Literature Brief

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Supporting STEM Student-Athletes at Community College

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Community colleges are uniquely positioned to serve as launchpads for community college students who aspire to excel both in athletics and the classroom,[1] including those pursuing rigorous academic tracks in Science, Technology, Engineering, and Mathematics (STEM). Nearly half of community colleges offer intercollegiate athletics programs, enrolling more than 75,000 student-athletes[2]. While research on community college athletics is relatively limited compared to four-year institutions, some emerging research studies have begun to highlight that student-athletes attend community colleges due to cost, wanting to stay close to home, or not having enough information about preparing for college.[3,4] This literature brief highlights some key issues for colleges that support STEM student-athletes at community colleges.[5,6,7]

Once enrolled in a community college, students often embody a dual identity balancing their academic demands along with their athletic demands.[8,9,10,11] Research suggests that student-athletes may self-select away from STEM majors due to perceived incompatibility between lab schedules and practice times, or because academic advising fails to present STEM as viable for athletes.[12,13] For students who relocate for athletic opportunities (i.e, leaving established support networks in their home communities), the challenge of establishing new peer connections in demanding STEM courses can be particularly acute. This isolation may be compounded when athletic departments and STEM faculty operate in silos, with neither fully understanding the demands the other places on students.[14,15] Given these challenges, support programs commonly found on community college campuses such as S-STEM, TRIO and others maybe be especially important for student athletes pursuing STEM transfer.

Athletics can offer students an opportunity to pursue higher education. According to Mendoza,[16] athletics can be a pivotal factor in whether students choose to enroll in a community college or not attend college altogether. Their study also found that student-athletes tended to earn higher GPAs and persist at greater rates than nonathletes, particularly when balancing athletic eligibility requirements. Yet, athletic demands can clash with the rigor of STEM coursework,

requiring careful balance and institutional support. Coaches, advisors, and faculty play a central role in helping students manage this dual commitment. At four-year institutions, evidence has suggested that when athletic and academic advising are integrated, particularly in fields like STEM, students report greater confidence and are more likely to graduate.[17,18] Unfortunately, many community colleges still struggle with limited resources to offer this level of tailored support.

S-STEM programs are particularly well-positioned to support student-athletes pursuing STEM pathways. These programs typically offer cohort-based learning, peer mentoring, and faculty engagement, which these structures can help athletes navigate the temporal demands of practice schedules and coursework.[19,20] For student-athletes, like those who relocate specifically for athletic opportunities, S-STEM cohorts can provide crucial social integration and academic community that might otherwise be difficult to establish while balancing athletic commitments. The scholarship support inherent in S-STEM grants can also reduce the financial pressure that leads some athletes to over-commit to work hours, allowing them to focus more intentionally on both their sport and their STEM coursework.[21]

To address these gaps, institutions might consider ways that athletics can be a strategic step for students' long-term academic and athletic journey. Early dissemination of information on National Collegiate Athletic Association (NCAA) eligibility, STEM degree pathways, and the transfer process can make a profound difference. Grafnetterova et al.[22] found that two-year community college athletes were "unfamiliar with the athletic recruitment process and requirements needed to transfer to Division I". Highlighting the stories of student-athletes who move into STEM may help broaden how they see themselves, not only as athletes, but also as future scientists, engineers, or technologists. Programs that connect athletics with mentoring and STEM opportunities show promise, though more research is needed to see how these efforts work in practice.

S-STEM programs seeking to better serve student-athletes should consider several evidence-based practices. First, flexible cohort scheduling that acknowledges seasonal athletic demands can reduce the false choice between attending study sessions and fulfilling team obligations. Second, intentional recruitment of student-athletes into S-STEM cohorts (i.e., outreach through athletic departments) is a signal that STEM fields are compatible with athletic identity. Third, peer mentoring that pairs current student-athletes in STEM with incoming athletes can provide both academic guidance and social proof that the dual identity is sustainable. Finally, professional development for S-STEM faculty and staff about NCAA transfer requirements and athletic eligibility can ensure that academic advising reinforces rather than conflicts with athletic goals. The case of students who relocate specifically for athletic opportunities underscores the

importance of these supports; these students sacrifice existing community ties for athletic advancement and may be particularly vulnerable to isolation if their academic program doesn't intentionally integrate them into the scholarly community.

As STEM research continues to grow, community college student-athletes represent a promising yet frequently overlooked population. Their experiences navigating competitive sports while pursuing STEM degrees highlight resilience, time management, and a deep sense of purpose, all characteristics that aim to enhance success in the next phase of their academic and professional lives. To further understand these students, it is crucial to continue to conduct research with them and track their experiences to better serve and support their journey. Institutions committed to equity and student success should prioritize investment in structures that recognize and elevate these dual commitments.

Additional resources, like the UCR Center for Athletes' Rights and Equity, offer support and guidance for colleges seeking to enhance opportunities for this dynamic student population.

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