Table 1. Fit statistics determined by Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Root Me

| ASBQ items | **Factor loading (in elite athletes)[2]** | **Factor loading (collegiate athletes)N=407** | **In season collegiate athletesN=212** | **Out of season collegiate athletesN=195** |
|---|---|---|---|---|
| *Factor 1: Routine/Environment* | | | | |
| Q1. I take afternoon naps lasting two or more hours | 0.52 | 0.37 | 0.47 | 0.26 |
| Q5. I go to bed at different times each night (more than ± 1 hour variation) | 0.45 | 0.65 | 0.65 | 0.63 |
| Q15. I get up at different times each morning (more than ±1 hour variation) | 0.48 | 0.60 | 0.53 | 0.67 |
| Q16. At home, I sleep in a less than ideal environment (e.g. too light, too noisy, uncomfortable bed/pillow, too hot/cold) | 0.51 | 0.45 | 0.47 | 0.43 |
| Q17. I sleep in foreign environments (e.g. hotel rooms) | 0.43 | 0.53 | 0.49 | 0.56 |
| Q18. Travel gets in the way of building a consistent sleep-wake routine | 0.55 | 0.51 | 0.48 | 0.54 |
| *Factor 2: Behavior* | | | | |
| Q2. I use stimulants when I train/compete (e.g. caffeine) | 0.58 | 0.57 | 0.55 | 0.58 |
| Q4. I consume alcohol within 4 hours of going to bed | 0.48 | 0.43 | 0.44 | 0.43 |
| Q8. I use light-emitting technology in the hour leading up to bedtime (e.g. laptop, phone, television, video games) | 0.47 | 0.65 | 0.60 | 0.68 |
| Q10. I think, plan and worry about issues not related to my sport when I am in bed | 0.61 | 0.66 | 0.66 | 0.65 |
| Q11. I use sleeping pills/tablets to help me sleep | 0.56 | 0.40 | 0.41 | 0.40 |
| Q12. I wake to go to the bathroom more than once per night | 0.56 | 0.47 | 0.54 | 0.40 |
| Q13. I wake myself and/or my bed partner with my snoring | 0.48 | 0.37 | 0.40 | 0.36 |
| *Factor 3: Sport-related* | | | | |
| Q3. I exercise (train or compete late at night (after 7pm) | 0.49 | 0.52 | 0.61 | 0.40 |
| Q6. I go to bed feeling thirsty | 0.57 | 0.60 | 0.54 | 0.67 |
| Q7. I go to bed with sore muscles | 0.45 | 0.60 | 0.54 | 0.66 |
| Q9. I think, plan and worry about my sporting performance when I am in bed | 0.53 | 0.60 | 0.63 | 0.57 |
| Q14. I wake myself and/or my bed partner with my muscle twitching | 0.45 | 0.46 | 0.44 | 0.48 |

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### Adolescent Girls' Experiences With Sport Participation And Intentions For Future Physical Activity: A Qualitative Analysis

Casey S. Hopkins[1], Chris Hopkins[2]. [1]*Clemson University, Clemson, SC.* [2]*Furman University, Greenville, SC.* (Sponsor: Anthony Caterisano, FACSM)

**PURPOSE:** Despite the health-enhancing benefits of physical activity gained through sports participation, adolescent girls are at a greater risk of dropping out of sports at an earlier age than their male peers. It is important to understand what factors contribute to the high sport dropout rate for girls and how those factors may influence engagement in future physical activity. Our goal was to explore girls' experiences with sports to expound the relationships between factors contributing to continued sport participation or drop out and their intentions for future physical activity.
**METHODS:** Using a descriptive phenomenological approach, semi-structured telephone interviews were conducted with middle and high school girls in South Carolina who had participated in at least one season of sport. Girls were asked about their past experiences and future intentions. Responses were transcribed verbatim, coded, and analyzed for emergent themes using Saldaña's (2021) qualitative analytic methods.
**RESULTS:** Sixteen girls with a mean age of 15.3 (11-18) years were interviewed individually. The majority of girls were introduced to sports in early childhood. All were currently playing a sport. Our analysis revealed two main themes with regard to continuation in sports and future intentions: resilience and identity. Within these two themes, subthemes of parental influence, personal enjoyment, and peer/coach relationships emerged. Despite negative experiences and challenges that disrupted sport participation, girls described their overall experiences with sports as positive. They continued to play and intended to stay active into adulthood. Intentions were attributed to strong athletic identity.
**CONCLUSIONS:** While none of the participants in this qualitative study had dropped out of sports, the findings add to the understanding of adolescent girls' experiences with sport participation and their intentions for future activity by elucidating factors associated with positive outcomes. Resiliency among the participants was associated with strong support systems from parents, coaches, and peers. Early and continued encouragement of athletic identity along with social support to facilitate resiliency are important in promoting continued sports participation among adolescent girls.

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### Competition Stress Prolongs Exercise Recovery In Collegiate Soccer Players

Ryann L. Martinez, Nathaniel J. Holmgren, Alex F. Roque, Peter Wang, Courtney D. Jensen. *University of the Pacific, Stockton, CA.*

Athlete conditioning is vital to success in collegiate soccer. Effective conditioning programs incorporate adequate rest between exercise sessions. The duration of an athlete's recovery may be sensitive to variables beyond training load, including emotional and psychological factors.
**PURPOSE:** To determine the effect of competition stress on recovery time in female collegiate soccer players.
**METHODS:** We monitored 30 Division 1 female soccer players for 35 consecutive days. All athletes wore Polar Team Pro devices (Polar Electro Inc., Bethpage, NY), which recorded duration of exercise, total distance covered, kcals burned, number of sprints performed, average and maximum speed achieved, average and maximum heart rate (HR), and Polar calculations of training load, cardio load, and recovery duration in hours. Data were captured for 20 practices and 7 games, resulting in 858 observations. Linear regression tested the effect of formal competition on recovery duration holding constant time of day and all significant workload variables.

**RESULTS:** Players were 20.1 ± 1.1 years of age. Across all practice and competition sessions, the mean duration of exercise was 59.0 ± 38.8 min, total distance covered was 2,518.9 ± 2,074.5 m, and estimated energy consumption was 381.7 ± 284.8 kcals. Athletes performed 5.9 ± 7.9 sprints per session, maintained an average speed of 2.8 ± 1.2 km/h, and achieved a maximum speed of 20.7 ± 7.3 km/h. Average HR was 131.9 ± 24.3 bpm, maximum HR was 177.4 ± 32.7 bpm, training load was 70.1 ± 59.3, and cardio load was 76.0 ± 62.2. Recovery duration was 12.8 ± 15.7 hr following practice sessions and 51.3 ± 59.6 hr following competitions ($p < 0.001$). Holding constant all significant predictors (time of day, exercise duration, total distance covered, estimated kcals, number of sprints, average speed, average HR, training load, and cardio load), formal competition corresponded to 33.8 additional hours of recovery ($p < 0.001$; 95% CI of $\beta$ = 27.7 to 39.9; model $r^2 = 0.691$; adjusted $r^2 = 0.687$).
**CONCLUSION:** Sufficient recovery is a crucial component of optimal performance in collegiate athletics. Our data indicate prolonged recovery duration following formal competition settings, which could not be explained by workload. Further research on psychological contribution to allostatic load is warranted.

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### Journeys And Best-kept Secrets Of Female University Of Illinois Track Student Paralympian

Sofia M. Sanchez-Plesha, Huaijin Xu, Xiong Qin, Joseph Peters, Adam W. Bleakney, Weimo Zhu, FACSM. *University of Illinois at Urbana-Champaign, Champaign, IL.* (Sponsor: Weimo Zhu, FACSM)

**PURPOSE:** The purpose of this study was to examine the driving forces that contributed to the successes of track student Paralympian at the University of Illinois (UI) and how the sport has influenced their lives.
**METHODS:** In-depth interviews were conducted with 5 of 14 2021 Tokyo Paralympic wheelchair track athletes (referred to as A1-5, with three athletes winning gold and bronze medals), along with their assistant coach, on factors that contributed to their successes. The interviews were qualitatively analyzed.
**RESULTS:** Four success secrets emerged from the interviews: 1. They started participating in wheelchair sports at a community or school with a purpose of improving health, "...there could be more awareness... just go to the junior nationals and see the younger athletes" (A2) indicating the importance to promote sports among individuals with disabilities. 2. All but one had family support, "They were not supportive of me originally...because...they didn't understand" (A1), indicating the importance to help build family support, both emotionally and financially. 3. Sport participation raising their intrinsic drive, is the key, "outside influences don't matter if that's what you want" (A1), "it was fun to me, and I enjoyed it" (A2), "...my goal is to be an...advocate for the sport [which has] changed my life with self-confidence..." (A3), and A4 validated the benefits of racing, explaining it gave her a "drive to push [herself]...". 4. Full confidence with their coach and the UI track program is notable "He is the best coach in the world" (A5). The assistant coach specifies the head coach is unique because "he is reading...textbooks...pushing the envelope of sports science".
**CONCLUSION:** A community-based program introduced these Paralympian to the sport, but their success was also attributed to their passion, unmatched perseverance, and training, which is demonstrated in their qualification and performance at the Tokyo 2020 Paralympics.

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### Applying Theory Of Planned Behavior To Examine Adolescent Female Athletes' Intentions Of Continued Sport Participation

Chris Hopkins[1], Casey S. Hopkins[2]. *[1]Furman University, Greenville, SC. [2]Clemson University, Clemson, SC.* (Sponsor: Anthony Caterisano, FACSM)

Organized sports provide a valuable means for adolescents to achieve physical activity, develop physical literacy, and establish social connections with peers. Unfortunately, female adolescents discontinue sports more often and achieve less physical activity than their male peers. Considering this problem, it is important to examine factors that inform female adolescents' intentions to continue participating in sports and remain physically active. The Theory of Planned Behavior (TPB) provides a framework to study a person's intentions through their attitude, subjective norms, and perceived behavioral control.
**PURPOSE:** Apply constructs of the Theory of Planned Behavior to examine female adolescents' intentions to continue participating in sports and remain physically active.
**METHODS:** Two-hundred and seventy-one adolescent females completed a questionnaire aiming to capture their attitude and perceptions regarding sports participation. Confirmatory factor analyses were used to develop latent variables for attitude, subjective norms, and perceived behavioral control. Structural equation modeling was used to test TPB's ability to predict participants' intentions of future sports participation and physical activity. The two outcomes of interest were participants' intentions to participate in sports and be physically active in one year.
**RESULTS:** Overall, the findings align with the constructs of TPB. A modified TPB model controlling for participant age and socioeconomic status provided acceptable fit for each of the outcomes. Participants' intention of participating in sports next year was predicted by attitude (β: 86.7, 95% CI: 60.2 to 113, $p<0.01$), subjective norm (β: 30.2, 95% CI: 6.50 to 53.9, $p=0.01$), and age (β: -4.80, 95% CI: -6.63 to -2.98, $p<0.01$). Intention to engage in regular physical activity in one year was predicted by attitude (β: 30.4, 95% CI: 7.55 to 53.2, $p<0.01$), subjective norm (β: 26.4, 95% CI: 5.88 to 46.9, $p=0.01$), and perceived behavioral control (β: 27.4, 95% CI: 11.6 to 43.2, $p<0.01$).
**CONCLUSIONS:** Female adolescents' sports participation and physical activity can be partially predicted by constructs of TPB. Specifically, their enjoyment of sports, family support, and peer acceptance are important factors influencing their intentions of continued sports participation.

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## B-27 Occupational Physiology: Firefighters and Police

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### The Impact Of Leg Asymmetry On Stair Climb Performance In Career Firefighters

Gena R. Gerstner[1], Megan R. Laffan[2], Abbie J. Trivisonno[2], Jacob A. Mota[3], Hayden K. Giuliani-Dewig[2], Adam V. Coleman[2], Eric D. Ryan, FACSM[2]. *[1]Old Dominion University, Norfolk, VA. [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. [3]University of Alabama, Tuscaloosa, AL.* (Sponsor: Eric D. Ryan, FACSM)

Limb-specific regional tissue distribution can be determined using segmental body composition analyses to indicate between limb asymmetries. It is unclear how leg muscle imbalance, as measured by fat free mass, may contribute to performance on job-related tasks.
**PURPOSE**: The purpose of this study was to examine the relationship between leg fat free mass asymmetry (FFMA) and stair climb performance (SCP) in career firefighters.
**METHODS:** Forty-one firefighters [age: 32.3±8.2 years (20-50); stature: 178.3±7.9 cm (159.2-194.6); mass: 92.3±18.7 kg (65.1-133.2); %BF: 24.1±7.9% (9.9-39.4)] volunteered for this investigation. All participants were free of any neuromuscular, cardiovascular, or metabolic diseases, and were instructed to refrain from caffeine and smokeless tobacco for 12 hours, and vigorous lower body exercise for 48 hours. Following an 8 hour fast, %BF and leg FFM was assessed by a daily calibrated dual-energy x-ray absorptiometry. Participants were fitted with a weighted vest (22.73 kg) to simulate the load of their personal protective equipment and self-contained breathing apparatus. Performance was measured as time to completion (s) of stair assent and decent of 26 stairs (20 cm stair height) four times as fast as possible (104 total stairs). Leg FFMA was defined as ±3% difference between leg fat free mass as a cutoff point. A point biserial correlation between FFMA and SCP was performed. In addition, the relationship between FFMA and SCP, while controlling for age and %BF, was assessed. An alpha level was set *a priori* at 0.05.
**RESULTS:** The point biserial correlation demonstrated that FFMA was significantly associated with SCP ($r$=0.519, $P$<0.001). Due to the large range in age and %BF, a follow-up partial correlation analysis controlling for these variables was performed and indicated a similar relationship between FFMA and SCP ($r$=0.561, $P$<0.001).
**CONCLUSIONS**: These findings suggest that the presence of leg FFMA is related to poorer performance on the stair climb assessment with and without accounting for age and %BF. While age is non-modifiable, maintaining good body composition (i.e., %BF and muscle symmetry) as a firefighter may help preserve performance on fire-related tasks. Strategies to improve body composition may impact SCP in firefighters.