth year medical student, and I don't mean to give the impression that my path through medical school was void of mistakes or that I believe I have all the answers. This is solely my personal opinion and what I've found has helped me move a little closer towards reaching my goals. It is fairly simple and general advice, but I think it can be applied to someone considering a future in orthopedic

surgery. So with those disclaimers in mind, here is what I have found helpful:

Academic performance is important. Make sure you focus on building a strong academic base. I think it is important from day one in medical school to start setting academic goals for yourself. With a little bit of daily effort, you will be very prepared for your STEP examinations and clinical rotations. Early on, the learning specialists showed us data from studies they had prepared correlating block performance with STEP performance. Students who consistently scored above an eighty percent average on blocks tended to do well on the STEP exams. Even though our curriculum is pass/fail, I think it's a great goal to set for yourself to try to get above eighty percent on your blocks. You may not reach it all the time, but at least you have a goal you can strive towards and an objective means of evaluating your performance, so you can continue to improve your knowledge. Having a strong academic base will prepare you leaps and bounds for your clinical rotations and it will give you the opportunity to really explore all the different specialties out there.

I'm not sure how students will be evaluated now that STEP 1 will be moving to a pass/fail system, because STEP 1 has traditionally been used as an important metric for orthopedic residencies. It may be the case there is more emphasis on STEP 2 CK performance. Regardless, the academic preparation you put in during the first two years goes a long way into building a strong application.

One of my favorite quotes, unfortunately I can't remember who it is from, states that the actions you take when you think no one is looking are more important than those you do in front of an audience. You will be evaluated on how you perform clinically across all rotations, not just surgery. I think it is important to really try your best on each rotation. I read an article from Dr. George Dyer, Program Director at Harvard Combined Orthopedic Residency

**“You will be evaluated on how you perform clinically across all rotations, not just surgery. I think it is important to really try your best on each rotation.”**

Program, and what stood out to me was the following statement: “Some programs quietly place particular emphasis on ‘sleeper’ rotations like Psychiatry or Family Medicine to try and discern candidates who work hard all the time from ones who pick and choose where to make an honest effort.” With that being said, treat every rotation as if you were considering it as a specialty. Some days will be really tough, especially as you approach the end of your third year, but it will definitely pay off in the long run.

A piece of advice I received from an orthopedic surgeon was, “Be a normal, well-rounded person”. Sounds very simple, but I think it is a great phrase to have echoing in the back of your head when you think about the types of extracurricular activities you choose to be involved in. While it is important to build your CV, do things that genuinely interest you.

They may not be entirely related to orthopedics, but I guarantee you can find a way to tie it back to orthopedics. Plus, when it comes time to talking about your CV, it will be so easy because the activities you have on your CV are ones you are truly passionate about. Research is certainly important

and a big part of your application. The advice I have received is that it is better to have a few high quality research activities you can talk confidently about, as opposed to tons of projects you can't speak much about.

**Is there anything you wish you would have done differently in the first three years of medical school to prepare you for now?**

I wish I would have taken more opportunities for self-reflection throughout medical school. The COVID-19 pandemic was essentially a forced self-reflection period, but lately I have never believed more in the phrase, “There is a silver lining to every cloud.” I think it is very easy to get caught up in all the responsibilities and day-to-day activities thrown at you during the first couple years of medical

school. Sometimes, you even forget why you signed up for medical school in the first place. If there is one thing I wish I would have done, it would have been to spend time actively self-reflecting through writing. I think it is important to keep asking yourself, “What are my goals? Why do I find this specialty interesting? What have I liked so far? What don’t I like?” Ask other people these questions, too! If you are constantly engaged in this type of thinking from day one – constantly re-evaluating your goals and aspirations

– I can’t explain to you how much it will help you when it comes time to select your specialty, articulate why you want to go into a particular specialty, and ultimately feel happy and confident about your final decision. A small daily dose of self-reflection and self-investment goes a long way in preventing burn-out. Medical school is a marathon, not a fifty-yard sprint, and I imagine residency will be the same way, too.

**-Janki Desai, MS2**

## **Anatomy Pop Quiz–ANSWERS**

(from page 21)

1. A patient presents to the emergency department with a hip fracture. Which artery is most likely to be damaged?

**MEDIAL CIRCUMFLEX FEMORAL ARTERY**

2. A patient presents with a winged scapula. Which muscle is most likely affected?

**SERRATUS ANTERIOR**

3. For the patient in question 2, which nerve may be injured?

**LONG THORACIC NERVE**

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