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Internships provide critical learning environments for synthesizing all of the competencies needed to become an effective and confident strength and conditioning professional. Recognizing the importance of internships in education, strength and conditioning (S&C) accreditation requirements have mandated a minimum of 300 hours of internship experience to graduate with an undergraduate degree with an S&C focus. However, guidance on what competencies should be gained through the internship experiences was not provided. Therefore, this project identified the professional competencies a student intern should have after a 300-hour internship experience. Using a three-phase modified Delphi method, an expert panel of 38 strength and conditioning professionals refined a list of professional competencies within the categories of exercises technique, program design, organization and administration, and testing and monitoring; these competencies originated from the applied section of the job task analysis used to create the Certified Strength and Conditioning Specialist (CSCS) exam. The expert panel rated each of the 28 primary competencies and 73 sub-competencies using a five-point Likert scale ranging from Definitely Not Important to Definitely Important. A minimum of 75% of the panel rating the primary and sub-competency as Important or Definitely Important was required to maintain a competency on the final list. The expert panel's final list contained 19 of 28 primary competencies and 52 of 73 sub-competencies. The results may provide an internship competency roadmap for preceptors/mentors, student interns, and university internship coordinators to improve the quality of strength and conditioning internships. Suggested future research is to conduct this project on a larger scale to help accreditation institutions create competency standards for higher education institutions.

COACH READINESS: STRENGTH AND CONDITIONING COMPETENCIES
DEVELOPED THROUGH FIELD EXPERIENCES

by

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TABLE OF CONTENTS

LIST OF TABLES	v
CHAPTER I: PROJECT OVERVIEW	1
Background Literature.....	1
Purpose and Aims.....	5
Methods	5
Expert Coach Defined	5
Expert Coach Recruitment	6
Expert Coach Demographics	7
Pilot Study Procedures and Recruitment.....	7
Strength and Conditioning Competencies.....	8
Phase One Questionnaire.....	8
Determining Consensus.....	9
Phase Two Questionnaire	9
Phase three Questionnaire	10
Results	10
Exercise Technique	12
Program Design	15
Organization and Administration	17
Testing, Monitoring, and Data Evaluation	18
Primary Competencies that Did Not Reach Consensus	20
Limitations	22
Discussion	23
Preceptor.....	23
Intern.....	24
University Field Experience Coordinators	24
Future Directions.....	25
CHAPTER II: DISSEMINATION	26

Slides 1-2.....	26
Slides 3.....	26
Slides 4-6.....	27
Slides 7.....	27
Slides 8.....	28
Slides 9.....	28
Slides 10.....	28
Slide 11.....	28
Slides 12-16.....	29
Slides 17 – 20.....	30
Slides 21-23.....	30
CHAPTER III: ACTION PLAN.....	31
Short Term Actions	31
Long Term Actions	32
REFERENCES	33
APPENDIX A: EXPERT PANELIST DEMOGRAPHICS	37
APPENDIX B: INVITATION EMAIL	41
APPENDIX C: PHASE I QUESTIONNAIRE.....	42
APPENDIX D: PHASE I RESULTS	73
APPENDIX E: PHASE II QUESTIONNAIRE.....	77
APPENDIX F: PHASE II RESULTS.....	99
APPENDIX G: PHASE III QUESTIONNAIRE.....	108
APPENDIX H: PHASE III RESULTS.....	114
APPENDIX I: DISSEMINATION ABSTRACTS.....	116
APPENDIX J: DISSEMINATION pRESENTATION	118

LIST OF TABLES

Table 1. Exercise Technique Competencies	10
Table 2. Program Design Competencies.....	13
Table 3. Organization and Administration Competencies	17
Table 4. Testing, Monitoring, and Data Evaluation Competencies	17
Table 5. Primary Competencies That Did Not Receive Consensus.....	19
Table 6. Expert Panelist Demographics.....	37
Table 7D. Phase I Results (Primary Competencies).....	73
Table 8F. Phase II Results (Sub-Competencies).....	99
Table 9H. Phase III Results (Sub-Competencies).....	114

CHAPTER I: PROJECT OVERVIEW

Although formal education coursework within the strength and conditioning (S&C) profession is extensive, educational experiences often do not go far enough in preparing emerging students to enter the profession (Massey, 2010). Formal education starts the foundation for coaching competency, but experiential learning is needed to transition from an academic setting of strength and conditioning to an applied environment (Grant et al., 2014). The accumulation of practical knowledge and skill gained through field experiences, such as an internship setting, provides the foundation for students to evolve into successful practitioners (Grant and Dorgo, 2014; Jones, 2015), but a well-developed framework for quality internships does not exist. Research is needed to inform the creation of effective models of quality internships specific to the context of strength and conditioning coaching (Murray et al., 2014). Given the importance of internships in student strength and conditioning coach development, there is a critical need to explore and gather what competencies an intern should obtain from field experiences to become a competent and confident professional. A better understanding of the competencies gained through field experiences may be the foundation for developing best practice standards. In addition, the results of this study may lead to strength and conditioning accreditation suggestions and, eventually, requirements for field experience criteria in higher education.

Background Literature

The strength and conditioning (S&C) profession is growing globally and has become a recognized applied science field (NSCA Global, n.d.). The function of a strength and

conditioning professional (SCP) is commonly associated with developing optimal athletic preparation and preventing injury (Pullo, 1992). Employment opportunities are expanding for SCPs due to recognition as allied health professionals and increased employment in jobs that focus on promoting health and well-being and sports performance (Tod et al., 2012). In addition, SCPs work in a variety of settings, such as private clubs as personal trainers and group fitness instructors; scholastic sites as physical education teachers and coaches; in higher education as professors and coaches; professional sports as coaches and sports scientists; and in tactical settings where they train our police officers, firefighters, and military personnel (National Strength & Conditioning Association, n.d.).

The diversity of the S&C field has placed even more importance on the education of SCPs (Kraemer, 2006). As S&C environments become more diverse, so do the responsibilities and expected education and training. A bachelor's degree is typically the minimum expectation of a beginner SCP. The scope and practice of SCPs are rooted in foundational scientific knowledge. A large portion of S&C literature recognizes foundational knowledge rooted in various scientific areas, such as anatomy, exercise physiology, biomechanics, nutrition, and sports psychology (Dooman et al., 2008; Dorgo, 2009; Kleiner, 1999). In most exercise science coursework, students generally obtain a foundational knowledge base, such as scientific principles, through educational programs meant to prepare them to become S&C practitioners (Grant & Dorgo, 2014). With the increased number of recognized schools the profession will continue to grow and become more sophisticated and satisfying for each professional, with the outcomes more effective for the athletes, clients, and patients (Kraemer, 2006).

Formal education coursework within S&C is extensive; however, educational experiences often do not go far enough in preparing emerging students to enter the profession (Massey,

2010). The completion of formal education is the starting point for coaching competency. From this point, experiential learning is essential to transition from an academic strength and conditioning setting to an applied environment (Grant et al., 2014). In addition, internship experiences augment formal classroom instruction, allow students to experiment with theory and concepts, and utilize practical applications to assess personal skills that highlight individual deficiencies in coaching practices (Hebert et al., 2017; Jones, 2015; Martin, 2020; Murray et al., 2014; Read et al., 2017). Essential to creating impactful field experiences is finding quality expert coaches to serve as preceptors who can help student coaches understand experiences, deliberate direct practice, and develop routines to manage the learning environment and complete tasks (Grant et al., 2014; Jones, 2015; Martin, 2020). When an expert coach agrees to mentor a student intern, developing an internship curriculum is essential because it serves as a roadmap for both the preceptor and the student (Hebert et al., 2017; Jones, 2015; Murray et al., 2014). Standardized curriculums, however, are unavailable, and therefore preceptors lack guidance on specific duties that are appropriate for interns and the responsibilities of the preceptor in delivering a comprehensive internship experience (Read et al., 2017).

Although no standards for internship curriculum exist, field experiences will be required in the coming accreditation standards for S&C higher education programs. Strength and conditioning will become the latest health profession requiring programmatic accreditation. The National Strength & Conditioning Association (NSCA) approved the development of the Council on Accreditation of Strength and Conditioning Education (CASCE, 2019) and established that agency in 2021 (CASCE, 2019). Educational accreditation is vital for the field of S&C because it provides a quality assurance process under which services and operations of educational institutions or programs are evaluated by an external body (CASCE) to determine if

applicable standards are met (CASCE, 2019). By 2030 all individuals that sit for the Certified Strength and Conditioning Specialist (CSCS) exam will be required to have graduated from an institution that has met the accreditation requirements and standards. CASCE guidelines dedicated to field experience state, “each accredited institution will be required to provide two substantially different field experience opportunities that total a minimum of 300 hours for students to demonstrate professional and ethical standards within the field of strength and conditioning” (CASCE, 2019).

Currently, there are no competency requirements or suggestions by CASCE for S&C field experiences, just hours of exposure. However, there is an expectation of applying strength and conditioning principles for the certified strength and conditioning specialist certification, but without internships, context and competencies are primarily theoretical. Therefore, it would be beneficial for the preceptor and intern to have a shared learning agreement that provides a framework for the internship. This agreement would ensure all parties involved (student, preceptor, and faculty supervisor) agree with the expectations and learning objectives (Werner and Jeske, 2021).

Current accreditation standards and literature support the essential need for field experiences, such as internships, to supplement emerging S&C professional formal education. However, research is lacking in investigating the components of strength and conditioning field experiences across coaching education programs, such as how they are constructed, delivered, or effective in developing emerging SCP (Zakrajsek et al., 2015). For these reasons, research is needed to explore coach development through quality field experiences in strength and conditioning.

Purpose and Aims

This study aimed to establish a comprehensive list of expected strength and conditioning professional competencies that will later assist in aligning upcoming strength and conditioning field experience accreditation requirements. The research aims were to:

1. Identify and list expected primary competencies developed through student field experiences.
2. Identify and list expected sub-competencies developed through student field experiences.

Methods

Three questionnaires were delivered to a panel of expert coaches using a modified Delphi method. The Delphi Method is “a structured process for collecting and distilling knowledge from a group of experts through a series of questionnaires interspersed with controlled opinion feedback” (Ziglio, 1996). The Delphi method helped identify, refine, and list expected professional competencies developed through student internships. The investigator designed and collected each questionnaire with Qualtrics, a web-based software, and analyzed the data using Microsoft Excel spreadsheet software.

Expert Coach Defined

The expert panel consisted of full-time strength and conditioning coaches or individuals who split their professional duties between coaching, strength and conditioning research, instructors of emerging coaches, or some combination of the three disciplines. The specific criteria for the participating expert coaches mimicked the National Strength and Conditioning Association (NSCA) Registered Strength and Conditioning Coach® (RSCC). RSCC is a designation that signifies a CSCS® Certified Strength and Conditioning Coach with demonstrated experience and knowledge working in a team sport or tactical performance unit.

Registered coaches apply advanced knowledge to assess, motivate, educate, and train athletes to improve sports performance. All RSCC coaches participate in annual continuing education units (CEU) training to maintain the industry's highest professional and practice standards (RSCC Designation. n.d.). There are three categories of RSCC:

- RSCC – CSCS with two to nine years in the field
- RSCC*D – CSCS with 10 to nineteen years in the field
- RSCC*E – CSCS with 20-plus years in the field

All 38 participating expert coaches are either RSCC-recognized or have the qualifications of one of the three classifications of RSCC coaches.

Expert Coach Recruitment

The key to the study's validity relied on the selection, compliance, and feedback from the expert panel. Forty-one coaches were selected that demonstrate a diversity of professional disciplines, such as high school, college, and professional coaches who work with athletes and those in the tactical space (military, firefighters, and police officers). It was essential to pursue gender, ethnic, geographical, and professional diversity, and these diverse components are highlighted through the collection of demographic information in this study. One tool used to search for expert coaches is the NSCA's RSCC Coaching Registry. This public access registry verifies a strength and conditioning coach's experience, professionalism, and subject mastery. In addition to using the registry, the facilitator used a personal network of colleagues, served on boards and committees with over the facilitator's 20-plus-year National Strength and Conditioning Association membership. The facilitator used LinkedIn and personal emails to contact this group, which included information about the project.

Expert Coach Demographics

During the recruiting period for this research project, 55 coaches received individual invitations to participate in the study. After recruitment, 41 had agreed to join, and after Phase 1, 38 expert coaches completed the first survey. Of the 38 participants: 60% primarily worked as full-time S&C coaches in high school, college, and tactical environments, 26% worked in higher education, and 6% worked in the private sector, campus recreation, or corporate wellness. All regions of the United States were represented, with the Southeast (54%) representing the majority of the participants, the U.S. Northeast and Southwest, each representing 10%, and Australia and the United Kingdom representing a total of 10%. Most of the expert panel (90%) had more than six years of coaching experience, with 44% having more than 15 years of experience. Sixty-seven percent of the expert panel members hold a master's degree, with 31% holding a doctorate. When asked about being a preceptor for student interns, 56% said they had mentored undergraduate students, with another 33% mentoring graduate students. Lastly, 72% of the panel identified as male, with 27% identifying as female.

Pilot Study Procedures and Recruitment

Before sending the questionnaires to the expert panel of coaches, round one was sent to a small group (10) of colleagues with experience mentoring students and research methods, research design, and the presentation of research materials. A Delphi pilot study can help fine-tune the questions by identifying clarity issues, visual design, and question validity before sending the survey to the selected participants (Skulmoski et al., 2007). After completing the pilot study, the questionnaire was refined and distributed to the selected coaches. This group reviewed the competency categories and questions and provided feedback regarding relevance,

language, and overall insight of survey questions to set the research project up for success. The pilot group also provided an additional recommendation for the expert coach participant list.

Strength and Conditioning Competencies

When certified by the NSCA's CSCS exam, the strength and conditioning professional is expected to achieve academic competency in scientific foundations and practical/applied knowledge. The scientific foundation's portion of the exam features exercise science and nutrition, and the practical/applied part features program design, exercise technique, organization and administration, and testing and evaluation (National Strength & Conditioning Association, 2020). The 28 competencies used in this study are based on the job task analysis used to create the NSCA's practical/applied section of the CSCS exam (National Strength & Conditioning Association, 2020).

Phase One Questionnaire

The goal of Phase one was threefold: 1) to collect detailed demographic data on the expert panelist; 2) to have the panelist rate all 28 of the primary strength and conditioning coach competencies; 3) to provide clarifications for each rating of each competency.

After the coaches confirmed their participation as panel members, they received corresponding identification numbers for the remainder of the study to protect their privacy. The Phase one survey was emailed to participants using Qualtrics software (Appendix C). After completing a consent to participate question, demographic information was provided by each panel member (Appendix A). Next, the expert coaches rated 28 existing competencies using a 5-point Likert scale (Definitely Important, Important, Slightly Important, Not Important, and Definitely Not Important). Competencies were broken down into four categories:

- Exercise Techniques

- Program Design
- Organization and Administration
- Testing, Monitoring, and Data Evaluation

In addition to rating each competency, the expert coaches were encouraged to provide feedback regarding their choice of rating. Using a comment box after rating each competency in Phase one of a Delphi survey allowed the panelist to utilize individual experiences that made them experts in their field and allowed a deeper engagement in the study (Mitchell, 1991). Next, the data was collected and analyzed using Qualtrics and Excel to develop the Phase two questionnaire, including Phase one questionnaire results. The Phase one questionnaire was completed by 38 of the 41 expert panelists.

Determining Consensus

After collecting data from Phase one, determining consensus was measured. For each competency to advance to Phase two, a consensus of 75% of the expert panelists or more must rate the competency as Important or Definitely Important on the Likert scale. For a competency to be removed, a score of 75% or more, rating Not Important or Definitely Not Important, would need to be achieved. If a competency did not or was not removed because a percentage of 75% was not achieved, then the competency was re-rated in Phase two.

Phase Two Questionnaire

Phase two goals were: 1) rate the sub-competencies of all primary competencies that advanced after achieving consensus; 2) re-rate primary competencies that did not advance nor were removed. Each primary competency that advanced from Phase one was reintroduced in Phase two with sub-competencies that described specific components that make a coach skilled in the primary competency. The panelists were asked to rate each sub-competency component

separately using the same Likert scale used in Phase one. Phase two also asked panelists to re-rate primary competencies that did not achieve consensus. Before re-rating, each panelist was asked to review anonymous comments collected from Phase one. These comments were collected to provide context if a primary competency needed to be re-rated.

Phase three Questionnaire

In Phase three, the goal was to 1) remove a primary or sub-competency that did not achieve consensus; 2) produce a comprehensive list of primary competencies and sub-competencies that achieved consensus from the expert panel.

Results

After completing the third round of questionnaires, the expert panel produced a list that included 19 primary competencies that achieved consensus and nine that did not. Additionally, the expert panel produced consensus on 49 sub-competencies and did not achieve consensus on 24. Table 1 shows the Exercise Technique competencies and sub-competencies that reached consensus in the order of consensus percentages, highest to lowest. Table 2 shows consensus of Program Design; Table 3 Organization and Administration; and Table 4 Testing and Evaluation.

Table 1. Exercise Technique Competencies

Primary Competencies (% Consensus)	Sub-Competencies (% Consensus)
Teach and evaluate Resistance Training Exercise Technique: Free Weights (100%)	<ul style="list-style-type: none"> • Preparatory body limb and position (e.g., stance, posture, alignment) (94.74%) • Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal) (94.74%) • Spotting procedures and technique, cuing and coaching, monitoring for safety (92.11%) • Assessment, correction, and modification of exercise technique (89.19%)

Primary Competencies (% Consensus)	Sub-Competencies (% Consensus)
Teach and Evaluate Olympic Weight Lifting and Plyometric Exercise Technique (94.59%)	<ul style="list-style-type: none"> • Preparatory body limb and position (e.g., stance, posture, alignment) (92.59%) • Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal) (89.48%) • Assessment, correction, and modification of exercise technique (89.48%)
Teach and Evaluate Speed/Sprint Technique (e.g. resisted and assisted sprinting, speed-strength). (94.59%)	<ul style="list-style-type: none"> • Preparatory body limb and position (e.g., stance, posture, alignment) (81.58%) • Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal) (78.95%) • Assessment, correction, and modification of exercise technique (78.95%)
Teach and Evaluate Agility Technique (e.g., forward, backward and lateral movements; turn, transition, acceleration, and deceleration maneuvers). (94.59)	<ul style="list-style-type: none"> • Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal) (78.95%) • Assessment, correction, and modification of exercise technique (76.32%) • Preparatory body limb and position (e.g., stance, posture, alignment) (76.32%)
Teach and evaluate Movement Preparation (soft tissue and flexibility/mobility, PNF, CNS prep, dynamic stretching) (91.89)	<ul style="list-style-type: none"> • Preparatory body limb and position (e.g., stance, posture, alignment) (84.21%) • Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal) (84.21%) • Assessment, correction, and modification of exercise technique (84.21%)
Teach and evaluate Resistance Training Exercise Technique: Alternative modes (e.g. core, stability, balance, calisthenic, bodyweight only) (89.19%)	<ul style="list-style-type: none"> • Preparatory body limb and position (e.g., stance, posture, alignment) (84.21%) • Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal) (84.21%) • Assessment, correction, and modification of exercise technique (84.21%)
Teach and Evaluate Energy Systems Development: Anaerobic conditioning activities (e.g., conditioning drills, heavy rope training, intermittent training) (77.77%)	<ul style="list-style-type: none"> • Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal) (77.78%) • Assessment, correction, and modification of exercise technique (77.78%) • Preparatory body limb and position (e.g., stance, posture, alignment) (75.00%)

Exercise Technique

There are 11 Exercise Technique primary competencies and seven received consensus from the expert panel. Of the 36 sub-competencies, 22 received consensus. Teaching and evaluating resistance training exercises using *free weights* was the only competency that received a 100% consensus in the entire study. The strength of the consensus indicates free weight training is essential to developing strength and conditioning professionals (SCPs). Comments on this competency stated, “free weights are the core of ground-based resistance training, and how to teach must be mastered by coaches.” Another expert mentioned, “free weights require neuromuscular control, therefore, are more technical and require more attention in detail.”

Teaching and evaluating *Olympic weight lifting and plyometrics, sprint, speed, and agility technique* all had the second highest consensus percentage in the exercise technique category with 94.59%. Several panel members commented on the importance of beginning competency (during an internship) in coaching Olympic weightlifting and plyometrics but indicated the process takes years to master. Another theme from the panel revealed that teaching basic plyometric/jumping mechanics and effective triple extension through Olympic lifting progressions is essential to athletic development. A common theme that emerged involving sprint, speed, and agility techniques is that coach development is often overlooked in these disciplines. One expert also stated, “the skills athletes achieve from technical mastery of sprint, acceleration, deceleration, and change of direction are often performance separators in most sports; therefore, the needs to coach these skills are essential.”

Teaching and evaluating *movement preparation* received a consensus of 91.89%, with teaching and evaluating *resistance training exercise techniques using alternative modes*

receiving a consensus of 81.19%. Teaching and evaluating *energy systems development for anaerobic conditioning* finished the list with a consensus of 77.77%.

A central theme among panel members is that movement prep is the foundation of efficient movement skills and lifts. One panel member commented, "movement prep is often the starting point for engagement with the athletes, and a consistent block of time is given to all sports before training. Therefore, this block of time is a prime opportunity for interns to connect with athletes while reinforcing fundamental movement patterns."

Panel members were vocal in their comments regarding resistance training exercises using alternative modes. One panelist stated, "when faced with space, budget, and staff challenges, it is essential to know how to develop effective training opportunities for your athletes regardless of limitations." Another panelist commented, "it is important to understand the science of basic movements such as body weight and core exercises as most people traditionally start with those first."

Lastly, teaching and evaluating energy systems development for anaerobic conditioning had the lowest percentage but is still considered a valuable asset in coach development. A consistent theme of this discipline highlighted the "importance of understanding the concepts of work: rest ratios and how to administer effectively and appropriately for large groups."

Table 2. Program Design Competencies

Primary Competencies (% Consensus)	Sub-Competencies (% Consensus)
Conduct Needs analysis (94.60%)	<ul style="list-style-type: none"> • Evaluation of the sport (movement, physiological injury analysis) (97.37%) • Assessment of the athlete (training status, physical testing, and evaluation, primary resistance training goal) (94.74%)

Primary Competencies (% Consensus)	Sub-Competencies (% Consensus)
Determine and Assign Training Volumes (defined as sets x reps) (94.59%)	<ul style="list-style-type: none"> • Volume based on the training goal (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity) (81.58%) • Outcomes associated with the manipulation of training volume (81.08%)
Apply the Principles of Exercise Order (91.67%)	<ul style="list-style-type: none"> • Order of exercises based on the training goal (92.11%) • Variations in exercise orders (e.g., large to small muscle groups, alternating push with pull, alternating upper body exercises with lower body exercises) (89.48%) • Variations in exercise modes (e.g., explosive training, strength training, warmup/workout/cooldown, energy system training prioritization) (84.21%)
Select Exercises (89.19%)	<ul style="list-style-type: none"> • Exercises to minimize injury potential (e.g., hamstring versus quadriceps, upper body versus lower body) (86.84%) • Exercises (e.g., power, core, assistance, structural) based upon the type or number of the involved muscle group or groups (e.g., what exercise trains certain muscle(s); how to change an exercise to change the involved muscles) (84.21%) • Exercises specific to movement patterns of a particular sport (e.g., an exercise and its application and effectiveness for a sport, an exercise and movements involved in a sport, an exercise and muscles used in sport) (78.94%)
Determine and Assign Exercise Intensities (e.g., load, resistance, heart rate) (89.19%)	<ul style="list-style-type: none"> • Load or exercise heart rate based on the training goal (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic endurance) (81.58%) • Methods for assigning an exercise load (e.g., a percent of the 1RM or the athlete's body weight, RM loads, RPE) or exercise heart rate (e.g., a percent of maximum heart rate or functional capacity, the Karvonen method) (81.08%)
Determine and Assign Exercise Progressions (e.g., mode, intensity, duration, frequency) (89.19%)	<ul style="list-style-type: none"> • No Sub Competencies
Determine and Assign Work: Rest Periods, Recovery and Unloading, and Training (86.11%)	<ul style="list-style-type: none"> • Training frequency (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity, exercise recovery) (79.34%)

Primary Competencies (% Consensus)	Sub-Competencies (% Consensus)
Periodization Models and Concepts and How to Apply Them (81.08%)	<ul style="list-style-type: none"> • Periodization (e.g., the periods/phases/cycles, the types of training programs associated with the phases/periods/cycles) (89.48%) • Training variations based on a sport season (i.e., a certain training period, Phase, or cycle for a specific sport season) (81.58%)

Program Design

The program design category contained a total of 10 primary competencies and eight received consensus from the expert panel. There are 21 sub-competencies, and 19 of those obtained consensus. The ability to *conduct needs analysis* is the highest-rated primary competency in the program design category receiving 94.60% of the expert panel’s agreement. Many supporting comments from the panelist highlighted the importance of effectively performing a needs analysis. One panelist commented, “conducting needs analysis is a fundamental component of linking physiological characteristics to sports performance.” Another panelist stated, “needs analysis is critical for developing proper program design because it is a blueprint of athlete performance.”

Determining and assigning training volumes received 94.59% consensus. Many panelists commented that this discipline is an essential part of coach development and is often overlooked. One panelist commented, “this competency is important to learn in an internship because it provides an opportunity to observe results with real people instead of theory in a textbook.” Another panelist stated, “this is a critical programming step because coaches need to understand the relationship between volume and intensity.”

The *application of applying the principles of exercise order* received 91.67% consensus. A theme by the panelist highlights this essential quality for interns to “understand how to

appropriately sequence training so that each exercise achieves its desired result, for instance, power exercises versus strength exercises.”

Selecting exercises, determining and assigning exercise intensities, and determining and assigning exercise progressions all received a consensus of 89.19%. A common theme among panel members is that beginner and novice coaches must understand why specific exercises are selected and how they match the session's goals. One panelist noted, “exercise selection is important in coach development because decisions are heavily dependent on technical competency and the desired training adaptation needed for the athlete(s).” Regarding determining exercise intensities and progressions, one panelist stated, “it is important for interns to understand progressive overload principles that determine specific stimulus for adaptation.”

Determining and assigning work: rest periods for recovery unloading and training received 86.11% consensus. A theme among the panelists addressing work to rest period indicated a coach's poor understanding could make a good training plan one that is dangerous. One panelist commented that “achieving competency with this discipline takes time, but the intern should have a sound understanding at the completion of an internship.”

Finishing the list with 81.06% consensus is *understanding periodization models, concepts, and how to apply them*. One common theme emerged for this competency that periodization models are incredibly complex, and environmental factors often determine implementation. One panelist stated, “preceptors must expose literature and recommended reading to interns, but know competency is an evolving process.”

Table 3. Organization and Administration Competencies

Primary Competencies (% Consensus)	Sub-Competencies (% Consensus)
Professional Practice (i.e. understand the scope of practice for an S&C coach and when to refer to other allied health professionals) (97.30%)	<ul style="list-style-type: none"> • Recognize when to refer an athlete to and collaborate with allied health professionals (e.g., athletic trainer, physical therapist, physician, registered dietitian, sports psychologist) (94.74%) • Identify and work within the scope of practice for the strength and conditioning staff (92.10%) • Recognize and respond to symptoms of unsafe training practices (e.g., overuse, overtraining, temperature-induced illness) 89.74%) • Abide by the standards and practices of relevant governing bodies related to the implementation of the strength and conditioning program (76.32%)

Organization and Administration

The organization and administration category contained a total of four primary competencies, and one received consensus from the expert panel. There are eight sub-competencies and four received consensus. *Professional practice* was the only primary competency in this category; however, it was the second highest-rated primary competency in the study, achieving consensus with 97.30% of the expert panel's vote. A common theme among panelist comments centered around professional practice being “crucial, critical, and most important in an internship and that time must be carved out to train interns on the scope and practice of an S&C coach.”

Table 4. Testing, Monitoring, and Data Evaluation Competencies

Primary Competencies (% Consensus)	Sub-Competencies (% Consensus)
Administer Testing and Implement Monitoring Protocols and Procedures to	<ul style="list-style-type: none"> • Test administration procedures that use equipment, personnel, and time efficiently (89.47%) • Testing to assess physical characteristics and workloads (e.g., anthropometric, physiological and mechanical

Primary Competencies (% Consensus)	Sub-Competencies (% Consensus)
Ensure Reliable Data Collection and Safe Performance (94.60%)	<p>stress) and evaluate performance (e.g., muscular strength, power, aerobic/anaerobic capacity, muscular endurance, agility, speed, flexibility) (84.21%)</p> <ul style="list-style-type: none"> • Testing and monitoring equipment and its proper use (81.58%)
Select Appropriate Evidence-Based Tests to Maximize Test Reliability and Validity (83.33%)	<ul style="list-style-type: none"> • Tests based upon the unique aspects of an exercise classification, sport, sport position, health, and training status (81.58%) • Test administration procedures that use equipment, personnel, and time efficiently (81.58%)
Evaluate and Interpret Results (83.78%)	<ul style="list-style-type: none"> • Validity of test results (84.21%) • Design or modification of the training program based on results to ensure safe performance (i.e., determine which outcome of training needs to be improved in a future program) (78.96%)

Testing, Monitoring, and Data Evaluation

The organization and administration category contained a total of three primary competencies, and three received consensus from the expert panel. Of the sub-competencies, they totaled eight, and seven received consensus. *Administering testing and implementing monitoring protocols and procedures to ensure reliable data collection and safe performance* received the highest consensus, with 94.60% of the expert panel's approval. Multiple panelists commented that “evaluating performance is vital and practitioners need competence.” The panelist also said, "choosing proper monitoring protocols, data collection, and analysis is critical in assessing key performance indicators.”

Selecting appropriate evidence-based tests to maximize test reliability and validity received 83.33% consensus. Lastly, the ability to evaluate and interpret results received 83.78% consensus. A common theme for both of these competencies is the need for emerging SCP to have a fundamental understanding of “sports science,” which is often associated with data

collection and analysis of performance. One panelist stated, “evidence-based decisions and practice show the credibility of decisions made in a strength and conditioning program.”

Table 5. Primary Competencies That Did Not Receive Consensus

Primary Competencies	Consensus Total (<75%)
Exercise Technique	
Teach and evaluate Resistance Training Exercise Technique: Non-traditional implements (E.g., logs, tire-flipping, heavy ropes, kettlebells, heavy medicine balls)	37.84
Teach and evaluate Resistance Training Exercise Technique: Resistance machines (e.g. Pulley, cam, hydraulic, friction, air, tubing)	59.45
Teach and Evaluate Recovery Techniques (e.g. hydrotherapy, sleep, hydration, soft tissue, compression, static stretching exercises)	64.86
Teach and Evaluate Energy Systems Development: Aerobic conditioning activities (e.g., treadmill, bicycle, rowing machine, stair stepper, elliptical trainer, walking, jogging, running, swimming)	64.87
Program Design	
Design Programs for Athletes During the Injury/Reconditioning Period (e.g., assigning exercises for a given acute or chronic injury or condition in collaboration with allied health professionals)	67.57
Incorporate Various training Methods and Modes	72.98
Organization and Administration	
Determine the Design, Layout, and Organization of the Strength and Conditioning Facility (e.g., flooring, ceiling height, mirror placement, ventilation, lighting, characteristics of the equipment) Based on Athletic Needs and Industry Safety Standards	51.35
Organizational Environment (i.e., determine policies and procedures-facility cleaning,	64.87

maintenance, rules, scheduling, and emergency procedures)	
Identify Common Litigation Issues Associated with Organizational Environment, Physical Environment, and Professional Practice and Ways to Reduce or Minimize the Risk Liability Within the Facility	72.98

Primary Competencies that Did Not Reach Consensus

There are nine primary competencies that did not reach the 75% expert panel consensus threshold and therefore were removed from the phase two questionnaire. Of the nine, the *exercise and technique category* contained four of the competencies. *Teach and evaluate resistance training exercise technique using non-traditional implements* received the lowest consensus percentage of 37.84 %. One of the experts explained that “non-traditional implements are dependent on the training environment that uses them, therefore, specific experience with such implements is not necessarily transferable.” Another panel member explained “there is a time and place for non-traditional implement but only after more standard styles of training have been established.” *Teaching and evaluating resistance training exercise technique using resistance machines* had the second lowest percentage of 59.45%. One panel member stated “most machine-based training lacks dynamic correspondence to performance and therefore should not be a primary aspect of any athletic training program.” Another panel member explained “machine-based training can be effectively used for return to play protocols and accessory exercises but typically need less guidance and therefore less coaching than free weights.” *Teaching and evaluating recovery techniques* received 64.86% consensus. A common theme among the expert panel is teaching and evaluating recovery techniques is important but may be difficult to implement in a semester long internship especially when other teaching topics take priority. One panel member stated, “understanding theories behind recovery are important but

this competency may not be the responsibility of the strength and conditioning coach in all training environments.” *Teaching and evaluating energy systems development using aerobic conditioning activities* received 64.87% consensus. A theme of the panel of experts is that aerobic-based energy system development is important to know for a strength and conditioning coach; however, this topic is more suited for the college classroom than an internship.

Program design has two competencies that did not achieve consensus. *Designing programs for athletes during the injury/reconditioning period* received 67.57% consensus. A common theme of the expert panel is that developing a relationship with other members of the sports medicine staff, such as athletic trainers, physiotherapists and team doctors is important for the overall health of athletes; however, designing programs for recovering athletes is beyond the competencies of a strength and conditioning intern.” *Incorporating various training methods and modes* received 72.98 consensus. One expert stated, “a intern should be exposed to various methods and modes of training but being competent is a tall order and this knowledge will likely be developed over time in the profession.” Another expert explained, “having knowledge of training methods will grow over time but discerning which are valuable and which aren’t is more important early in one’s career.”

Organization and Administration has four competencies and three of those competencies did not received consensus. *Determining the design, layout, and organization of strength and conditioning facilities* received 51.35% consensus. One panel member stated “the design and organization of a training facility are not part of the daily demands of being a strength and conditioning professional therefore, this should not be a pressing piece of the intern curriculum.” Another panel member stated “this competency can be learned as a strength and conditioning professional moves up the ladder but is likely not important early in one’s career.” The

organizational environment received a consensus of 64.87%. One panelist stated, “interns should be introduced to this competency because they often are tasked with cleaning and maintenance of equipment but understanding the policies and procedures of the day to day operations of a training facility may be outside the scope of responsibility for a intern.” Another panelist explained, “organizational environment is the responsibility of the facility director and therefore is a higher-level competency that is collected over years of experience and exposure in the field of strength and conditioning.” *Identify common litigation issues associated with organizational environment, physical environment, and professional practice and ways to reduce or minimize the risk liability within the facility* received a consensus of 72.98%. The panelist collectively stated that this competency is important in the overall perspective of strength and conditioning coaches competencies. A common theme among panelist is that having a sound understanding of legal issues associated with owning or working in a training gym should be taught in the students college curriculum and not in an internship curriculum.

Limitations

A limitation of this study is that 38 coaches is not a large sample size, presenting a limited perspective. Another limitation is the lack of diversity on the panel related to race/ethnicity and professional background. 87% of the participants classified themselves as White, and the remaining 13% classified themselves as Black or African American, Hispanic or Latin a/x, and Asian. From a professional diversity standpoint, a limitation is less than 5% of the participants worked in the field described as personal training, campus recreation, corporate wellness, or fitness entrepreneurs. From an experiential standpoint, 80% of the coaches work with developmental (youth, high school, academy) and college or university athletes. Meaning 20% of the coach's athlete population is divided between professional athletes, general

population, tactical and other. Lastly, 35% of the coaches said they had been a preceptor for five or less years.

Discussion

A take-home message from this study's list from expert panel members is that professional competencies are skills developed and mastered over years of application and refinement. Another message is that preceptors must evaluate their teaching environment and prioritize the teachable opportunities. In addition, the findings of this work can help provide a curriculum map by highlighting and ranking the suggested most essential competencies that should be obtained from a college student's coursework and field experiences. The following practical implications and impact on the strength and conditioning field are offered from the perspective of the preceptor, intern, and university field placement supervisor.

Preceptor

Each organization/preceptor has unique qualities that differ from other internship sites and preceptors. The primary competency list could be used as an evaluation document to help the preceptor organize the learning environment based on the organization's uniqueness. For instance, if the organization is a secondary school, the preceptor can insert the intern in activities that maximize learning opportunities based on the site's population and training age.

In addition, the primary competency list can also help the preceptor plan around their professional strengths and weaknesses. For instance, if the preceptor is not an expert in Olympic lifting exercises but has someone on staff who is, the preceptor can curate opportunities for the intern and the staff member to have contact time specifically in that discipline.

The list of sub-competencies contains specific information to help the preceptor determine what to focus on when teaching the primary competencies. For instance, when

focusing on Olympic lifting with the intern, the following sub-competencies could be used to focus on these components in this order: 1) stance, posture, and alignment, 2) movement mechanics, breathing, and arousal, and 3) assessment, correction, and modification of technique.

Intern

The suggested list of expected primary competencies could be valuable for the preceptor/intern relationship by facilitating conversation and expectations. The primary competency list could be part of a learning agreement between the preceptor and intern, and this learning agreement could highlight the expected learned competencies and the evaluation criteria. A possible starting point could be having the intern rank the competencies according to what they believe they have the highest comfort level and experience performing. This ranking would let the preceptor know how to prioritize the intern's development opportunities based on the intern's perceived weaknesses. The overall benefit of using the suggested expert list is the preceptor and intern have a transparent agreement on what the student will be exposed to professionally.

University Field Experience Coordinators

A university's field experience coordinator (FEC) must develop relationships, choose appropriate learning environments and mentors, and serve as the conduit between the university and the local strength and conditioning community (Herbert et al., 2017). While securing internship sites and preceptors, the FEC can present the list of competencies to establish guidelines the university requires for mentorship.

The identified competencies could also be used to assess student learning through the internship supervisor's formal evaluation of student development. This document could be formatted as an evaluation form that lists the expected competencies and a rubric to evaluate

student achievement of the competencies. Implementing the evaluation at the middle and end of each internship experience would allow students and the internship coordinator to track the student process. A match may not be possible if the organization or the preceptor cannot fulfill the university internship objectives.

Future Directions

Reproducing this study using a larger sample size could benefit the NSCA and CASCE. Currently, the only requirement from CASCE to institutions is 300 hours of field experience from two different learning environments. Aligning the findings of a larger scaled project could begin the steps to develop standards for internship curriculums and student learning objectives.

CHAPTER II: DISSEMINATION

The dissemination of this work will be presented at the kick-off meeting for internship preceptors for the Masters in Kinesiology Strength and Conditioning concentration at the University of North Carolina Charlotte (UNCC). This presentation will last approximately 40 minutes and is designed to share findings from this work and discuss recommendations for implementation processes and procedures to enhance internship experiences for UNCC students.

Slides 1-2.

Thank you for attending our 2023-24 school year preceptor kick-off meeting. The purpose of this meeting is to support you, the preceptor, and continue to develop fellowship between UNC Charlotte and the many organizations that offer real-world experiences to our students. During the first part of this meeting, I will share a presentation highlighting research on Coach Readiness. In this presentation, I will connect findings to strength and conditioning students' internship experiences and then provide recommendations for implementing these suggestions to enhance interns' field experiences.

Slides 3.

Background and Context: The field of strength and conditioning is the latest health profession requiring programmatic accreditation. The National Strength & Conditioning Association (NSCA) approved the development of the Council on Accreditation of Strength and Conditioning Education (CASCE, 2019) and established that agency in 2021 (CASCE, 2019). Educational accreditation is vital for the field of S&C because it provides a quality assurance process under which services and operations of educational institutions or programs are evaluated by an external body (CASCE) to determine if applicable standards are met (CASCE,

2019). By 2030 all individuals that sit for the Certified Strength and Conditioning Specialist (CSCS) exam will be required to have graduated from an institution that has met the accreditation requirements and standards. CASCE guidelines dedicated to field experience state, “each accredited institution will be required to provide two substantially different field experience opportunities that total a minimum of 300 hours for students to demonstrate professional and ethical standards within the field of strength and conditioning” (CASCE, 2019).

Slides 4-6.

What do we know about S&C field experiences? In the field of strength & conditioning, the completion of formal classroom education is the starting point for coaching competency. From this point, experiential learning is essential to transition from an academic strength and conditioning setting to an applied environment. Internship experiences augment formal classroom instruction, allow students to experiment with theory and concepts, and utilize practical applications to assess personal skills that highlight individual deficiencies in coaching practices. Research is lacking in investigating the components of strength and conditioning field experiences across coaching education programs, such as how they are constructed, delivered, or effective in developing emerging strength and conditioning professionals.

Slides 7.

So Why is this topic Timely? The National Strength & Conditioning Association (NSCA) taken the steps to standardize strength and conditioning coach development in higher education by approving the development of the Council on Accreditation of Strength and Conditioning Education. Educational accreditation is vital for the field of S&C because it provides a quality assurance process to determine if educational standards are met (CASCE, 2019). By 2030 all individuals that sit for the Certified Strength and Conditioning Specialist (CSCS) exam will be

required to have graduated from an institution that has met the accreditation requirements and standards. CASCE guidelines dedicated to field experience state, “each accredited institution will be required to provide two substantially different field experience opportunities that total a minimum of 300 hours for students to demonstrate professional and ethical standards within the field of strength and conditioning.”

Slides 8.

CASCE has professional standards in higher education that addresses: Institutional Support, Faculty Positions, Curriculum Requirements and CASCE guidelines dedicated to field experience state, “each accredited institution will be required to provide two substantially different field experience opportunities that total a minimum of 300 hours for students to demonstrate professional and ethical standards within the field of strength and conditioning.”

Slides 9.

Purpose: This study aimed to establish a comprehensive list of expected strength and conditioning professional competencies that will later assist in aligning upcoming strength and conditioning field experience accreditation requirements. Aims: Identify and list expected primary competencies developed through student field experiences. Identify and list expected sub-competencies developed through student field experiences.

Slides 10.

The 28 competencies were based on the strength and conditioning coach job task analysis used to create the NSCA’s practical / applied section of the CSCS exam.

Slide 11.

During the recruiting period for this research project, 55 coaches received individual invitations to participate in the study. After recruitment, 41 had agreed to join, and after Phase

1,38, expert coaches completed the first survey. Of the 38 participants: 60% primarily worked as full-time S&C coaches in high school, college, and tactical environments, 26% worked in higher education, and 6% worked in the private sector, campus recreation, or corporate wellness. All regions of the United States were represented, with the Southeast (54%) representing the majority of the participants, the U.S. Northeast and Southwest, each representing 10%, and Australia and the United Kingdom representing a total of 10%. Most of the expert panel (90%) had more than six years of coaching experience, with 44% having more than 15 years of experience. Sixty-seven percent of the expert panel members hold a master's degree, with 31% holding a doctorate. When asked about being a preceptor for student interns, 56% said they had mentored undergraduate students, with another 33% mentoring graduate students. Lastly, 72% of the panel identified as male, with 27% identifying as female.

Slides 12-16.

Methods: The Delphi Method is a “structured process for collecting and distilling knowledge from a group of experts through a series of questionnaires interspersed with controlled opinion feedback.” Phase 1: The goals for the phase 1 questionnaire is to collect demographic data, have the expert panel rate all 28 primary competencies and provide clarification for rating of each competency. Phase 2: Phase two's goals are to rate-sub competencies of primary competencies that achieve consensus of greater than or equal to 75%. The second goal in phase two is to re-rate any primary competencies that did not reach consensus nor were removed in phase one. Phase 3: The goal of phase three is to remove primary competencies after being re-rated and re-rate any sub-competencies that did not achieve consensus nor were removed. Final List: At the end of Phase 3 a final list was produced of

competencies and sub-competencies that achieved consensus from the expert panel of strength and conditioning coaches.

Slides 17 – 20.

There are 11 Exercise Technique primary competencies and seven received consensus from the expert panel. Of the 36 sub-competencies, 22 received consensus. The program design category contained a total of 10 primary competencies and eight received consensus from the expert panel. There are 21 sub-competencies, and 19 of those obtained consensus. The organization and administration category contained a total of four primary competencies, and one received consensus from the expert panel. There are eight sub-competencies and four received consensus. The organization and administration category contained a total of three primary competencies, and three received consensus from the expert panel. Of the sub-competencies, they totaled eight, and seven received consensus.

Slides 21-23.

Higher Education uses the list to create a mid-semester and final performance evaluation that indicate the items so that the university internship coordinator, preceptor, and student are on the same page with expectation. Preceptor -Use this list to guide creating an internship curriculum by pinpointing opportunities within the semester to allow students to obtain coaching repetition for specific competencies. In addition, identify and task staff with specific expertise (such as Olympic lifting) to help expose the student to certain competencies on the list. Student- have a meeting with your preceptor about what competences you are comfortable with and which one you have no experience to help prioritize your education experience.

CHAPTER III: ACTION PLAN

An overview of this work will be presented at the kick-off meeting for internship preceptors for the Masters in Kinesiology Strength and Conditioning concentration at the University of North Carolina Charlotte (UNCC) in the Fall of the 2023-24 school year as outlined in Chapter II. This presentation is designed to share findings from this work and discuss recommendations for implementation processes and procedures to enhance internship experiences for UNCC students. In addition, I plan to record the presentation video also outlined in Chapter II, specifically to deliver via email to the 38 coaches that participated in this study.

Short Term Actions

An abstract for this research has been accepted for presentation at the 2023 International Council for Coaching Excellence (ICCE) Global Coach Conference (GCC) in Singapore from November 30th to December 3rd. The theme, “Coaching for a Better Tomorrow,” will focus on effective coaching practice, coach learning and development, coaching policy and systems, and inclusivity (International Council for Coaching Excellence, 2023). In addition, abstracts will be sent for review to the 2024 National Association for Kinesiology in Higher Education (NAKHE) annual meeting (1/24) and the 2024 National Strength and Conditioning Association annual meeting (6/24). The goal is to present at one international and one domestic conference for the purpose of sharing my work with diverse professional populations that may find value in my research topic. These presentations will primarily focus on implementation strategies and how this work aligns with current CASCE accreditation requirements.

Lastly, I plan to seek publication in a professional research journal such as the Strength and Conditioning Journal or the International Sport Coaching Journal.

Long Term Actions

The long-term action plan is to use the results of this research to make curricular additions and changes in the Masters in Kinesiology Course, KNES 6490, Advance Practicum in Clinical Exercise Physiology, at the University of North Carolina Charlotte. An addition to the course is to use the result of this study to help create the framework for a standardized learning agreement. The learning agreement would serve as a curricular “contract” explicitly addressing the learning objectives for the internship. This agreement will provide transparent guidance for the student, preceptor, and faculty internship coordinator. In addition, I plan to re-design the midterm and final internship student evaluation document using the list of competencies from this study. Embedded in the evaluation will be a rubric that assists the preceptor in providing a quantifiable scoring method to evaluate the student.

Lastly, a long-term goal is to partner with the NSCA and CASCE to reproduce this work on a larger scale and begin the steps to develop standards for internship curriculums and student learning objectives.

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APPENDIX A: EXPERT PANELIST DEMOGRAPHICS

Table 6. Expert Panelist Demographics

Age

Age	Percent	Frequency
25-34	23.68%	9
35-44	26.32%	10
45-54	36.84%	14
55-64	10.53%	4
65 and over	2.63%	1

Gender

Gender	Percent	Frequency
Male	71.05%	27
Female	26.32%	10
Non-binary / third gender	0.00%	0
Prefer not to say	2.63%	1
Other	0.00%	0

Race & Ethnicity

Race & Ethnicity	Percent	Frequency
American Indian or Alaskan Native	0.00%	0
Asian	2.63%	1
Black or African American	5.26%	2
Native Hawaiian or Other Pacific Islander	0.00%	0
White	86.84%	33
Some other race	2.63%	1
Prefer not to say	2.63%	1
Hispanic/Latino/a/x	8.82	3

Experience

Experience	Percent	Frequency
Less than 3 years	2.63%	1
3-5 years	7.89%	3
6-10 years	28.95%	11
11-15 years	15.79%	6

More than 15 years 44.74% 17

Region/Country

Region/Country	Percent	Frequency
U.S. Midwest (IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI)	5.26%	2
U.S. Northeast (CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT)	10.53%	4
U.S. Southeast (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV)	55.26%	21
U.S. Southwest (AZ, NM, OK, TX)	7.89%	3
U.S. West (AK, CA, CO, HI, ID, MT, NV, OR, UT, WA, WY)	5.26%	2
Africa (specify country in the open text box)	0.00%	0
Asia (specify country in the open text box)	0.00%	0
Australia (specify country in the open text box)	5.26%	2
Europe (specify country in the open text box)	10.53%	4
North America (specify country in the open text box)	0.00%	0
South America (specify country in the open text box)	0.00%	0

Client Population

Client Population	Percent	Frequency
Developmental Athletes (Youth, High School, Academy)	52.63%	20
College/University Athletes	26.32%	10
Professional Athletes	5.26%	2
General Population (Non-competitive adults)	5.26%	2
General Population (Competitive adult athletes)	2.63%	1
Tactical (Police, Firefighters, Military)	5.26%	2
Other (please provide specifics in the open text box)	2.63%	1

Employer

Employer	Percent	Frequency
College or University	42.11%	16
Public Middle or High School	7.89%	3
Private Middle or High School	23.68%	9
Military	2.63%	1
County or State Employee (Non-College or University)	2.63%	1
Local business - Multi-purpose Club/Fitness Center	2.63%	1
Local business - Small Studio	2.63%	1
Recreation center	0.00%	0

Corporate fitness/wellness center	0.00%	0
Self-employed	2.63%	1
Other	13.16%	5
Other included Pro Sports, National Governing Body, Start Up		

Highest Level of Education

Education	Percent	Frequency
Bachelor's degree	2.63%	1
Master's degree	65.79%	25
Doctoral degree	31.58%	12

Certifications

Certifications	Percent	Frequency
ACE Personal Trainer	1.25%	1
ACSM Exercise Physiologist	0.00%	0
ACSM Personal Trainer	1.25%	1
NASM Personal Trainer	2.50%	2
NSCA Certified Personal Trainer (CPT)	3.75%	3
NSCA Tactical Strength & Conditioning Facilitator (TSAC-F)	3.75%	3
NSCA Certified Strength & Conditioning Specialist (CSCS)	43.75%	35
(NSCA) Registered Strength & Conditioning Coach with Distinction (RSCC*D)	12.50%	10
(NSCA) Registered Strength & Conditioning Coach Emeritus (RSCC*E)	8.75%	7
UKSCA (United Kingdom Strength & Conditioning Association)	5.00%	4
ASCA (Australia Strength & Conditioning Association)	2.50%	2
Other *	15.00%	12
*NASM PES, USAW-Level 1, NASM PES Russian Kettlebell certification, ACE Health Coach, SCCC &MSCC (Master) Collegiate S&C Assoc.,		

Years of Being an Internship Preceptor

Preceptor Years	Percent	Frequency
Less than 5 years	36.84%	14
6-10 years	13.16%	5
11-15 years	21.05%	8
More than 15 years	28.95%	11

Level of Student Being Mentored

Level of Student	Percent	Frequency
undergraduate student	55.26%	21
graduate school student	34.21%	13
Other*	10.53%	4
*Grad student to young professional		

APPENDIX B: INVITATION EMAIL

Hi, _____,

My reason for reaching out is to invite you to join a global group of expert S&C coaches that will improve students' internship experience and provide preceptors with a blueprint for internship curriculum development.

This research project is for my doctorate dissertation at the University of North Carolina at Greensboro. My dissertation title is **Coach Readiness: Strength & Conditioning Competencies Developed Through Field Experiences**.

In my research project, each expert will individually select the expected competencies students should develop after a 300-hour (about one University semester) internship experience. Your participation will take approximately 90 minutes (about 30 minutes per survey) and involve completing **three web-based questionnaires**. Also, your feedback will be confidential from the rest of the participants.

Take some time to think about it and message me with your decision. If I haven't heard from you in a week, I will follow up to see if you want to participate. Participation in this study is voluntary, so only join the panel if you can commit the time necessary to provide thorough feedback.

If you have any questions, don't hesitate to email (dkclark@uncg.edu), text, or call me - at 704.451.9925.

Thanks, I look forward to hearing from you.

Best Regards,

Darnell K. Clark

Phase I - S&C Field Experience Competency Questionnaire

Questionnaire Introduction:

Thank you for taking the time to participate in this research project survey. As a member of a global community of expert strength & conditioning educators and coaches, your involvement in this study will provide a blueprint for internship curriculum development. Phase 1 of this questionnaire will take approximately 20 minutes. Before completing this survey, you will have the opportunity to review and change your responses before submission. Before getting started, please read the information sheet below and consent to participate by clicking **YES** when prompted.

Information Page Project Title: Coach Readiness: Strength & Conditioning Competencies
Developed Through Field Experiences.

Investigator: Darnell Clark

Faculty Advisor: Dr. Michael Hemphill

What is this project about? This research project will use a three-tiered Delphi Study Method to poll strength & conditioning experts about expected competencies students should develop after a 300-hour internship experience (about one college semester). I am asking you to participate in this research study because I want to create better professional preparation internships for emerging strength and conditioning coaches. Will this negatively affect me? No, other than the time you spend on this project there are no known or foreseeable risks involved with this study. What do I get out of this research project? There are no personal benefits. Will I get paid for participating? There is no compensation for your participation. What about my confidentiality? A four-digit identification number in lieu of personal identification for tracking purposes (using a random number generator). This will allow for confidential identification. We will do everything possible to make sure that your information is kept confidential. All information obtained in this study is strictly confidential unless disclosure is required by law. In addition, all data will be stored on a secure cloud storage service. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing. What if I do not want to be in this research study? You do not have to be part of this project. This project is voluntary and

it is up to you to decide to participate in the research project. If you agree to participate at any time in this project you may stop participating without penalty. What if I have questions? You can ask Darnell Clark (dkclark@uncg.edu), and Michael Hemphill (mahemphi@uncg.edu) anything about the study. If you have concerns about how you have been treated in this study call the Office of Research Integrity Director at 1-855-251-2351.

Click **YES** to participate in this study. Click **NO** to decline.

YES (2)

NO (3)

Please use your assigned four-digit identification number (Given to you in the email with the survey link). This number will allow for your identity to remain confidential.

Please select your age group.

25-34 (1)

35-44 (2)

45-54 (3)

55-64 (4)

65 and over (5)

Please select your gender

- Male (1)
 - Female (2)
 - Non-binary / third gender (3)
 - Prefer not to say (4)
 - Other (5) _____
-

Please select your race (you may select more than one)

- American Indian or Alaskan Native (1)
- Asian (2)
- Black or African American (3)
- Native Hawaiian or Other Pacific Islander (4)
- White (5)
- Some other race (6)
- Prefer not to say (7)

Are you Hispanic or Latino/a/x?

- No, not Hispanic/Latino/a/x (1)
- Yes, Hispanic/Latino (2)
- Prefer not to say (3)

How many total years have you worked as a strength and conditioning professional as your primary employment?

- Less than 3 years (1)
- 3-5 years (2)
- 6-10 years (3)
- 11-15 years (4)
- More than 15 years (5)

Please select the region in which you currently work.

- U.S. Midwest (IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI) (1)
- U.S. Northeast (CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT) (2)
- U.S. Southeast (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV) (3)
- U.S. Southwest (AZ, NM, OK, TX) (4)
- U.S. West (AK, CA, CO, HI, ID, MT, NV, OR, UT, WA, WY) (5)
- Africa (specify country in the open text box) (6)

- Asia (specify country in the open text box) (7)

- Australia (specify country in the open text box) (8)

Europe (specify country in the open text box) (9)

North America (specify country in the open text box) (10)

South America (specify country in the open text box) (11)

What is your current job title?

Which of the following best describes your strength & conditioning discipline (Can choose more than one)?

Strength & Conditioning Coach (High School, College, Professional, Tactical) (1)

Personal Training (Campus Recreation, Corporate Wellness, Fitness Entrepreneur, Health Care, Health Club) (2)

Academia (Collegiate, Other educational institutions) (3)

Other (please specify) (4)

Which of the following best describes the MAIN population you currently work with?

- Developmental Athletes (Youth, High School, Academy) (1)
 - College/University Athletes (2)
 - Professional Athletes (3)
 - General Population (Non-competitive adults) (4)
 - General Population (Competitive adult athletes) (5)
 - Tactical (Police, Firefighters, Military) (6)
 - Other (please provide specifics in the open text box) (7)
-

Which of the following items best describes the type of employer (business/organization) you currently work for?

- College or University (1)
 - Public Middle or High School (2)
 - Private Middle or High School (3)
 - Military (4)
 - County or State Employee (Non-College or University) (5)
 - Local business - Multi-purpose Club/Fitness Center (6)
 - Local business - Small Studio (7)
 - Recreation center (8)
 - Corporate fitness/wellness center (9)
 - Self-employed (10)
 - Other (please provide specifics in the open text entry) (11)
-

What is your highest level of education?

- Bachelor's degree (1)
 - Master's degree (2)
 - Doctoral degree (3)
-

What fitness certifications/credentials, do you currently possess? (multi-select)

- ACE Personal Trainer (1)
- ACSM Exercise Physiologist (2)
- ACSM Personal Trainer (3)
- NASM Personal Trainer (4)
- NSCA Certified Personal Trainer (CPT) (5)
- NSCA Tactical Strength & Conditioning Facilitator (TSAC-F) (6)
- NSCA Certified Strength & Conditioning Specialist (CSCS) (7)
- (NSCA) Registered Strength & Conditioning Coach with Distinction (RSCC*D)
- (NSCA) Registered Strength & Conditioning Coach Emeritus (RSCC*E) (9)
- UKSCA (United Kingdom Strength & Conditioning Association) (10)
- ASCA (Australia Strength & Conditioning Association) (11)
- Other (please include the name of the organization and the name of the certification) (12) _____

How many years have you been a preceptor/mentor for internship participants?

- Less than 5 years (1)
- 6-10 years (2)
- 11-15 years (3)
- More than 15 years (4)

What level of student have you Primarily been a preceptor for?

- undergraduate student (1)
- graduate school student (2)
- other (specify) (3) _____

Questionnaire Overview

This questionnaire is designed to use the experienced panel of expert strength and conditioning (S&C) coaches and educators to rate and therefore produce a list of expected competencies gained during a quality field experience (i.e., internship) for emerging S&C professionals.

This questionnaire will use the 28 specific competencies based on the Job Analysis Advisory Committee (JAAC) - Knowledge Skills and Abilities (KSA) used for the development of the **Applied Section of the National Strength and Conditioning examination for Certified Strength and Conditioning Specialist (CSCS)**.

The competencies are separated into four categories: Exercise Technique (12 - Primary Competencies) Program Design (9 - Primary Competencies) Organization and Administration (4 - Primary Competencies) Testing and Evaluation (3 - Primary Competencies)
When navigating the questionnaire, rate the importance of each of the 28 primary competencies according to what you feel should be gained by the end of a quality S&C internship/field experience. It is also essential to consider the realistic nature of an intern developing the competency during a 300-hour field experience (about one college semester at 20 hours a week for 15 weeks).

***Lastly, please provide any additional comments specifying why you choose a rating. These optional comments will help provide context behind each decision.**

EXERCISE TECHNIQUE SECTION OF THE QUESTIONNAIRE (12 QUESTIONS)

Q1: Teach and evaluate Movement Preparation (soft tissue and flexibility/mobility, PNF, CNS prep, dynamic stretching)

- Definitely Not Important (42)
- Not Important (43)
- Slightly Important (44)
- Important (45)
- Definitely Important (46)

Please include a brief statement regarding why you have selected your choice.

Q2: Teach and evaluate Resistance Training Exercise Technique: Free Weights

- Definitely Not Important (15)
- Not Important (16)
- Slightly Important (17)
- Important (18)
- Definitely Important (19)

Please include a brief statement regarding why you have selected your choice.

Q3: Teach and evaluate Resistance Training Exercise Technique: Resistance machines (e.q. Pulley, cam, hydraulic, friction, air, tubing)

- Definitely Not Important (22)
- Not Important (23)
- Slightly Important (24)
- Important (25)
- Definitely Important (26)

Please include a brief statement regarding why you have selected your choice.

Q4: Teach and evaluate Resistance Training Exercise Technique: Alternative modes (e.g. Core, stability, balance, calisthenic, bodyweight only)

- Definitely Not Important (25)
 - Not Important (26)
 - Slightly Important (27)
 - Important (28)
 - Definitely Important (29)
-

Please include a brief statement regarding why you have selected your choice.

Q5: Teach and evaluate Resistance Training Exercise Technique: Non-traditional implements (E.g., logs, tire-flipping, heavy ropes, kettlebells, heavy medicine balls)

- Definitely Not Important (15)
 - Not Important (16)
 - Slightly Important (17)
 - Important (18)
 - Definitely Important (19)
-

Please include a brief statement regarding why you have selected your choice.

Q6: Teach and Evaluate Olympic Weight Lifting and Plyometric Exercise Technique

- Definitely Not Important (15)
- Not Important (16)
- Slightly Important (17)
- Important (18)
- Definitely Important (19)

Please include a brief statement regarding why you have selected your choice.

Q7: Teach and Evaluate Speed/Sprint Technique (e.g. resisted and assisted sprinting, speed-strength)

- Definitely Not Important (15)
- Not Important (16)
- Slightly Important (17)
- Important (18)
- Definitely Important (19)

Please include a brief statement regarding why you have selected your choice.

Q8: Teach and Evaluate Agility Technique (e.g., forward, backward and lateral movements; turn, transition, acceleration, and deceleration maneuvers)

- Definitely Not Important (15)
- Not Important (16)
- Slightly Important (17)
- Important (18)
- Definitely Important (19)

Please include a brief statement regarding why you have selected your choice.

Q10: Teach and Evaluate Energy Systems Development: Aerobic conditioning activities (e.g., treadmill, bicycle, rowing machine, stair stepper, elliptical trainer, walking, jogging, running, swimming)

- Definitely Not Important (15)
- Not Important (16)
- Slightly Important (17)
- Important (18)
- Definitely Important (19)

Please include a brief statement regarding why you have selected your choice.

Q11: Teach and Evaluate Energy Systems Development: Anaerobic conditioning activities (e.g., conditioning drills, heavy rope training, intermittent training)

- Definitely Not Important (15)
 - Not Important (16)
 - Slightly Important (17)
 - Important (18)
 - Definitely Important (19)
-

Please include a brief statement regarding why you have selected your choice.

Q12: Teach and Evaluate Recovery Techniques (e.g. hydrotherapy, sleep, hydration, soft tissue, compression, static stretching exercises)

- Definitely Not Important (15)
 - Not Important (16)
 - Slightly Important (17)
 - Important (18)
 - Definitely Important (19)
-

Please include a brief statement regarding why you have selected your choice.

Q13: Please provide any additional competency **NOT included in the Exercise Technique Section** you believe should be included.

PROGRAM DESIGN SECTION OF THE QUESTIONNAIRE (9 QUESTIONS)

Q1: Conduct Needs Analysis

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q2: Incorporate Various training Methods and Modes

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q3: Select Exercises

- Definitely Not Important (10)
 - Not Important (11)
 - Slightly Important (12)
 - Important (13)
 - Definitely Important (14)
-

Please include a brief statement regarding why you have selected your choice.

Q4: Apply the Principles of Exercise Order

- Definitely Not Important (10)
 - Not Important (11)
 - Slightly Important (12)
 - Important (13)
 - Definitely Important (14)
-

Please include a brief statement regarding why you have selected your choice.

Q5: Determine and Assign Exercise Intensities (e.g., load, resistance, heart rate)

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q6: Determine and Assign Training Volumes (defined as sets x reps)

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q7: Determine and Assign Work: Rest Periods, Recovery and Unloading, and Training

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q8: Determine and Assign Exercise Progression (e.g., mode, intensity, duration, frequency)

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q9:Identify Periodization Models and Concepts and How to Apply Them

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q10: Design Programs for Athletes During the Injury/Reconditioning Period (e.g., assigning exercises for a given acute or chronic injury or condition in collaboration with allied health professionals)

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q11: Please provide any additional competency NOT included in the Program Design you believe should be included.

ORGANISATION AND ADMINISTRATION SECTION OF THE QUESTIONNAIRE (4 QUESTIONS)

Q1: Organizational Environment (i.e., determine policies and procedures-facility cleaning, maintenance, rules, scheduling, and emergency procedures)

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q2: Determine the Design, Layout, and Organization of the Strength and Conditioning Facility (e.g., flooring, ceiling height, mirror placement, ventilation, lighting, characteristics of the equipment) Based on Athletic Needs and Industry Safety Standards

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q3: Professional Practice (i.e. understand the scope of practice for an S&C coach and when to refer to other allied health professionals)

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q4: Identify Common Litigation Issues Associated with Organizational Environment, Physical Environment, and Professional Practice and Ways to Reduce or Minimize the Risk Liability Within the Facility

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Please provide any additional competency NOT included in the Organization and Administration section you believe should be included.

TESTING, MONITORING, AND DATA EVALUATION SECTION OF THE QUESTIONNAIRE (3 QUESTIONS)

Q1: Select Appropriate Evidence-Based Tests to Maximize Test Reliability and Validity

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

Please include a brief statement regarding why you have selected your choice.

Q2: Administer Testing and Implement Monitoring Protocols and Procedures to Ensure Reliable Data Collection and Safe Performance

- Definitely Not Important (15)
 - Not Important (16)
 - Slightly Important (17)
 - Important (18)
 - Definitely Important (19)
-

Please include a brief statement regarding why you have selected your choice.

Q3: Evaluate and Interpret Results

- Definitely Not Important (10)
 - Not Important (11)
 - Slightly Important (12)
 - Important (13)
 - Definitely Important (14)
-

Please include a brief statement regarding why you have selected your choice.

Please provide any additional competency NOT included in the Testing, Monitoring, and Data Evaluation Section you believe should be included.

What's Next?

Thank you for your time in completing this first-round questionnaire for the panel work. If you like, you may still go back and review your responses before submitting them.

Once you are satisfied with your responses, please submit this questionnaire. After receiving all the questionnaires, I will collect the responses, collate them and prepare the following questionnaire.

Phase 2 (of 3) will be sent to you soon and will likely be a much shorter questionnaire than the first.

Don't forget to submit the questionnaire by clicking the arrow button to the right.

Best Regards,

Darnell K. Clark CSCS*D, RSCC*D
Doctoral Candidate
University of North Carolina Greensboro, USA

APPENDIX D: PHASE I RESULTS

Table 7D. Phase I Results (Primary Competencies)

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
Exercise Technique							
Teach & Evaluate Movement Preparation	0.00%	0.00%	8.11%	40.54%	51.35%	91.89%	100.00%
Teach & Evaluate Resistance Training Exercise Technique: Free Weights	0.00%	0.00%	0.00%	16.22%	83.78%	100.00%	100.00%
Teach and evaluate Resistance Training Exercise Technique: Resistance machines (e.q. Pulley, cam, hydraulic, friction, air, tubing)	0.00%	5.41%	35.14%	48.65%	10.80%	59.45%^a	100.00%
Teach and evaluate Resistance Training Exercise Technique: Alternative modes (e.q. Core, stability, balance, calisthenic, bodyweight only)	0.00%	2.70%	8.11%	32.43%	56.76%	89.19%	100.00%
Teach and evaluate Resistance Training Exercise Technique: Non-traditional implements (E.g., logs, tire-flipping, heavy ropes, kettlebells, heavy medicine balls)	0.00%	2.70%	59.46%	35.14%	2.70%	37.84%^a	100.00%
Teach and Evaluate Olympic Weight Lifting and Plyometric Exercise Technique	0.00%	0.00%	5.41%	18.92%	75.67%	94.59%	100.00%
Teach and Evaluate Speed/Sprint Technique (e.g. resisted and assisted sprinting, speed-strength)	0.00%	0.00%	5.41%	37.84%	56.75%	94.59%	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
Teach and Evaluate Agility Technique (e.g., forward, backward and lateral movements; turn, transition, acceleration, and deceleration maneuvers)	0.00%	0.00%	11.11%	36.11%	52.78%	88.89%	100.00%
Teach and Evaluate Energy Systems Development: Aerobic conditioning activities (e.g., treadmill, bicycle, rowing machine, stair stepper, elliptical trainer, walking, jogging, running, swimming)	0.00%	10.81%	24.32%	32.43%	32.44%	64.87%^a	100.00%
Teach and Evaluate Energy Systems Development: Anaerobic conditioning activities (e.g., conditioning drills, heavy rope training, intermittent training)	0.00%	5.56%	16.67%	36.11%	41.66%	77.77%	100.00%
Teach and Evaluate Recovery Techniques (e.g. hydrotherapy, sleep, hydration, soft tissue, compression, static stretching exercises)	0.00%	8.11%	27.03%	43.24%	21.62%	64.86%^a	100.00%
Program Design							
Conduct Needs Analysis	0.00%	2.70%	2.70%	27.03%	67.57%	94.60%	100.00%
Incorporate Various training Methods and Modes	0.00%	0.00%	27.02%	37.84%	35.14%	72.98%^a	100.00%
Select Exercises	0.00%	0.00%	10.81%	35.14%	54.05%	89.19%	100.00%
Apply the Principles of Exercise Order	0.00%	0.00%	8.33%	36.11%	55.56%	91.67%	100.00%
Determine and Assign Exercise Intensities (e.g., load, resistance, heart rate)	0.00%	2.70%	8.11%	37.84%	51.35%	89.19%	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
Determine and Assign Training Volumes (defined as sets x reps)	0.00%	0.00%	5.41%	40.54%	54.05%	94.59%	100.00%
Determine and Assign Work: Rest Periods, Recovery and Unloading, and Training	0.00%	2.78%	11.11%	50.00%	36.11%	86.11%	100.00%
Determine and Assign Exercise Progression (e.g., mode, intensity, duration, frequency)	0.00%	2.70%	8.11%	43.24%	45.95%	89.19%	100.00%
Identify Periodization Models and Concepts and How to Apply Them	0.00%	2.70%	16.22%	54.05%	27.03%	81.08%	100.00%
Design Programs for Athletes During the Injury/Reconditioning Period (e.g., assigning exercises for a given acute or chronic injury or condition in collaboration with allied health professionals)	0.00%	2.70%	29.73%	37.84%	29.73%	67.57%^a	100.00%
Organization and Administration							
Organizational Environment (i.e., determine policies and procedures-facility cleaning, maintenance, rules, scheduling, and emergency procedures)	0.00%	2.70%	32.43%	32.43%	32.44%	64.87%^a	100.00%
Determine the Design, Layout, and Organization of the Strength and Conditioning Facility (e.g., flooring, ceiling height, mirror placement, ventilation, lighting, characteristics of the equipment) Based on Athletic Needs and Industry Safety Standards	2.70%	8.11%	37.84%	27.03%	24.32%	51.35%^a	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
Professional Practice (i.e. understand the scope of practice for an S&C coach and when to refer to other allied health professionals)	0.00%	0.00%	2.70%	45.95%	51.35%	97.30%	100.00%
Identify Common Litigation Issues Associated with Organizational Environment, Physical Environment, and Professional Practice and Ways to Reduce or Minimize the Risk Liability Within the Facility	0.00%	10.81%	16.22%	45.95%	27.03%	72.98%^a	100.01%
Testing, Monitoring, And Data Evaluation							
Select Appropriate Evidence-Based Tests to Maximize Test Reliability and Validity	0.00%	5.56%	11.11%	50.00%	33.33%	83.33%	100.00%
Administer Testing and Implement Monitoring Protocols and Procedures to Ensure Reliable Data Collection and Safe Performance		2.70%	2.70%	59.46%	35.14%	94.60%	100.00%
Evaluate and Interpret Results	0.00%	0.00%	16.22%	45.95%	37.83%	83.78%	100.00%

^ano consensus.

PHASE II - S&C Field Experience

Competency Survey

Questionnaire Introduction:

Thank you for taking the time to participate in this research project survey. As a member of a global community of expert strength & conditioning coaches and educators, your involvement in this study will provide a blueprint for internship curriculum development. **Round 2 (of 3)** of this questionnaire will take approximately 20 minutes. Before completing this survey, you will have the opportunity to review and change your responses before submission. Please use your assigned four-digit identification number (Given to you in the email with the survey link). This number will allow for your identity to remain confidential.

Information Page Project Title: Coach Readiness: Strength & Conditioning Competencies Developed Through Field Experiences.

Investigator: Darnell Clark

Faculty Advisor: Dr. Michael Hemphill

What is this project about? This research project will use a three-tiered Delphi Study Method to poll strength & conditioning experts about expected competencies students should develop after a 300-hour internship experience (about one college semester). I am asking you to participate in this research study because I want to create better professional preparation internships for emerging strength and conditioning coaches. Will this negatively affect me? No, other than the time you spend on this project there are no known or foreseeable risks involved with this study. What do I get out of this research project? There are no personal benefits. Will I get paid for participating? There is no compensation for your participation. What about my confidentiality? A four-digit identification number in lieu of personal identification for tracking purposes (using a random number generator). This will allow for confidential identification. We will do everything possible to make sure that your information is kept confidential. All information obtained in this study is strictly confidential unless disclosure is required by law. In addition, all data will be stored on a secure cloud storage service. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when

finished so no one will be able to see what you have been doing. What if I do not want to be in this research study? You do not have to be part of this project. This project is voluntary and it is up to you to decide to participate in the research project. If you agree to participate at any time in this project you may stop participating without penalty. What if I have questions? You can ask Darnell Clark (dkclark@uncg.edu), and Michael Hemphill (mahemphi@uncg.edu) anything about the study. If you have concerns about how you have been treated in this study call the Office of Research Integrity Director at 1-855-251-2351.

Round 2 - Questionnaire Overview

In Round 1, you and 37 other expert strength and conditioning coaches rated the importance of each of the 28 primary competencies according to what your professional opinion believes should be gained by the end of a quality S&C internship/field experience. To **move on to Round 2**, a competency needed to score 75% or above consensus (defiantly important or important) among all participating coaches. To be **removed** from the competency list there needed to be a score of 75% or above consensus (defiantly not important or not important) among all participating coaches. If a competency had no consensus of 75% or above, that competency needs to be **Re-Rated** to be either promoted or removed. **In Round 2, you will need to do two things: Rate the importance of the Sub - competencies that moved on to Round 2 Re-rate the importance of the competencies with no consensus of 75% or above. In other words, competencies on "the bubble" of being promoted or removed. Note: You will be provided with others' comments during the Re-rating process to provide additional points of view.**

**Lastly, It is also essential to consider the realistic nature of a student intern developing competency during a 300-hour field experience (about one college semester at 20 hours a week for 15 weeks). I am not asking if competency is essential to be a strength coach; I am asking you to rate the importance of the competency learned during an internship experience.*

EXERCISE TECHNIQUE SECTION OF THE QUESTIONNAIRE

Rating Sub-Competency (7 QUESTIONS)

Q1: Teach and evaluate Movement Preparation (soft tissue and flexibility/mobility, PNF, CNS prep, dynamic stretching)

Rate Sub-competency for each

- I. Preparatory body limb and position (e.g., stance, posture, alignment)
- ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)

- iii. Cuing and coaching, monitoring for safety
- iv. Assessment, correction, and modification of exercise technique

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iv. (45)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2: Teach and evaluate Resistance Training Exercise Technique: Free Weights

Rate Sub-competency for each

- I. Preparatory body limb and position (e.g., stance, posture, alignment)
- ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)
- iii. Spotting procedures and technique, cuing and coaching, monitoring for safety
- iv. Assessment, correction, and modification of exercise technique

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iv. (45)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4: Teach and evaluate Resistance Training Exercise Technique: Alternative modes (e.g. Core, stability, balance, calisthenic, bodyweight only)

Rate Sub-competency for each

- I. Preparatory body and limb position (e.g., grip, stance, alignment)
- ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)
- iii. Assessment, correction, and modification of exercise technique

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6: Teach and Evaluate Olympic Weight Lifting and Plyometric Exercise Technique

Rate Sub-competency for each

- I. Preparatory body and limb position (e.g., stance, posture, alignment)
- ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)
- iii. Assessment, correction, and modification of exercise technique

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7: Teach and Evaluate Speed/Sprint Technique (e.g. resisted and assisted sprinting, speed-strength)

Rate Sub-competency for each

- I. Preparatory body and limb position (e.g., stance, posture, alignment)
- ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)
- iii. Assessment, correction, and modification of exercise technique

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8: Teach and Evaluate Agility Technique (e.g., forward, backward and lateral movements; turn, transition, acceleration, and deceleration maneuvers)

Rate Sub-competency for each

- I. Preparatory body and limb position (e.g., stance, posture, alignment)
- ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)
- iii. Assessment, correction, and modification of exercise technique

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11: Teach and Evaluate Energy Systems Development: Anaerobic conditioning activities (e.g., conditioning drills, heavy rope training, intermittent training)

Rate Sub-competency for each

- I. Machine programming and setup
- ii. Preparatory body and limb position (e.g., stance, posture, alignment)
- iii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)
- iv.. Assessment, correction, and modification of exercise technique

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iv. (53)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Re-Rating (4 QUESTIONS)

Q3: Teach and evaluate Resistance Training Exercise Technique: Resistance machines (e.q. Pulley, cam, hydraulic, friction, air, tubing)

Coaches Comments from Round 1: Making sure that students understand how to align the direction of the force to the movement of the joint is important. Less important., teaching and cueing movement patterns is more important as these translate to athletic movements. Certain machines have become a part of the programming for athletes Allows for constant tension so teaching how to control that constant tension in all directions is important Machines do not need as much guidance/coaching as free weight exercises; however, having familiarity with these modalities is important including how the resistance (accommodating in some cases) is applied. In addition, familiarity will be important when working in rehab settings as well. Not as important as free weight exercises and not as technical . I chose this because when students

and athletes get injured they need to know how to modify their workouts toward recovery and return to play. It is important to be well-versed and understand how to safely set someone up on a machine. As machine-based training lacks dynamic correspondence to performance it should not be a primary aspect of any training program - it however has uses and coaches must be familiar with how to teach these.

Please Assess and Re-Rate this Competency:

- Definitely Not Important (22)
- Not Important (23)
- Slightly Important (24)
- Important (25)
- Definitely Important (26)

Q5: Teach and evaluate Resistance Training Exercise Technique: Non-traditional implements (E.g., logs, tire-flipping, heavy ropes, kettlebells, heavy medicine balls)

Coaches Comments from Round 1: KB's and med balls are critical tools in most professional training facilities. They should be competent in coaching and required exercises with these tools. This isn't quite as important as there is limited time in a semester. Enables exposure to various forms of exercise that can be used for metabolic or resistance training and offers the opportunity to apply alterations to program design in concert with principles of periodization. They are less traditional methods used less frequently (likely), so less time can be spent learning these methods in my opinion. These are often location-dependent. While good to know when the student goes to another facility they may or may not have the same equipment. I chose this because some sports teams have long used these modalities for training like wrestling. The value of Kettlebells is unprecedented for volume training and power. This is why I got the RKC certification. This is not essential, but it would be good to have a basic understanding. There is a time and place for these implements and it's only after another more standard style of training has been established. From primary emphasis to Auxillary emphasis, these movements would be less critical. Most athletes using these non-traditional implements will be supplementing their training, so we assume the training age is higher; therefore, movement competency is better. Not as important as others, however being taught how to

safely implement any of these exercises might be beneficial.

Please Assess and Re-Rate this Competency:

- Definitely Not Important (15)
 - Not Important (16)
 - Slightly Important (17)
 - Important (18)
 - Definitely Important (19)
-

Q10: Teach and Evaluate Energy Systems Development: Aerobic conditioning activities (e.g., treadmill, bicycle, rowing machine, stair stepper, elliptical trainer, walking, jogging, running, swimming)

Coaches Comments from Round 1: Unless the student is trained in these disciplines I think the student should observe the mentor. The student should be introduced to these methods and understand them while obtaining competency in ESD may not be the best use of an internship. Needs to be comfortable with modalities such as Watt bikes and the data collected from them. Should also be competent with Woodway treadmills and rowers. The machines are somewhat self-explanatory and the theory is mostly covered in didactic courses. Understanding the importance of the aerobic system is crucial to overall health and fitness as well as sports performance. More priority should be put on scientific principles governing energy systems as it relates to sport demands. Training modalities are often learned through time with respect to available equipment and scheduling constraints. Most of our conditioning comes through sports practice and training, pending sport, there may be off-season time to evaluate and work on this. Most of this is spent with players' RTP protocols and our data analytics provides us with much-needed feedback on this area for individuals. It's hard to get through all these in a semester and know how each energy system can be developed. I feel this is better in a class session than in an internship. This is an essential S&C method and practitioners should have competence in this area, however, aerobic conditioning is less important than anaerobic in most S&C settings. Many colleges and HS's do not have any of this equipment available without ATP nothing happens. Students need to understand ESD beyond metabolic pathways but more so

how to program

Please Assess and Re-Rate this Competency:

- Definitely Not Important (15)
 - Not Important (16)
 - Slightly Important (17)
 - Important (18)
 - Definitely Important (19)
-

Q12: Teach and Evaluate Recovery Techniques (e.g. hydrotherapy, sleep, hydration, soft tissue, compression, static stretching exercises)

Coaches Comments from Round 1: Interns should obtain competency in understanding the fundamentals and the importance of recovery methods. Recovery is where gains are made Understanding the theory is important, but in different settings may not be the responsibility of the SC coach. Another very important area. I would expect the coach to have a good understanding of this from college but this is not always the case. Vital but not critical. Exposure to these modalities is important but not mastery. The skill of discernment should be a priority when teaching an intern how to evaluate the efficacy of potential recovery techniques. Learning how to give proper authority to validated methodologies and when some may be more applicable than others. This can be very environment/institution specific. a power 5 institution may have dietetics interns, sport science interns, AT interns, etc., in that case an S&C intern may be stepping outside their lane by teaching nutrient timing techniques. Something that could be explored in an interdisciplinary setting but roles and responsibilities should be properly and explicitly explained. Training age will depend on how much teaching and evaluation are needed. These are very important to athletic performance but might get some of this from AT, nutrition, or sports science staff. With some of it, the 'stay within your scope of practice is relevant to an extent. I think coaches can help relay the message of how to create good habits for these things, though. Important to be able to cover and give education about these areas to athletes even if you have no real resources related to these areas in your facility. Not a requirement but nice to

have.

Please Assess and Re-Rate this Competency:

- Definitely Not Important (15)
- Not Important (16)
- Slightly Important (17)
- Important (18)
- Definitely Important (19)

PROGRAM DESIGN SECTION OF THE QUESTIONNAIRE
Rate Sub-Competencies (7 QUESTIONS)

Q1: Conduct Needs Analysis

Rate Sub-competency for each

- i. Evaluation of the sport (movement, physiological injury analysis)
- ii. Assessment of the athlete (training status, physical testing, and evaluation, primary resistance training goal)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q3: Select Exercises

Rate Sub-competency for each

- i. Exercises specific to movement patterns of a particular sport (e.g., an exercise and its application and effectiveness for a sport, an exercise and movements involved in a sport, an exercise and muscles used in sport)
- ii. Exercises (e.g., power, core, assistance, structural) based upon the type or number of the involved muscle group or groups (e.g., what exercise trains certain muscle(s); how to change an

exercise to change the involved muscles)

iii. Exercises based upon the type of kinetic chain movement (e.g., open or closed)

iv. Exercises to minimize injury potential (e.g., hamstring versus quadriceps, upper body versus lower body)

v. Exercises to promote recover

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iv. (53)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. (54)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4: Apply the Principles of Exercise Order

Rate Sub-competency for each

I. Order of exercises based on the training goal

ii. Variations in exercise orders (e.g., large to small muscle groups, alternating push with pull, alternating upper body exercises with lower body exercises)

iii. Variations in exercise modes (e.g., explosive training, strength training, warmup/workout/cooldown, energy system training prioritization)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5: Determine and Assign Exercise Intensities (e.g., load, resistance, heart rate)

Rate Sub-competency for each

i. Methods for assigning an exercise load (e.g., a percent of the 1RM or the athlete's body weight, RM loads, RPE) or exercise heart rate (e.g., a percent of maximum heart rate or functional capacity, the Karvonen method)

ii. Load or exercise heart rate based on the training goal (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic endurance)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5: Determine and Assign Exercise Intensities (e.g., load, resistance, heart rate)

Rate Sub-competency for each

i. Outcomes associated with the manipulation of training volume

ii. Volume based on the training goal (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7: Determine and Assign Work: Rest Periods, Recovery and Unloading, and Training Rate Sub-competency for each

i. Work:rest periods and recovery (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity)

ii. Training frequency (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity, exercise recovery)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9:Identify Periodization Models and Concepts and How to Apply Them

Rate Sub-competency for each

i. Periodization (e.g., the periods/phases/cycles, the types of training programs associated with the phases/periods/cycles)

ii. Training variations based on a sport season (i.e., a certain training period, phase, or cycle for a specific sport season)

iii. A periodized program specific to the athlete's demands of a sport, position, and training level (e.g., annual plan)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (55)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Re-Rating Competency (2 QUESTIONS)

Q2: Incorporate Various training Methods and Modes

Coaches Comments from Round 1: An intern should be exposed to methods and modes but being competent is a tall order. This knowledge will be developed over time in the profession. The intern should get some exposure to why we choose our methods. As an intern, he/she needs to master basics...I see this is more advanced competency and may not be suitable for interns. Another very important area. I would expect the coach to have a good understanding of this from college but this is not always the case. Knowledge of training methods will grow over time. Discerning which are valuable and which aren't is more important than having a wide range of various training modalities at such an early point in a coaching career. Variety for adaptation purposes and to keep interest levels high, the phase of training is important for implementing these various modes and goals associated with it. In a 300-hour internship, learning the primary methods and modes of training will be the priority. Coaches must be adaptable based on uncontrollable circumstances. Essential aspect and practitioners need competence. It is important to have variation in training, but not randomness.

Please Assess and Re-Rate this Competency:

- Definitely Not Important (10)
 - Not Important (11)
 - Slightly Important (12)
 - Important (13)
 - Definitely Important (14)
-

Q10: Design Programs for Athletes During the Injury/Reconditioning Period (e.g., assigning exercises for a given acute or chronic injury or condition in collaboration with allied health professionals)

Coaches Comments from Round 1: Important in the grand scheme of S&C but not the best time spent training interns to the point of developing competency. Better done in conjunction with a medical team (AT, PT, etc...) not exclusive to the preceptor. This role would have some exposure to being a part of the RTP process. This can be a make-or-break situation. Most of the allied health professions have misconceptions about each other. The more a coach can understand where an ATC, PT, or ETC. is coming from and what language they speak, the better care the athlete will receive. It would be beneficial for full-time staff to present their return-to-play frameworks and even specific programs they have used in the past, so interns could gain an insight into the right questions to ask and important considerations.

Depends on the sport and the role of ATC and PT in the process as to how much falls on the strength coach pending time out and where they are in the RTP process. This is good to know but not necessary for an intern This is critical for those planning to work in a team settings Definitely important but maybe not at sacrifice as for health pops. This is an entire course in itself Could be more important if they don't have the resources of athletic trainers or PTs

Please Assess and Re-Rate this Competency:

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

ORGANIZATION AND ADMINISTRATION SECTION OF THE QUESTIONNAIRE
Rate Sub-Competency (1 QUESTION)

Q3: Professional Practice (i.e. understand the scope of practice for an S&C coach and when to refer to other allied health professionals)

Rate Sub-competency for each

- i. Identify and work within the scope of practice for the strength and conditioning staff
- ii. Abide by the NSCA Codes, Policies, and Procedures
- iii. Abide by the standards and practices of relevant governing bodies related to the implementation of the strength and conditioning program
- iv. Recognize and respond to symptoms of unsafe training practices (e.g., overuse, overtraining, temperature-induced illness)

v. Recognize when to refer an athlete to and collaborate with allied health professionals (e.g., athletic trainer, physical therapist, physician, registered dietitian, sports psychologist)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iv. (53)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. (54)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Re-Rating Competency (3 QUESTIONS)

Q1: Organizational Environment (i.e., determine policies and procedures-facility cleaning, maintenance, rules, scheduling, and emergency procedures)

Coaches Comments from Round 1: Having experience and discussing this topic with the supervisor is important...however, this should be able to learn from textbooks.

Important in the grand scheme of S&C but not the best time spent training interns to the point of developing competency. Many internships do not cover this and we need this to produce competent PROFESSIONALS. Good to understand because many interns are in charge of facility maintenance but not policies & procedures Should have a good understanding of all of the above, in case they are immediately thrown into a situation where those skills are needed. Oftentimes, this is the entirety of the intern experience. While I am not suggesting that is ideal, I do think a certain amount of effort in respect to emergency procedures specifically is important. It's good to know the basics such as rules, cleaning, and emergency procedures but the rest is hard to get through in a single semester

Obviously, org and ad are important but not compared to previous sections.

Another important piece of the puzzle is to have a full understanding of protocols and

policies to reduce liability and increase compliance. Many organizations will have that in place, but could be more important if starting your own business or starting from scratch

Please Assess and Re-Rate this Competency:

- Definitely Not Important (10)
 - Not Important (11)
 - Slightly Important (12)
 - Important (13)
 - Definitely Important (14)
-

Q2: Determine the Design, Layout, and Organization of the Strength and Conditioning Facility (e.g., flooring, ceiling height, mirror placement, ventilation, lighting, characteristics of the equipment) Based on Athletic Needs and Industry Safety Standards

Coaches Comments from Round 1: I am not sure if an intern would possess all competencies in this area by the end of an internship. Only if you are designing one Just out of an internship, an awareness of this is important and will definitely set an individual apart. But I think a coach learns this best over time, given a variety of experiences in different settings. Good to understand for future decisions and helping with projects time will be better spent learning the x's and o's . Another piece of the puzzle as a true industry professional Internships will happen at a facility that already is set up so this wouldn't be an important aspect to learn during a semester. This piece is not taught enough, and most coaches are left to figure it out - both good and bad. It is hard to comprehend this as a young coach without experience. This is something that can be learned over time as an intern moves up the "ladder" but is likely not as important when starting out. The layout is always considered but more for maximizing space and utilization of equipment. With our small room, it trying to fit what we can in a space and still be efficient, only say slightly because we don't deal with them unless designing a new room-

Please Assess and Re-Rate this Competency:

- Definitely Not Important (10)
 - Not Important (11)
 - Slightly Important (12)
 - Important (13)
 - Definitely Important (14)
-

Q4: Identify Common Litigation Issues Associated with Organizational Environment, Physical Environment, and Professional Practice and Ways to Reduce or Minimize the Risk Liability Within the Facility

Coaches Comments from Round 1: I am not sure if an intern would possess all competencies in this area by the end of an internship. Probably can't understand all of this in one semester, but need to be aware of it. The more you can minimize risk the better - also can be a way to show that you need more help in small settings. Another very important area. I would expect the coach to have a good understanding of this from college but this is not always the case. Only say slightly important only because we don't spend a lot of time on this. we expect our coaches to be professional and always work in a safe manner both for themselves and the student-athletes This will keep our professional standards very high and exceptional. Similar but one step of importance above layout and organization, I think it would be helpful for interns to be aware of these issues, however, they can refer back to appropriate materials when needed. Overall culture of the weight room - kind of goes into policies, overall standards, and expectations of staff versus the client/ student-athletes. While mostly handled by the University, we are part of the process. This seems out of the scope of an internship

Please Assess and Re-Rate this Competency:

- Definitely Not Important (10)
- Not Important (11)
- Slightly Important (12)
- Important (13)
- Definitely Important (14)

**TESTING, MONITORING, AND DATA EVALUATION SECTION OF THE QUESTIONNAIRE
Rate Sub-Competencies (3 QUESTIONS)**

Q1: Select Appropriate Evidence-Based Tests to Maximize Test Reliability and Validity

Rate Sub-competency for each

- i. Tests based upon the unique aspects of an exercise classification, sport, sport position, health, and training status
- ii. Test administration procedures that use equipment, personnel, and time efficiently

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2: Administer Testing and Implement Monitoring Protocols and Procedures to Ensure Reliable Data Collection and Safe Performance

Rate Sub-competency for each

- i. Testing and monitoring equipment and its proper use
- ii. Testing and monitoring procedures (e.g., warm-up, how to test, proper rest between trials, athlete readiness)
- iii. Testing to assess physical characteristics and workloads (e.g., anthropometrics,

physiological and mechanical stress) and evaluate performance (e.g., muscular strength, power, aerobic/anaerobic capacity, muscular endurance, agility, speed, flexibility)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (55)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q3: Evaluate and Interpret Results

Rate Sub-competency for each

i. Validity of test results

ii. Typical vs. atypical results based on a sport, sport position, and the individual

iii. Design or modification of the training program based on results to ensure safe performance (i.e., determine which outcome of training needs to be improved in a future program)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (55)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What's Next?

Thank you for your time in completing the Phase 2 questionnaire for the expert panel work. If you like, you may still go back and review your responses before submitting them.

Once you are satisfied with your responses, please submit this questionnaire. After receiving all the questionnaires, I will collect the responses, collate them and prepare the following questionnaire.

Phase 3 (of 3) will be sent to you soon and will likely be a much shorter questionnaire than the first two.

Don't forget to submit the questionnaire by clicking the arrow button to the right.

Best Regards,

Darnell K. Clark CSCS*D, RSCC*D
Doctoral Candidate
University of North Carolina Greensboro, USA

APPENDIX F: PHASE II RESULTS

Table 8F. Phase II Results (Sub-Competencies)

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
Exercise Technique							
Teach and evaluate Movement Preparation (soft tissue and flexibility/mobility, PNF, CNS prep, dynamic stretching)							
i. Preparatory body limb and position (e.g., stance, posture, alignment)	0.00%	2.63%	13.16%	36.84%	47.37%	84.21%	100.00%
ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)	0.00%	0.00%	15.79%	28.95%	55.26%	84.21%	100.00%
iii. Cuing and coaching, monitoring for safety	0.00%	0.00%	18.42%	31.58%	50.00%	81.58%	100.00%
iii. Assessment, correction, and modification of exercise technique	0.00%	2.63%	13.16%	39.47%	44.74%	84.21%	100.00%
Teach and evaluate Resistance Training Exercise Technique: Free Weight							
I. Preparatory body limb and position (e.g., stance, posture, alignment)	0.00%	0.00%	5.26%	26.32%	68.42%	94.74%	100.00%
ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)	0.00%	0.00%	5.26%	21.05%	73.69%	94.74%	100.00%
iii. Spotting procedures and technique, cuing and coaching, monitoring for safety	0.00%	2.63%	5.26%	15.79%	76.32%	92.11%	100.00%
iv. Assessment, correction, and modification of exercise technique	2.70%	0.00%	8.11%	24.32%	64.87%	89.19%	100.00%
Teach and evaluate Resistance Training Exercise Technique: Alternative modes (e.g. Core, stability, balance, calisthenic, bodyweight only)							
I. Preparatory body limb and position (e.g., stance, posture, alignment)	0.00%	2.63%	13.16%	34.21%	50.00%	84.21%	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)	0.00%	0.00%	15.79%	28.95%	55.26%	84.21%	100.00%
iii. Assessment, correction, and modification of exercise technique	2.63%	0.00%	13.16%	34.21%	50.00%	84.21%	100.00%
Teach and Evaluate Olympic Weight Lifting and Plyometric Exercise Technique							
i. Preparatory body limb and position (e.g., stance, posture, alignment)	2.63%	0.00%	5.26%	23.68%	68.43%	92.11%	100.00%
ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)	2.63%	2.63%	5.26%	18.42%	71.06%	89.48%	100.00%
iii. Assessment, correction, and modification of exercise technique	2.63%	2.63%	5.26%	23.68%	65.80%	89.48%	100.00%
Teach and Evaluate Speed/Sprint Technique (e.g. resisted and assisted sprinting, speed-strength)							
i. Preparatory body limb and position (e.g., stance, posture, alignment)	0.00%	0.00%	18.42%	28.95%	52.63%	81.58%	100.00%
ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)	0.00%	0.00%	21.05%	34.21%	44.74%	78.95%	100.00%
iii. Assessment, correction, and modification of exercise technique	2.63%	0.00%	18.42%	31.58%	47.37%	78.95%	100.00%
Teach and Evaluate Agility Technique (e.g., forward, backward and lateral movements; turn, transition, acceleration, and deceleration maneuvers)							
i. Preparatory body limb and position (e.g., stance, posture, alignment)	0.00%	0.00%	23.68%	34.21%	42.11%	76.32%	100.00%
ii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)	0.00%	0.00%	21.05%	39.47%	39.48%	78.95%	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
iii. Assessment, correction, and modification of exercise technique	0.00%	2.63%	26.32%	28.95%	42.11%	71.06% ^a	100.01%
Teach and Evaluate Energy Systems Development: Anaerobic conditioning activities (e.g., conditioning drills, heavy rope training, intermittent training)							
i. Machine programming and setup	0.00%	13.16%	39.47%	26.32%	21.05%	47.37% ^a	100.00%
ii. Preparatory body and limb position (e.g., stance, posture, alignment)	0.00%	0.00%	34.21%	44.74%	21.05%	65.79% ^a	100.00%
iii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)	0.00%	2.63%	31.58%	36.84%	28.95%	65.79% ^a	100.00%
iv. Assessment, correction, and modification of exercise technique	0.00%	8.11%	24.32%	37.84%	29.73%	67.57% ^a	100.00%
Re-Rating Exercise Technique (4 questions)							
Teach and evaluate Resistance Training Exercise Technique: Resistance machines (e.g. Pulley, cam, hydraulic, friction, air, tubing)	5.26%	15.79%	42.11%	31.58%	5.26%	36.84% ^a	100.00%
Teach and evaluate Resistance Training Exercise Technique: Non-traditional implements (E.g., logs, tire-flipping, heavy ropes, kettlebells, heavy medicine balls)	0.00%	15.79%	50.00%	31.58%	2.63%	34.21% ^a	100.00%
Teach and Evaluate Energy Systems Development: Aerobic conditioning activities (e.g., treadmill, bicycle, rowing machine, stair stepper, elliptical trainer, walking, jogging, running, swimming)	0.00%	13.16%	44.74%	36.84%	5.26%	42.10% ^a	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
Teach and Evaluate Recovery Techniques (e.g. hydrotherapy, sleep, hydration, soft tissue, compression, static stretching exercises)	2.63%	10.53%	36.84%	39.47%	10.54%	50.01%^a	100.01%
Program Design							
Conduct Needs Analysis							
i. Evaluation of the sport (movement, physiological injury analysis)	0.00%	0.00%	2.63%	36.84%	60.53%	97.37%	100.00%
ii. Assessment of the athlete (training status, physical testing, and evaluation, primary resistance training goal)	0.00%	0.00%	5.26%	36.84%	57.90%	94.74%	100.00%
Select Exercises							
i. Exercises specific to movement patterns of a particular sport (e.g., an exercise and its application and effectiveness for a sport, an exercise and movements involved in a sport, an exercise and muscles used in sport)	0.00%	2.63%	18.42%	44.74%	34.20%	78.94%	99.99%
ii. Exercises (e.g., power, core, assistance, structural) based upon the type or number of the involved muscle group or groups (e.g., what exercise trains certain muscle(s); how to change an exercise to change the involved muscles)	0.00%	0.00%	15.79%	39.47%	44.74%	84.21%	100.00%
iii. Exercises based upon the type of kinetic chain movement (e.g., open or closed)	0.00%	2.63%	28.95%	39.47%	28.95%	68.42%^a	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
iv. Exercises to minimize injury potential (e.g., hamstring versus quadriceps, upper body versus lower body)	0.00%	0.00%	13.16%	31.58%	55.26%	86.84%	100.00%
v. Exercises to promote recover	2.63%	5.26%	31.58%	42.11%	18.42%	60.53%^a	100.00%
Apply the Principles of Exercise Order							
i. Order of exercises based on the training goal	0.00%	2.63%	5.26%	47.37%	44.74%	92.11%	100.00%
ii. Variations in exercise orders (e.g., large to small muscle groups, alternating push with pull, alternating upper body exercises with lower body exercises)	0.00%	5.26%	5.26%	52.63%	36.85%	89.48%	100.00%
iii. Variations in exercise modes (e.g., explosive training, strength training, warmup/workout/cooldown, energy system training prioritization)	0.00%	5.26%	10.53%	31.58%	52.63%	84.21%	100.00%
Determine and Assign Exercise Intensities (e.g., load, resistance, heart rate)							
i. Methods for assigning an exercise load (e.g., a percent of the 1RM or the athlete's body weight, RM loads, RPE) or exercise heart rate (e.g., a percent of maximum heart rate or functional capacity, the Karvonen method)	2.70%	0.00%	16.22%	48.65%	32.43%	81.08%	100.00%
ii. Load or exercise heart rate based on the training goal (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic endurance)	0.00%	0.00%	18.42%	36.84%	44.74%	81.58%	100.00%
Determine and Assign Training Volumes (defined as sets x reps)							

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
i. Outcomes associated with the manipulation of training volume	2.70%	0.00%	16.22%	48.65%	32.43%	81.08%	100.00%
ii. Volume based on the training goal (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity)	0.00%	0.00%	18.42%	36.84%	44.74%	81.58%	100.00%
Determine and Assign Work: Rest Periods, Recovery and Unloading, and Training							
i. Work:rest periods and recovery (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity)	0.00%	2.63%	26.32%	36.84%	34.21%	71.05%^a	100.00%
ii. Training frequency (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity, exercise recovery)	0.00%	2.63%	18.42%	39.47%	39.87%	79.34%	100.39%
Periodization Models and Concepts and How to Apply Them							
i. Periodization (e.g., the periods/phases/cycles, the types of training programs associated with the phases/periods/cycles)	0.00%	2.63%	7.89%	42.11%	47.37%	89.48%	100.00%
ii. Training variations based on a sport season (i.e., a certain training period, phase, or cycle for a specific sport season)	0.00%	2.63%	15.79%	28.95%	52.63%	81.58%	100.00%
iii. A periodized program specific to the athlete's demands of a sport, position, and training level (e.g., annual plan)	0.00%	5.26%	23.68%	23.68%	47.38%	71.06%^a	100.00%
Re-rating Program Design (2 questions)							
Incorporate Various training Methods and Modes	0.00%	15.79%	21.05%	44.74%	18.42%	63.16%^a	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
Programs for Athletes During the Injury/Reconditioning Period (e.g., assigning exercises for a given acute or chronic injury or condition in collaboration with allied health professionals)	0.00%	2.70%	29.73%	37.84%	29.73%	67.57% ^a	100.00%
Organization and Administration							
Professional Practice (i.e. understand the scope of practice for an S&C coach and when to refer to other allied health professionals)							
i. Identify and work within the scope of practice for the strength and conditioning staff	0.00%	0.00%	7.89%	52.63%	39.47%	92.10%	99.99%
ii. Abide by the NSCA Codes, Policies, and Procedures	0.00%	2.63%	28.95%	34.21%	34.21%	68.42% ^a	100.00%
iii. Abide by the standards and practices of relevant governing bodies related to the implementation of the strength and conditioning program	0.00%	2.63%	21.05%	42.11%	34.21%	76.32%	100.00%
iv. Recognize and respond to symptoms of unsafe training practices (e.g., overuse, overtraining, temperature-induced illness)	0.00%	0.00%	10.53%	28.95%	60.52%	89.47%	100.00%
v. Recognize when to refer an athlete to and collaborate with allied health professionals (e.g., athletic trainer, physical therapist, physician, registered dietitian, sports psychologist)	0.00%	0.00%	5.26%	42.11%	52.63%	94.74%	100.00%
Re-Rate Organization and Administration Competencies (3 Questions)							

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
Organizational Environment (i.e., determine policies and procedures–facility cleaning, maintenance, rules, scheduling, and emergency procedures)	0.00%	13.16%	28.95%	39.47%	18.42%	57.89% ^a	100.00%
Determine the Design, Layout, and Organization of the Strength and Conditioning Facility (e.g., flooring, ceiling height, mirror placement, ventilation, lighting, characteristics of the equipment) Based on Athletic Needs and Industry Safety Standards	8.11%	27.03%	32.43%	21.62%	10.81%	32.43% ^a	100.00%
Identify Common Litigation Issues Associated with Organizational Environment, Physical Environment, and Professional Practice and Ways to Reduce or Minimize the Risk Liability Within the Facility	5.26%	15.79%	34.21%	36.84%	7.90%	44.74% ^a	100.00%
Testing, Monitoring, and Data Evaluation Section of the Questionnaire							
Select Appropriate Evidence-Based Tests to Maximize Test Reliability and Validity							
i. Tests based upon the unique aspects of an exercise classification, sport, sport position, health, and training status	0.00%	2.63%	15.79%	52.63%	28.95%	81.58%	100.00%
ii. Test administration procedures that use equipment, personnel, and time efficiently	0.00%	5.26%	13.16%	52.63%	28.95%	81.58%	100.00%
Administer Testing and Implement Monitoring Protocols and Procedures to Ensure Reliable Data Collection and Safe Performance							
i. Testing and monitoring equipment and its proper use	0.00%	0.00%	18.42%	39.47%	42.11%	81.58%	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
ii. Test administration procedures that use equipment, personnel, and time efficiently	0.00%	0.00%	10.53%	55.26%	34.21%	89.47%	100.00%
iii. Testing to assess physical characteristics and workloads (e.g., anthropometrics, physiological and mechanical stress) and evaluate performance (e.g., muscular strength, power, aerobic/anaerobic capacity, muscular endurance, agility, speed, flexibility)	0.00%	2.63%	13.16%	55.26%	28.95%	84.21%	100.00%
Evaluate and Interpret Results							
i. Validity of test results	2.63%	0.00%	13.16%	52.63%	31.58%	84.21%	100.00%
ii. Typical vs. atypical results based on a sport, sport position, and the individual	2.63%	13.16%	18.42%	44.74%	21.05%	65.79%^a	100.00%
iii. Design or modification of the training program based on results to ensure safe performance (i.e., determine which outcome of training needs to be improved in a future program)	2.70%	5.41%	21.62%	32.43%	37.84%	70.27%^a	100.00%

^ano consensus

Round 3 - S&C Field Experience Competency Questionnaire

Questionnaire Introduction:

Thank you for taking the time to participate in this research project survey. As a member of a global community of expert strength & conditioning coaches and educators, your involvement in this study will provide a blueprint for internship curriculum development. **Round 3 (of 3)** of this questionnaire will take approximately **2-5 minutes**. Before completing this survey, you will have the opportunity to review and change your responses before submission. Please use your assigned four-digit identification number (Given to you in the email with the survey link). This number will allow for your identity to remain confidential.

Information Page Project Title: Coach Readiness: Strength & Conditioning Competencies
Developed Through Field Experiences.

Investigator: Darnell Clark

Faculty Advisor: Dr. Michael Hemphill

What is this project about? This research project will use a three-tiered Delphi Study Method to poll strength & conditioning experts about expected competencies students should develop after a 300-hour internship experience (about one college semester). I am asking you to participate in this research study because I want to create better professional preparation internships for emerging strength and conditioning coaches. Will this negatively affect me? No, other than the time you spend on this project there are no known or foreseeable risks involved with this study. What do I get out of this research project? There are no personal benefits. Will I get paid for participating? There is no compensation for your participation. What about my confidentiality? A four-digit identification number in lieu of personal identification for tracking purposes (using a random number generator). This will allow for confidential identification. We will do everything possible to make sure that your information is kept confidential. All information obtained in this study is strictly confidential unless disclosure is required by law. In addition, all data will be stored on a secure cloud storage

service. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing. What if I do not want to be in this research study? You do not have to be part of this project. This project is voluntary and it is up to you to decide to participate in the research project. If you agree to participate at any time in this project you may stop participating without penalty. What if I have questions? You can ask Darnell Clark (dkclark@uncg.edu), and Michael Hemphill (mahemphi@uncg.edu) anything about the study. If you have concerns about how you have been treated in this study call the Office of Research Integrity Director at 1-855-251-2351.

Round 3 - Questionnaire Overview

In Round 1, you and 37 other expert strength and conditioning coaches rated the importance of each of the 28 primary competencies according to what your professional opinion believes should be gained by the end of a quality S&C internship/field experience.

In Round 2, you had an opportunity to rate all of the sub-competencies of the primary competencies that achieved statistical consensus. Also, you had an opportunity to re-rate that didn't achieve statistical consensus in Round 1.

In Round 3, the Final Round, you will an opportunity to re-rate the sub-competencies that did not achieve statistical consensus to be selected or removed.

This is a very short questionnaire, so please take 2 minutes to complete it!

**Lastly, It is also essential to consider the realistic nature of a student intern developing competency during a 300-hour field experience (about one college semester at 20 hours a week for 15 weeks). I am not asking if competency is essential to be a strength coach; I am asking you to rate the importance of the competency learned during an internship experience.*

Re-Rating (2 QUESTIONS)

Q8: Teach and Evaluate Agility Technique (e.g., forward, backward and lateral movements; turn, transition, acceleration, and deceleration maneuvers)

Rate Sub-competency for each

iii. Assessment, correction, and modification of exercise technique

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11: Teach and Evaluate Energy Systems Development: Anaerobic conditioning activities (e.g., conditioning drills, heavy rope training, intermittent training)

Rate Sub-competency for each

i. Machine programming and setup

ii. Preparatory body and limb position (e.g., stance, posture, alignment)

iii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)

iv.. Assessment, correction, and modification of exercise technique

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iv. (53)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Re-Rating (4 QUESTIONS)

Q3: Select Exercises

Rate Sub-competency for each

- iii. Exercises based upon the type of kinetic chain movement (e.g., open or closed)
- v. Exercises to promote recover

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
iii. (44)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
v. (54)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5: Determine and Assign Exercise Intensities (e.g., load, resistance, heart rate)

Rate Sub-competency for each

- ii. Load or exercise heart rate based on the training goal (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic endurance)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7: Determine and Assign Work: Rest Periods, Recovery and Unloading, and Training

Rate Sub-competency for each

- i. Work rest periods and recovery (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
i. (42)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9: Identify Periodization Models and Concepts and How to Apply Them

Rate Sub-competency for each

iii. A periodized program specific to the athlete's demands of a sport, position, and training level (e.g., annual plan)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
iii. (55)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Re-Rating (1 QUESTIONS)

ORGANIZATION AND ADMINISTRATION SECTION OF THE QUESTIONNAIRE

Rate Sub-Competency (1 QUESTION)

Q3: Professional Practice (i.e. understand the scope of practice for an S&C coach and when to refer to other allied health professionals)

Rate Sub-competency for each

ii. Abide by the NSCA Codes, Policies, and Procedures

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Re-Rating (1 QUESTIONS)

Q3: Evaluate and Interpret Results

Rate Sub-competency for each

ii. Typical vs. atypical results based on a sport, sport position, and the individual

iii. Design or modification of the training program based on results to ensure safe performance (i.e., determine which outcome of training needs to be improved in a future program)

	Definitely Not Important (6)	Not Important (7)	Slightly Important (8)	Important (9)	Definitely Important (10)
ii. (43)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
iii. (55)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What's Next?

Thank you for your time, expertise, and experience in completing the **Final questionnaire** for this project. You may still review your responses before submission.

Don't forget to submit the questionnaire by clicking the arrow button to the right.

Best Regards,

Darnell K. Clark CSCS*D, RSCC*D
 Doctoral Candidate
 University of North Carolina Greensboro, USA

APPENDIX H: PHASE III RESULTS

Table 9H. Phase III Results (Sub-Competencies)

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
Re-Rate Exercise Technique							
Teach and Evaluate Agility Technique (e.g., forward, backward and lateral movements; turn, transition, acceleration, and deceleration maneuvers)							
iii. Assessment, correction, and modification of exercise technique	2.63%	2.63%	18.42%	44.74%	31.58%	76.32%	100.00%
Teach and Evaluate Energy Systems Development: Anaerobic conditioning activities (e.g., conditioning drills, heavy rope training, intermittent training)							
i. Machine programming and setup	2.70%	27.03%	40.54%	18.92%	10.81%	29.73%^a	100.00%
ii. Preparatory body and limb position (e.g., stance, posture, alignment)	0.00%	5.56%	19.44%	47.22%	27.78%	75.00%	100.00%
iii. Execution of technique (e.g., body and limb positions, movement mechanics, breathing, focus, arousal)	0.00%	5.56%	16.67%	41.67%	36.11%	77.78%	100.01%
iv. Assessment, correction, and modification of exercise technique	2.78%	8.33%	11.11%	47.22%	30.56%	77.78%	100.00%
RE-Rate Program Design							
Select Exercises							
i. Exercises specific to movement patterns of a particular sport (e.g., an exercise and its application and effectiveness for a sport, an exercise and movements involved in a sport, an exercise and muscles used in sport)	0.00%	2.63%	18.42%	44.74%	34.20%	78.94%	99.99%
iii. Exercises based upon the type of kinetic chain movement (e.g., open or closed)	2.70%	10.81%	18.92%	43.24%	24.33%	67.57%^a	100.00%

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important	Consensus Total	Total
v. Exercises to promote recover	2.70%	16.22%	35.14%	27.03%	18.91%	45.94% ^a	100.00%
Determine and Assign Work: Rest Periods, Recovery and Unloading, and Training							
i. Work:rest periods and recovery (e.g., muscular endurance, hypertrophy, strength, power, aerobic/anaerobic capacity)	0.00%	15.79%	7.89%	42.11%	32.21%	74.32% ^a	98.00%
Periodization Models and Concepts and How to Apply Them							
iii. A periodized program specific to the athlete's demands of a sport, position, and training level (e.g., annual plan)	0.00%	5.26%	15.79%	47.37%	31.58%	78.95%	100.00%
Re-Rate Organization and Administration							
Professional Practice (i.e. understand the scope of practice for an S&C coach and when to refer to other allied health professionals)							
ii. Abide by the NSCA Codes, Policies, and Procedures	0.00%	13.16%	26.32%	31.58%	28.95%	60.53% ^a	100.01%
Re-Rate Testing, Monitoring, and Data Evaluation Section of the Questionnaire							
Evaluate and Interpret Results							
ii. Typical vs. atypical results based on a sport, sport position, and the individual	0.00%	13.16%	39.47%	26.32%	21.05%	47.37% ^a	100.00%
iii. Design or modification of the training program based on results to ensure safe performance (i.e., determine which outcome of training needs to be improved in a future program)	0.00%	5.25%	15.79%	60.53%	18.43%	78.96%	100.00%

^ano consensus

APPENDIX I: DISSEMINATION ABSTRACTS



Submission for: 2023 14th ICCE Global Conference

Submission Title: Coach Readiness: Strength & Conditioning Competencies Developed Through Field Experiences

Contributor: Darnell Clark, (Certified Strength & Conditioning Specialist with Distinction (CSCS*D), Registered Strength & Conditioning Coach with Distinction (RSCC*D)).

Affiliations: The University of North Carolina Greensboro; The University of North Carolina Charlotte; National Strength & Conditioning Association

Statement – oral presentation, applied practice, coach education, and development

Abstract Body: Field experiences (internships) provide the glue that binds student strength and conditioning coaches' professional competencies. Field experiences augment formal classroom instruction, allow students to experiment with theory and concepts, and utilize practical applications to access personal skills that highlight individual deficiencies in coaching practices. The presentation will showcase the research framework and application of developing field experiences from the perspectives of student coaches, preceptors/mentors, and university field experience coordinators. Lastly, this presentation will highlight Mr. Clark's doctoral research that explores and gather what competencies an intern should obtain from field experiences to become a competent and confident professional.

Bio: Darnell Clark, CSCS*D, RSCC*D, is a lecturer of strength and conditioning and the S&C graduate field experience coordinator at the University of North Carolina Charlotte, USA. He holds degrees from Northwestern University, Arizona State University and is a doctoral candidate at the University of North Carolina at Greensboro. Coach Clark is a long-time member of the National Strength & Conditioning Association where he awarded the National High School Coach of the Year in 2014 and has served as the North Carolina State Director, Southeast Regional Coordinator and Board of Directors (Vice President).

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Outline:

- A – S&C Field Experience and Mentorship research overview
- B. My research on Coach Readiness: Strength & Conditioning Competencies Developed Through Field Experiences.
 - 1. Purpose and Aims
 - 2. Methods and Results
 - 3. Conclusion
- C. Implications for the field of S&C
- D. Q&A



2023 ASCA Submission Title: Coach Readiness: Strength & Conditioning Competencies Developed Through Field Experiences

Contributor: Darnell Clark, (Certified Strength & Conditioning Specialist with Distinction (CSCS*D), Registered Strength & Conditioning Coach with Distinction (RSCC*D)).

Affiliations: The University of North Carolina Greensboro; The University of North Carolina Charlotte; National Strength & Conditioning Association

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Bio: Darnell Clark, CSCS*D, RSCC*D, is a lecturer of strength and conditioning and the S&C graduate field experience coordinator at the University of North Carolina Charlotte, USA. Before transitioning into academia, he served as a strength and conditioning coach on the collegiate and high school levels for 20 years. Most recently, as the Director of Strength and Conditioning at Charlotte Country Day School, where he oversaw the athletic development pathways for 70 teams within 26 sports. As a director, Mr. Clark has been a preceptor/mentor for 70-plus coaches who currently serve in the strength and conditioning field. He holds degrees from Northwestern University and Arizona State and is a doctoral candidate in kinesiology at the University of North Carolina at Greensboro. Coach Clark is a long-time member of the National Strength & Conditioning Association. He was awarded the National High School Coach of the Year in 2014 and has served as the North Carolina State Director, Southeast Regional Coordinator, and Board of Directors (Vice President) for the NSCA.

Email: dclark74@uncc.edu

Outline:

A – S&C Field Experience and Mentorship research overview

1. What can S&C learn from physical education student teaching?
2. What can S&C learn from athletic training field experience?

B. My research on Coach Readiness: Strength & Conditioning Competencies Developed Through Field Experiences.

4. Purpose and Aims
5. Methods and Results
6. Conclusion

C. Implications for the field of S&C

D. Q&A

APPENDIX J: DISSEMINATION PRESENTATION



**Coach Readiness: Strength & Conditioning Competencies
Developed Through Field Experiences**

Doctoral Candidate: Darnell K. Clark, MPE, CSCS*ID, RSCC*ID
Committee: Dr. Michael Hemphill (Chair), Dr. Paul Davis and Dr. Eric Cash

Objectives

- Present an overview of dissertation work on Coach Readiness
- Connect findings to strength and conditioning (S&C) student internship field experiences
- Provide recommendations for implementation for field experience:
 - Preceptor
 - Intern
 - University/College Internship Coordinator

Background

- Definition of a strength and conditioning coach
- Setting a S&C coach work in
- Coach education process and procedures
- Certification requirements
- CASCE Accreditation (maybe next slide dedicated to)

Background: Who are S&C Coaches?


Strength and conditioning coaches are commonly associated with developing athletes to accomplish maximum performance. (Pullo, 1992; Tod et al., 2012).

S&C literature recognizes foundational knowledge rooted in various exercise scientific areas, such as anatomy, exercise physiology, biomechanics, nutrition, and sports psychology (Dooman et al., 2008; Dorgo, 2009; Kaimar, 1999).




Background: What we know about S&C Field Experiences

In the field of strength & conditioning the completion of **formal classroom education** is the **starting point** for coaching competency. From this point **experiential learning** is **essential** to transition from an academic setting of strength and conditioning to an applied environment (Dooman et al., 2008; Dorgo, 2009; Grant et al., 2014; Jones, 2015; Klineq, 1999).



Background: What we know about S&C Field Experiences

Internship experiences augment formal classroom instruction, allow students to **experiment with theory and concepts**, and **utilize practical applications** to access personal skills and highlight individual deficiencies in coaching practices (Hakari et al., 2017; Jones, 2015; Martin, 2010; Munnay et al., 2014; Reed et al., 2017).



Background: What we know about S&C Field Experiences



Research is lacking in investigating the components of strength and conditioning field experiences across coaching education programs, such as how they are constructed, delivered, or effective in developing emerging strength and conditioning professionals (Jones, 2015, Zakrajsek et al., 2015).

S & C Industry Standards






The Council on Accreditation of Strength & Conditioning Education (CASCE) is an accreditation agency that has developed a quality assurance process under which services and operation of educational institutions meet applicable standards (CASCE, 2019).

Professional Standards and Guidelines

- Institutional:** Accredited Institution Support their Program Mission Aligns
- Faculty:** Program Director Field Experience Coordinator
- Curriculum:** Specific Scientific Principles & Foundations Training & Practical / Laboratory Applied Training
- Field Experience:** Minimum - 200 Hour
Two substantially different experiences.



Purpose

This study aimed to establish a comprehensive list of expected strength and conditioning professional competencies that will later assist in aligning upcoming strength and conditioning field experience accreditation requirements.

Aims

- Identify and list expected primary competencies developed through student field experiences.
- Identify and list expected sub-competencies developed through student field experiences


NSCA Job Task Analysis

Who will produce the list of competencies?

Methods

The Delphi Method is a "structured process for collecting and distilling knowledge from a group of experts through a series of questionnaires interspersed with controlled opinion feedback" (Ziglio, 1996)




Final List

Phase 1

Goals

- Collect demographic data
- Expert panel rate all 28 primary competencies
- Provide clarification for rating of each competency




Final List

Phase 1I

Goals

- Rate sub-competencies of primary competencies that achieved consensus ($\geq 75\%$)
- Re-rate primary competencies that did not achieve consensus nor were removed ($>25\% - <75\%$)

*Panelist shown anonymous feedback during re-rating process




Final List

Phase 1II

Goals


- Remove primary competencies that did not achieve consensus after being re-rated. ($<75\%$)
- Re-rate sub-competencies that did not achieve consensus nor were removed ($>25\% - <75\%$)



Final List

Final List

At the end of Phase 3 a final list was produced of competencies and sub-competencies that achieved consensus from the expert panel of strength and conditioning coaches.



Exercise Technique

- Teach and evaluate Resistance Training exercises (Free WL)
- Teach and evaluate Olympic WL Lifting & Plyometrics

There are 11 Exercise Technique primary competencies and seven received consensus from the expert panel.

Of the 36 sub-competencies, 22 received consensus.

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Organization and Administration

- Professional Practice (i.e. understand the scope of practice for an S&C coach and when to refer to other allied health professionals) (97.30%)

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Testing, Monitoring, and Data Evaluation Competencies

- Administer Testing and Implement Monitoring Protocols and Procedures to Ensure Reliable Data Collection and Safe Performance (94.60%)
- Select Appropriate Evidence Based Tests to Maximize Test Reliability and Validity (83.33%)
- Evaluate and Interpret Results - (83.78%)

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Implication for Higher Education, Preceptors, Intern themselves

Higher Education

- use the list to create a mid-semester and final performance evaluation the indicate the items so that the university – preceptor – student are on the same page with expectation.

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Implication for Higher Education, Preceptors, Intern themselves

Preceptor

- Use this list as a guide to create an internship curriculum
- Pinpoint opportunities within the semester that will specifically allow student to obtain coaching repetition for certain competences
- Identify and task staff with specific expertise (such as Olympic lifting) to help expose the student to certain competencies on the list

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Implication for Higher Education, Preceptors, Interns

Student

- have a meeting with your preceptor about what competences you are comfortable with and which one you have no experience to help prioritize your education experience

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Background

The WHAT:

- In the field of strength & conditioning the completion of formal classroom education is the starting point for coaching competency. From this point **experiential learning is essential** to transition from an academic writing of strength and conditioning to an applied environment.

The WHY:

- Internship experiences augment formal classroom instruction, allow students to experiment with theory and concepts, and utilize practical applications to assess personal skills that highlight individual deficiencies in coaching practices.**

The HOW:

- Field experience requirements developed by the Council on Accreditation of Strength & Conditioning Education.

(CASCE, 2019; Grant et al., 2014; Herbert et al., 2017; Jones, 2015; Martin, 2020; Meay 2010; Road et al., 2017).

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Phase 1

Phase 1: Example: Primary Competency

1. Teach and evaluate Movement Preparation (soft tissue and flexibility/mobility, dynamic stretching)

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important
1	⬇	⬇	⬇	⬇	⬇

Optional: Provide additional comments or supporting statements for your choice.

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Consensus Criteria:

- Inclusion: 75% or higher of the participants rate an item **Definitely Important** or **Important**
- Re-Rate: 75% or higher of the participants rate an item as **Slightly Important**
- Exclusion: 75% or higher of the participants rate an item as **Not Important** or **Definitely Not Important**

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Phase 1 **Phase 2** Phase 3 Final List

- Expert panel asked to review **Consensus of Primary Competencies** summarized by the investigator based on the information provided in the first round (Hsu and Sandford, 2007)
- Expert panel will be provided the second questionnaire to **Rate Sub Competencies** from the consensus list of Primary competencies.
- After each competency, the panel member will have the option to add supporting statements
- Expert panel members will be asked to **Re-Rate competencies that fall in the 75% or higher range of Slightly Important** or newly suggested Main competencies from Phase 1
- The questionnaire will be open for two weeks with a one-week check-in from the researcher

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Phase 2

Phase 1: Example Competency

1. Teach and evaluate Movement Preparation (soft tissue and flexibility/mobility, dynamic stretching)

- Prepare body limb and position (e.g., grip stance, alignment)
- Execution of technique (e.g. body and limb position, movement mechanics, breathing, focus, arousal)
- Cuing and coaching, monitoring for safety
- Assessment, correction, and modification of exercise technique

	Definitely Not Important	Not Important	Slightly Important	Important	Definitely Important
1	⬇	⬇	⬇	⬇	⬇
L	⬇	⬇	⬇	⬇	⬇
R	⬇	⬇	⬇	⬇	⬇
B	⬇	⬇	⬇	⬇	⬇
N	⬇	⬇	⬇	⬇	⬇

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Phase 1 Phase 2 **Phase 3** Final List

- Expert panel asked to review consensus of **Sub and Newly suggested Main Competencies** summarized by the investigator based on the information provided in phase 2 (Hsu and Sandford, 2007)
- Expert panel will be provided the third and final questionnaire to rate Sub competencies from the consensus list of **Re-Rated and Newly suggested Primary competencies (if needed)**.
- The questionnaire will be open for two weeks with a one-week check-in from the researcher

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Phase 1 Phase 2 Phase 3 **Final List**

- The Final List is based on Consensus from the expert panel
- ◆ **Consensus Criteria** (Hsu and Sandford, 2007)
 - Inclusion: 75% or higher of the participants rate an item **Definitely Important** or **Important**
 - Re-Rate: 75% or higher of the participants rate an item as **Slightly Important**
 - Exclusion: 75% or higher of the participants rate an item as **Not Important** or **Definitely Not Important**

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Expected Outcomes (Goals):

- To provide a foundation for the development of accreditation standards in S&C field experiences
- To get on the (CASCE) Council on Accreditation of Strength & Conditioning Education board of directors to be in a position to start the conversation about field experience standards
- To present findings at S&C/Coaching Conferences
- To publish findings in a top tier research journal.

UNC GREENSBORO

Thank you!

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