

Duke University: Cheering, Tumbling, and Engineering

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For Zoe Slentz and Sarah DiGabriele, being a part of the Duke University cheer team is less about breaking stereotypes than it is the importance of pursuing your passions amid difficult challenges.

For two students attending Pratt School of Engineering at Duke University, competitive cheer at the school may typecast them, but it also allows them to learn more about breaking the mold and the importance of pursuing what you love both on the field and in the lab.

Facing difficult challenges in the classroom and on the tumbling mats, Zoe Slentz is a member of ASME, a sophomore at Duke studying mechanical engineering with a minor in mathematics, and a member of the Duke cheer team. She joins her teammate and first year student Sarah DiGabriele, who is also studying mechanical engineering.

Big challenges on and off the field

With a season that begins in September and lasts through the end of March, Slentz and DiGabriele practice three times a week and cheer for all the school's football and basketball teams. So they understand how demanding a schedule can be for a Division One athlete who is also studying mechanical engineering.



Zoe Slentz is a member of ASME, a sophomore at Duke University studying mechanical engineering with a minor in mathematics, and a member of the Duke cheer team. Image: Duke University

Slentz, who calls Honolulu, Hawaii home, has been cheering for eight years and tumbling for even longer. She explained that her fondest childhood memories involved her time in the gym. And those good vibes even include the times when she was exhausted and frustrated. So Slentz's decision to continue cheering at Duke makes complete sense. "Because doing the sport I love in some of the biggest arenas of college football and basketball sounded like a dream—and it is," she said.

For DiGabriele cheerleading is her "first true love in life." She began cheering on the sideline right after kindergarten and became competitive in the sport very soon after. So continuing at Duke (because she wasn't ready to give up what brings so much joy to her life) seemed like the natural thing to do. Moreover, she has always viewed herself as a science and math geek.

“As crazy as it sounds, I found myself enjoying physics class over other classes in high school. So, majoring in engineering and being able to experiment with how the world works is really exciting to me.” Slentz agreed and explained that her love of STEM and design has been with her for as long as she can remember. “I wanted to explore mechanical engineering, to foster this passion,” she said.

DiGabriele, a Long Valley, N.J. native, shared that balancing two intense commitments does bring with it pressure, but that such situations are “something my sport has taught me how to handle.” She said that “when my schoolwork feels overwhelming, it is important for me to stay calm and focus on the present—two attributes which are similarly important when performing a cheerleading routine.”

Slentz explained that the discipline and attention to detail that she has learned through cheer “has translated well into my studies.” One detail, for example, is cheer coaches who emphasize the importance of doing something over and over again, “not just until you get it right, but when you can’t get it wrong,” she said. Slentz finds this mind-set useful whenever “I am trying to master any skill or study for a difficult exam.” She offers the National Cheerleaders Association slogan that encapsulates this thinking: “The work is worth it.”

Off and on the field

Engineering has given Slentz insight into the injury recovery process as well. “Last year, I tore my ACL during a practice as I was stunting,” she explained. “On top of pre-existing practices and exams, I also had to juggle a rehab plan along with seeing trainers and a physical therapist.” To measure her progress, she completed strength tests using an isokinetic dynamometer—a machine that measures how much torque a patient’s quad can supply when restricted to move at a fixed degree.

Another test involves Slentz complete drop jumps on a force plate that measures everything from airtime to eccentric and concentric force. “Having a physics background has allowed me to fully grasp what my metrics and graphs mean and how I can improve for the next test,” she said.

Slentz further explained that coaches often comment that those athletes who are the best cheerleaders are those who can mimic certain “shapes” while you are stunting or tumbling. “For example, when your body is tight and in a perfect hollow body shape, you can produce the most momentum up and backwards if you snap down with your toes in front of you as you do a running tumbling pass. The same goes for spinning directly vertical in a stunt so your distribution of weight is completely supported by the people beneath you,” she said.



Sarah DiGabriele studies mechanical engineering at Duke University and is a member of the school's cheer team. Image: Duke University

For DiGabriele the intersection of life and engineering came during her junior year of high school when she realized “engineers have truly created everything around us.” In the cheerleading world specifically, she wonders about the mat designs and how they help cheerleaders increase their tumbling skills. “When learning a brand-new skill, you typically begin on the tumble track—a long trampoline-like surface which propels you quite high—and land in a foam pit or soft mat, which prevents injuries due to an elongated time of the force of landing,” she explained. As cheerleaders begin to get the feeling of a skill and perform it consistently, they move onto the next surface, which decreases in bounciness and takes away the soft landing.

“There are many variations of mats and tools cheerleaders can use to prepare a skill before doing it on the hard cheer mat. Every mat was designed by an engineer and makes learning a new tumbling skill significantly easier,” she said. “The progressions allow for

cheerleaders to try new things without the risk and fear of getting hurt. This has a huge impact on the cheerleading world, as cheerleaders are learning newer and more difficult skills faster and safer.”

Teammate reaction

Although DiGabriele has only been a part of the Duke Cheerleading team for one summer and a month of in-person practice so far, she already feels so loved and supported by her teammates. “This is my first time being alone and away from home for an extended period of time, but they have been there to help me through,” she said.



Zoe Slentz, who calls Honolulu, Hawaii home, has been cheering for eight years and tumbling for even longer. Image: Duke University

DiGabriele added that all of her teammates are “extremely supportive” when they hear she is in Pratt. “Of course we make jokes about the rigorous life of engineers, but at the end of

the day they are and always will be there for me, as they all want to support me in any way they can,” she said.

For Slentz, she is used to being the “most academically focused” member of her team. “When I was in high school... I would often talk about my classes or interests.. and find that most” friends could not relate. But at Duke, many of her teammates are also pursuing challenging majors, with a large number in pre-medicine or pre-law.

“Nonetheless, I still got reactions from them including ‘How do you manage all of that on top of cheer?’ or ‘Wow! That’s crazy, good for you,’” she said. But beyond the surprised, once people know about Slentz’s studies and schedule, “all of my teammates are very supportive and want to see me succeed on and off the mat.”

DiGabriele agreed that most people would be surprised at the number of difficult degrees many Duke cheerleaders pursue, “Many are pre-med, so they always offer advice about classes they have taken in the past and show their willingness to help me if needed,” she said.

Upcoming career

One important part of both engineering and cheer is the importance of working closely with a team and the importance of trust. Said Slentz, “This is especially true for my experience on Duke’s team, as I am continuously communicating and trusting my bases and back spots to make sure my group can progress with stunts.” The skills leader on the Duke team sees these situations translating strongly into her future career.

“I see group work as a possibility to learn from people who think differently, bring different strengths, and depend on me the same way my teammates do,” she explained. “My team is very unique in the sense that everyone is incredibly dedicated to cheer yet has other passions outside.” She added that this situation allows her teammates to empathize and understand her goals, since they also have objectives that are important to them.

She said that networking is important too, friends often introduce others on the same trajectory or those able to help with future opportunities. DiGabriele agreed that engineering opens up so many doors and career paths and truly creates “brilliant thinkers.” She explained, “while it may be challenging now to balance two of my passions, I feel confident that the hard work I put in will pay off later.”

For DiGabriele the extreme respect she has for her teammates shows what it means to be a leader. The skills that I am learning from the upperclassmen I look up to will stick with me forever, especially in my near and far future when I am in their position on the team or in a workplace. Creating a positive environment for a team will lead to a more productive and successful outcome. She said, “Every time I encounter a difficult week leading up to



Sarah DiGabriele, a Long Valley, N.J. native, shared that balancing two intense commitments does bring with it pressure, but that such situations are “something my sport has taught me how to handle.” Image: Duke University
multiple exams, and I feel as if I’m being consumed by studying, I often remind myself of this to push through.”

As for Slentz, she said that the difficulty of the degree will be worth it now since it will eventually lead to having a choice of offers and the ability to pursue different “fields whether it be product design, materials, or aerospace.”

Although being a student-athlete in engineering can be demanding, because “time in college is so valuable,” Slentz decided to take on both and loves the challenge. “I truly believe my purpose is to show up every day to reach my new goals and push myself in some way I haven’t ever before,” she explained.

When she began her studies at Duke, she knew she could do both. I wanted to “pursue engineering and collegiate cheer [for the challenge] and consequently mold me into a stronger, more resilient person and athlete.”

Cathy Cecere is membership content program manager.



Sarah DiGabriele working in the lab. Image: Sarah DiGabriele



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