

Establishing Strength and Conditioning Assessments at Colby-Sawyer College

Raymond J. Humphreys

MSES590

Colby-Sawyer College: Department of Nursing and Health Science

April 28, 2026

TABLE OF CONTENTS

<i>Abstract</i>	<i>3</i>
<i>Introduction</i>	<i>3</i>
<i>Data Summary</i>	<i>4</i>
<i>Literature Review.....</i>	<i>5</i>
<i>Proposed Baseline Assessment.....</i>	<i>7</i>
<i>Proposed Testing Battery.....</i>	<i>8</i>
<i>Proposed First Year Program</i>	<i>9</i>
<i>Proposed First Year Program Layout.....</i>	<i>10</i>
<i>Proposed Rational and Implementation</i>	<i>12</i>
<i>Proposed Weekly Layout</i>	<i>12</i>
<i>Conclusion</i>	<i>13</i>
<i>References.....</i>	<i>14</i>

ABSTRACT

Colby-Sawyer Athletics provides a unique opportunity for student athletes who want to pursue both academic learning at a small college with competitive athletic teams competing at the Division III level. Colby-Sawyer College in New London, New Hampshire has a student body of roughly 1,000 students offering a supportive environment both academically and athletically. The last couple of years has seen an advancement in athletic facility updates, which includes a new Varsity Weight Room (VWR). This addition to the athletic program helps to provide strength and conditioning coaching and a designated spot for varsity athletes to train. Through coach and stakeholder interviews and an athlete survey there are multiple points of improvements that can be made within the Colby-Sawyer Athletics program; (a) staffing increase within the strength and conditioning department (b) nutritional education (c) increase in athlete education and personal skill development (d) reducing injury and burnout (e) integration and collaboration of athletic departments (AT Staff, S&C Staff, Coaching Staff).

INTRODUCTION

A centralized research question was developed through an analysis of current research and exploration into Colby-Sawyers Athletic Department, a Division III Liberal Arts College in central New Hampshire. How can the practice of using strength & conditioning pre-assessment data be improved at Colby-Sawyer College? The problem is that there is a lack of a pre-assessment process data that could be used to in the strength and conditioning programming. The purpose of this study is to evaluate, build, and propose a comprehensive pre-assessment program to implement into the strength and conditioning program at Colby-Sawyer College.

DATA SUMMARY

To examine the problem statement of a lack of a pre-assessment process data that could be used to in the strength and conditioning programming, I conducted interviews of stakeholders at Colby-Sawyer College, a survey of current Colby-Sawyer College athletes, and a literature review of data within strength and conditioning research. The goal was to examine the crossovers between stakeholders, athletes, and current research with the goal to develop a plan to address gaps in Colby-Sawyer's evolving Strength and Conditioning Department.

I interviewed three stakeholders at Colby-Sawyer, Athletic Director Jen McKillop, Baseball Head Coach Tom White, and Exercise Science Professor T.J. Smith. I transcribed these interviews and found overlapping and repeating themes within each interview, (i) a lack of education for both athletes and coaches, this being in nutrition, training philosophy, long term development, and recovery habits, (ii) additional staff members to increase year after year momentum, currently the school relies on fellowship students, and (iii) a disconnect between the Strength and Conditioning Department and Athletic Training. My interview with T.J. Smith highlighted an idea that T.J. saw within high level strength and conditioning programs and that was the utilization of first year programs.

A survey was sent out to the athletes at Colby-Sawyer College and a total of 67 responses were recorded to a 1-5 scale highlighting different parts within the Colby-Sawyer Athletic Program. The survey highlighted area within the Colby-Sawyer Athletic Department that athletes either strongly agreed with or strongly disagreed with, lower numbers indicated a lack of agreeance with athletes on campus. The categories that athletes didn't believe met their expectations were Nutrition, Recovery Education and Facilities. The two highest areas of athlete satisfaction were Communication with their Strength Coach and Support from their Strength Coach. This indicated

that the staff within the department had strong communication and interpersonal skills, but athletes were seeking more information on nutrition, recovery and more.

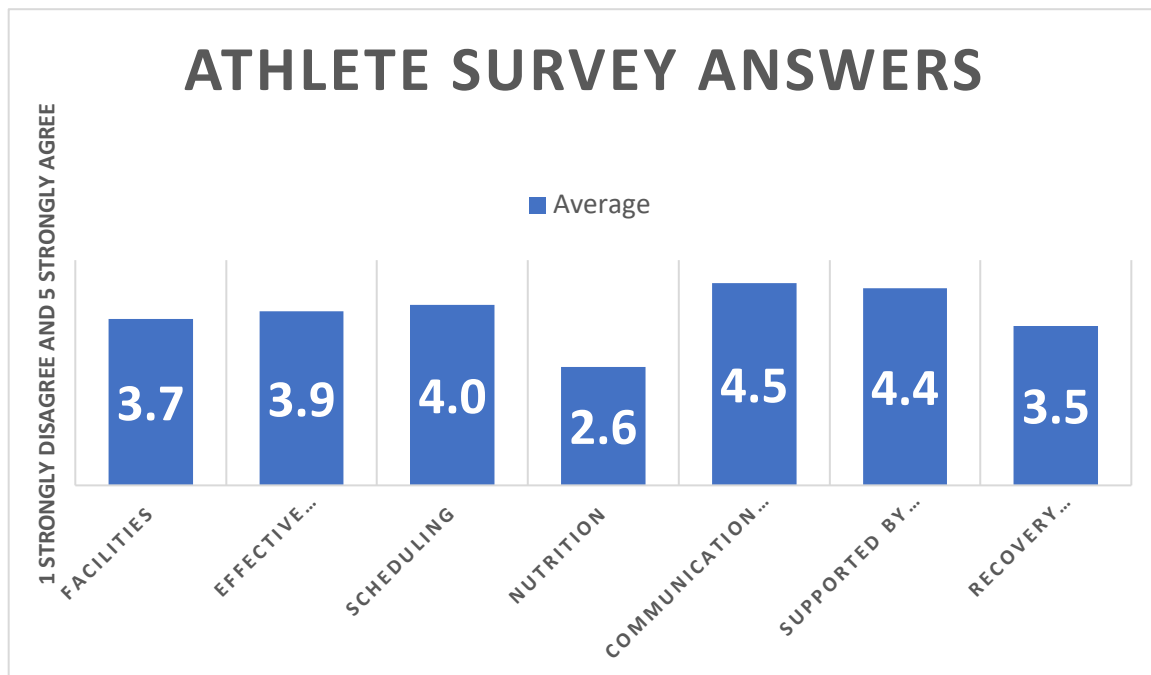


Figure 1-Athlete Survey

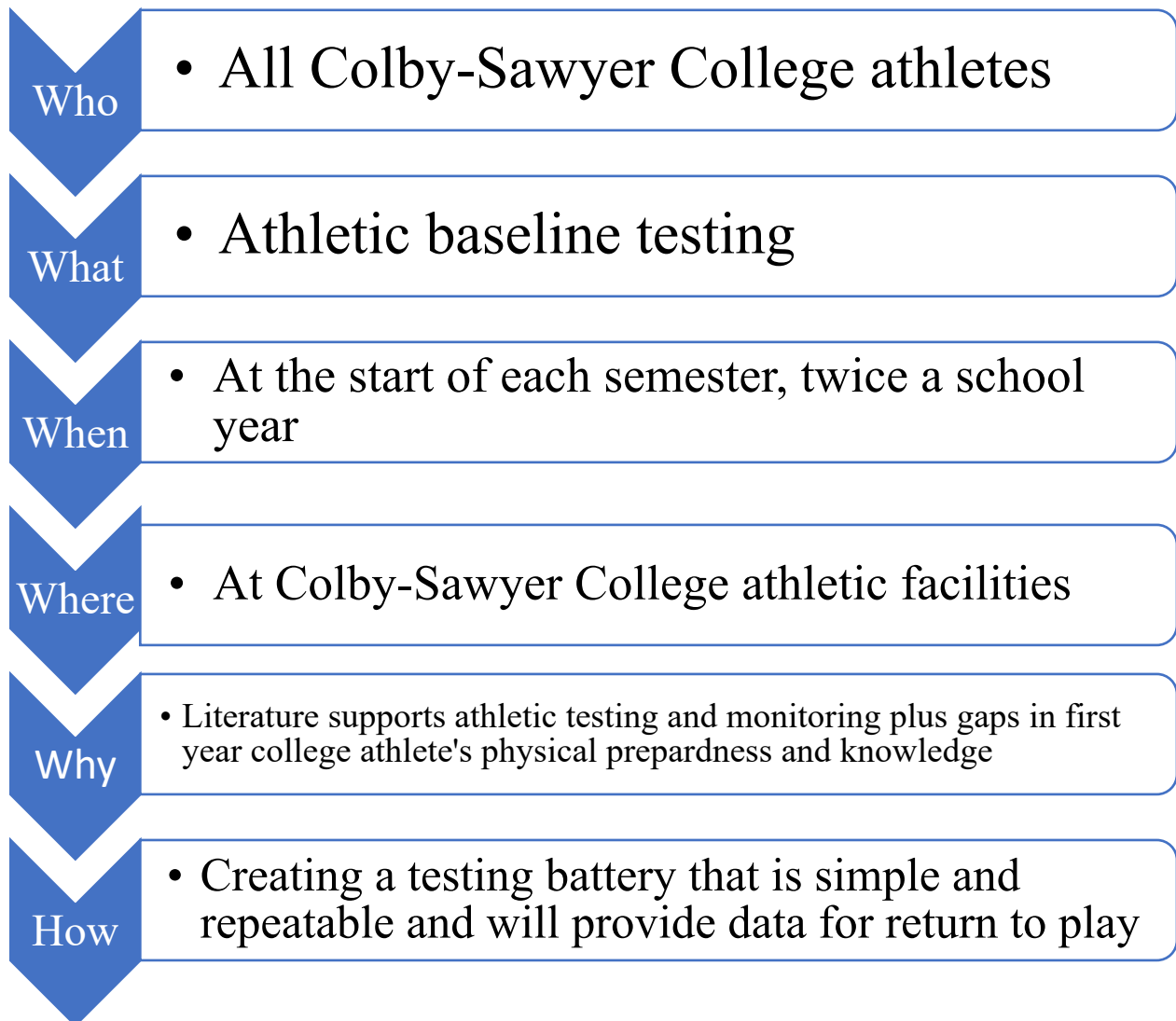
LITERATURE REVIEW

I focused on literature surrounding athletic performance metrics, return to sport (RTS) data, athlete monitoring and data on the effectiveness of strength and conditioning programs on injury prevention and physical preparedness. The review was wide and touched on many areas and I will highlight a few key areas that will become the backbone of the proposal. (a) the use of strength and conditioning metrics and assessments help facilitate better decisions around return to sport (Erickson et al, 2019. Kotsifaki et al, 2023. Magill et al, 2021). (b) athletic metrics are correlated to better performance in sport (Jarvis et al, 2021. Reiter et al, 2023. Vial et al, 2025). (c) Division I college athletes saw their biggest improvements in year one of their college career (Stodden & Galitski, 2010) and a survey of collegiate Division I strength and conditioning coaches believe first year athletes coming from high school lacked lower extremity strength, overall flexibility,

core strength, Olympic lifting technique and proper knowledge on nutrition and recovery principals (Wade et al, 2014).

These standout points of research highlight the need for strength and conditioning assessments, the integration into return to sport protocols, and the gap between athlete physical and mental preparedness from high school to year one college athletics. My proposal will be a plan to integrate a physical testing battery to all Colby-Sawyer Athletes along with a dedicated first year program to help educate first year athletes on proper training, lifting technique and safety plus educate on nutrition and recovery principals.

PROPOSED BASELINE ASSESSMENT



Baseline testing will be completed every year for all Colby-Sawyer Athletes at the start of each semester. This will allow two tests a year and gather data at different times within the athlete's timeline within their competition and off-season. Baseline testing helps to build a consistent assessment across the Colby-Sawyer Strength and Conditioning Department and the data collected can be utilized for (I) year after year assessment of programming and periodized planning, (II) return to play benchmarks, (III) individual feedback on strength and weaknesses to athletes, (IV) screening for movement weak links and potential injury red flags (V) screening for performance

gaps and weaknesses. Creating a universal baseline of movement and physical testing will elevate the whole athletic program at Colby-Sawyer College through first year athlete physical and mental preparedness, education, and wellbeing.

PROPOSED TESTING BATTERY

Movement Examination

- FMS Screening - [FMS Protocol](#)

Power Examination

- Broad Jump - [Broad Jump Protocol](#)
- Vertical Jump - [Vertical Jump Protocol](#)

Speed Examination

- 20m Sprint - [20 Meter Sprint Protocol](#)

Change of Direction Examination

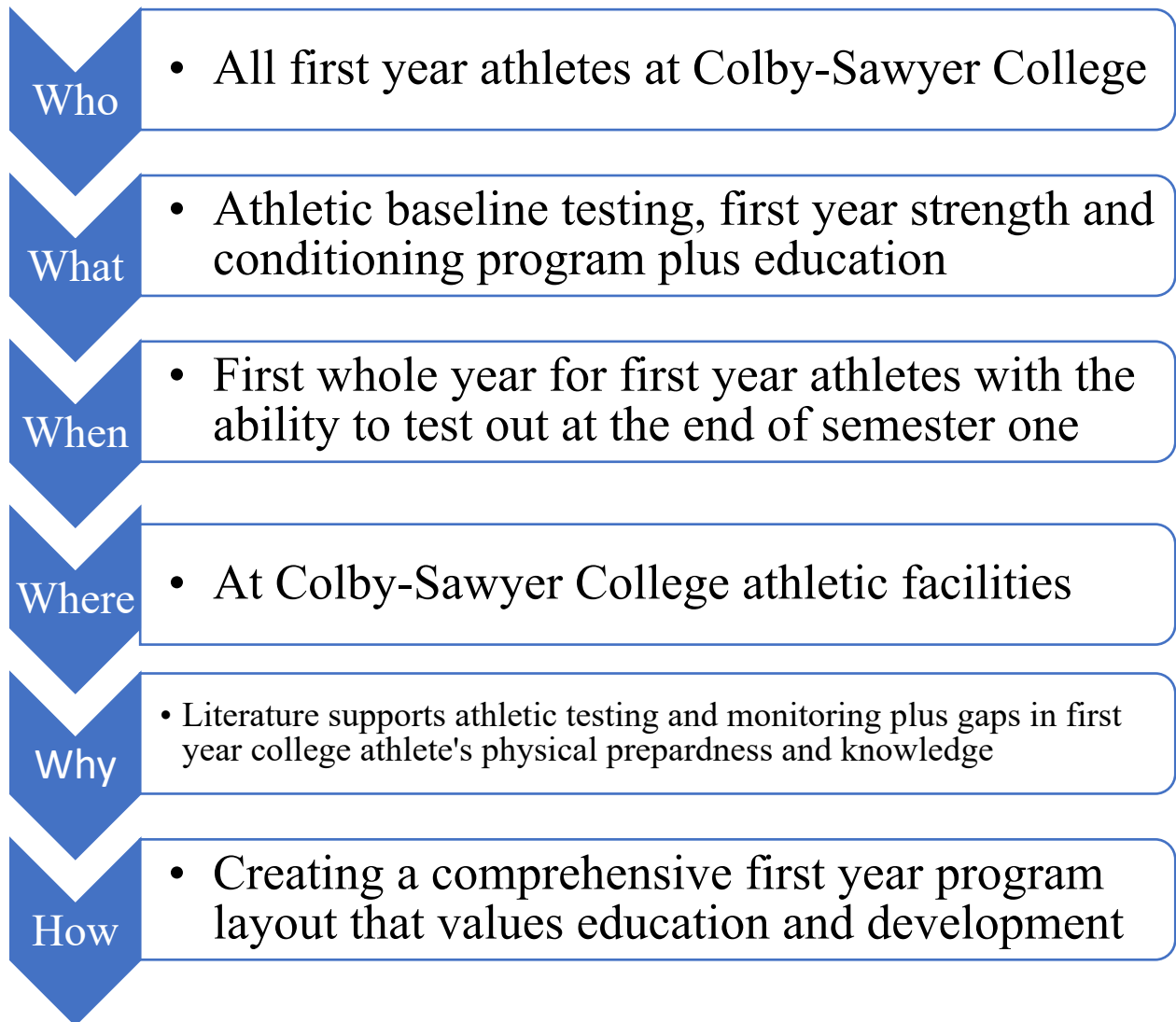
- 5-10-5 - [5-10-5 Agility Protocol](#)
- T-test - [T-Test Protocol](#)

Conditioning Examination

- 300-yard shuttle run test (everyone) - [300 Yard Shuttle Run Protocol](#)
- Beep test (aerobic athletes) - [Beep Test Protocol](#)

Each test should be followed thoroughly to the testing protocol. The testing battery will start with a proper warm up consisting of jogging, dynamic stretching and a progressive skipping, jumping, and sprinting protocol. Each test has a its own warm up or practice protocol that must be followed along with adequate rest time for maximum results. Each test will be recorded and compiled into a database that the Strength and Conditioning Department and Athletic Training Department will be able to review and use for athlete health and wellbeing.

PROPOSED FIRST YEAR PROGRAM



A proposed First Year Program at Colby-Sawyer will help provide steady learning and development to young athletes that are coming into the school. The program will value education above all and lay the foundation that will provide skills to young athletes to navigate the high stress demands of college athletics. The First Year Program will take the time to teach athletes why they train, how the train, and how to take care of themselves.

PROPOSED FIRST YEAR PROGRAM LAYOUT

Fall Semester

Week	Training	Education
Week 1	Testing	Onboarding
Week 2	Review testing and talk about first year program (deload)	Nutrition Talk with Sodexo Nutritionist
Week 3	Hip and knee dom. patterns	Stress and burnout
Week 4	Pull and push patterns	Sleep and recovery
Week 5	Rotation and anti-rotation	Hydration
Week 6	Olympic lifts and med balls	Pre-competition nutrition
Week 7	None - Midterm Break	None - Midterm Break
Week 8	Plyometric and landing	Training principals
Week 9	Sprint mechanics	Adaptation recovery cycle
Week 10	Acceleration and deceleration	Mental performance
Week 11	Change of direction	Overtraining syndrome
Week 12	None - Thanksgiving	None - Thanksgiving
Week 13	Olympic lifting review	Annual plans
Week 14	Movement testing (test out)	Education Review
Week 15	None - Finals Week	None - Finals Week

Spring Semester

Week	Training	Education
Week 1	Testing	Onboarding
Week 2	Review testing and talk about first year program (deload)	Nutrition Talk with Sodexo Nutritionist
Week 3	Hip and knee dom. patterns	Stress and burnout
Week 4	Pull and push patterns	Sleep and recovery
Week 5	Rotation and anti-rotation	Hydration
Week 6	Olympic lifts and med balls	Pre-competition nutrition
Week 7	Plyometric and landing	Training principals
Week 8	Sprint mechanics	Adaptation recovery cycle
Week 9	None – Spring Break	None - Spring Break
Week 10	Acceleration and deceleration	Mental performance
Week 11	Change of direction	Overtraining syndrome
Week 12	Olympic lifting review	Annual plans
Week 13	Movement testing review	Education Review
Week 14	None	None
Week 15	None - Finals Week	None - Finals Week

PROPOSED RATIONAL AND IMPLEMENTATION

The fall and spring semester layouts are above and are identical in content layout. This is because half the athletes at Colby-Sawyer will not be able to train three times a week in the fall due to their in-season competitions. Fall sport athletes will not have time with their game schedule and travel to train in the weight room three times a week. Fall sport athletes would start the whole First Year Program in the second semester. Spring sport athletes will start right away in the fall and obtain the full program before they enter their competition season. At the end of each semester is a Movement Testing Review and Education Review where the strength coaches will test the first-year athletes on skills and education within the program. This will give the coaches an opportunity to see how much information is retained by the athletes as well as a benchmark for first year athletes to meet before returning to their full team training.

The implementation of this plan will come down to the long-term staff at Colby-Sawyer taking ownership of the proposed program and creating a culture where first year athletes are set to a standard of learning and developing. This will require buy-in from the whole Athletic Department. Outside resources will be used to increase the athlete education such as Sodexo nutritionist, mental performance coaches, Colby-Sawyer professors, and the expertise of the Strength and Conditioning Department.

PROPOSED WEEKLY LAYOUT

	Monday	Wednesday	Friday
Education	10 minutes	10 minutes	10 minutes
Training	45 minutes	45 minutes	45 minutes
Cooldown / Debrief	5 minutes	5 minutes	5 minutes
Total Time	60 minutes	60 minutes	60 minutes

Each week the First Year Program will have a total of 180 minutes of structured weight room time a week and within those 180 minutes: 30 minutes of education time, 135 minutes of training and workshopping skills, and 15 minutes of cool down and debrief time. This will allow adequate time for the first-year athletes to train in the weight room with their strength coach and get valuable information about training, nutrition, recovery, stress, burnout, and long-term development.

CONCLUSION

An increase in pre-assessment strength and conditioning data through twice yearly physical testing will help alleviate the issues around reducing injury and integration and collaboration of Athletic Training and Strength and Conditioning Departments. The creation of a First Year Strength and Conditioning program will provide an increase in nutritional education, athlete education, personal skill development, reduce burnout, and help facilitate healthy long-term development of Colby-Sawyer Athletes. The proposed plan tackles the problem of a lack of a pre-assessment process data that could be used to in the strength and conditioning programming while addressing the need for increased athlete education and skills.

REFERENCES

- Erickson J. B., Chalmers N. P., D'Angelo J., Ma K., & Romeo A. A. (2019). Performance and Return to Sport After Latissimus Dorsi and Teres Major Tears Among Professional Baseball Pitchers. *The American Journal of Sports Medicine*. 47(5):1090-1095. doi: 10.1177/0363546519829086
- Jarvis P., Turner A., Read P., & Bishop C. (2021). Reactive Strength Index and its Associations with Measures of Physical and Sports Performance: A Systematic Review with Meta-Analysis. *Sports Medicine*. 52(2) 301-330. doi: 10.1007/s40279-021-01566-y.
- Kotsifaki R., Sideris V., King E., Bahr R., & Whiteley R. (2023). Performance and symmetry measures during vertical jump testing at return to sport after ACL reconstruction. *British Journal of Sports Medicine*. 57(20):1304-1310. doi: 10.1136/bjsports-2022-106588.
- Magill R. J., Myers S. H., Lentz A. T., Pietrosimone L., Risoli T., Green L. C., Reinke K. E, Messer R. M., & Riboh C. J. (2021). Establishing Age- and Sex-Specific Norms for Pediatric Return-to-Sports Physical Performance Testing. *Orthopaedic Journal of Sports Medicine*. 9(8):23259671211023101. doi: 10.1177/23259671211023101.
- Reiter R. C., Killelea C., Faherty S. M., Zerega J. R., Westwood C., & Sell C. T. (2023). Force-plate derived predictors of lateral jump performance in NCAA Division-I men's basketball players. *PLOS One*. 18(4) doi: 10.1371/journal.pone.0284883.
- Stodden F. D., & Galitski M. H. (2010). Longitudinal effects of a collegiate strength and conditioning program in American football. *Journal of Strength and Conditioning Research*. 24(9):2300-8. doi: 10.1519/JSC.0b013e3181dc4255.
- Vial S., Scanlan M., Beranek P., Kadlec D., Barley R. O., & Wilkie J. C. (2025). How Strong Is Strong Enough? Assessing When Physical Performance Tests Cease to Be Predictive of

Sprint Performance in Trained Football Players. *Journal of Strength and Conditioning Research*. 39(10) 1195-1201. Doi: 10.1519/JSC.0000000000005185.

Wade M. S., Pope C. Z., & Simonson R. S., (2014). How prepared are college freshmen athletes for the rigors of college strength and conditioning? A survey of college strength and conditioning coaches. *Journal of Strength and Conditioning Research*. 28(10):2746-53. doi: 10.1519/JSC.0000000000000473.