AN EXPLORATION OF THE CAREER TRAJECTORY, EXPERIENCES AND SATISFACTION OF REGISTERED DIETITIAN NUTRITIONISTS (RDNS) WHO HOLD THE CERTIFIED SPECIALIST IN SPORTS DIETETICS (CSSD) CREDENTIAL

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ABSTRACT

The Commission on Dietetic Registration created the Certified Specialist in Sports Dietetics (CSSD) credential to tailor the job qualifications of the Registered Dietitian Nutritionist (RDN) to work exclusively with athletes. This paper sought to identify and explore the development, experiences, and job satisfaction of CSSDs through a mixed-methods approach utilizing semi-structured interviews and an online survey. Individuals were recruited via purposeful sampling and agreed to complete solely surveys (n=91) or both surveys and interviews (n=71). Quantitative survey data was collected on the participants' age, education, gender, race, certifications, experience levels, length of time with RDN and CSSD credentials, and job satisfaction level and analyzed using Qualtrics. Qualitative data was collected via audio-recorded phone interviews and transcribed using Rev. Open coding was used to synthesize the transcripts into themes. Participants commonly worked with college teams (14.0%) and in private practice (12.2%), but also spent time working in positions outside of performance settings (20.7%). Their main daily tasks included providing prescriptions on what, how much, and when to consume

foods (55.4%), providing dietary assessments (50.0%), and translating the latest scientific evidence into practical sports nutrition recommendations (47.3%). Overall levels of job satisfaction (81.7%) surpassed levels of salary satisfaction (64.5%) with the majority of participants (59.0%) confirming that they were more satisfied overall in sports than other areas they have worked. However, CSSD regularly shared negative perceptions of the sports nutrition field which was linked the barriers represented by the CSSD exam and a perceived lack of value in their work settings. The career trajectory of participants varied greatly, but the most common path included a combination of full-time or part-time positions inside of and outside of Sports Nutrition to gain the experience working with athletes required to qualify for the CSSD exam. CSSDs are generally highly satisfied with their jobs but struggle with the barriers of obtaining respect from other professionals and finding a work-life balance. These findings are useful to gain baseline knowledge on the experiences of CSSDs for future studies to build upon by determining how the roles, responsibilities, tasks, and job satisfaction/salary levels of CSSDs in different positions and experience levels differ.

An Exploration of the Career Trajectory, Experiences and Satisfaction of Registered Dietitian Nutritionists (RDNs) who hold the Certified Specialist in Sports Dietetics (CSSD) Credential

A Thesis

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Chapter 1: Introduction

The concept of improving nutritional practices to fuel athletic performance has existed ever since the first ancient Greeks prepared for the Olympic Games.[1,2] While the Greek's diets that involved "eating massive quantities of meat, bread, dried fruits and honey, along with various fungi and herbs[1] may have been less than optimal compared to the standards we use today, they understood the critical value of food and nutrition.

A diet or nutritional practice focusing on athletic performance, or "sports nutrition" is defined as a dietary pattern that meets nutritional standards to help athletes stay healthy and injury-free while optimizing the functional and metabolic adaptations of their training program so they can meet the performance demands of their sport.[3] As a review of trends within the sports industry states,[2] "When races are won by mere fractions of a second, and games may be lost due to fatigue, nutrition can make the difference between an athlete and a champion."

The most qualified professional responsible for setting and upholding the dietary standards that both non-athletes and athletes adhere to are registered dietitian nutritionists (RDN). While the foundation and focus of RDNs center around "work(ing) in the treatment and prevention of disease (administering medical nutrition therapy, as part of medical teams), often in hospitals, HMOs, private practice or other health care facilities and/or community and public health settings and academia and research," they can also specialize in specific practices areas such as sports nutrition.[4]

The beginning route to earning the RDN credential is to complete a minimum of a bachelor's degree from a university whose coursework is accredited or approved by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (also known as the Academy). Afterward, a person will complete an

ACEND-accredited supervised practice program, which commonly lasts between six and twelve months. Upon completion of their program individuals qualify to take a national examination offered by the Commission on Dietetic Registration (CDR), which is the credentialing agency for the Academy, to become a RDN.[5]

Historically, the RDN profession experienced an initial boom in popularity during World Wars One and Two for their role of helping troops avoid nutritional deficiencies,[6] and the field has been experiencing a recent rise in popularity due in large part to health-conscious global trends.[2] In the latter part of the 20th century and early 21st century, the Sports Nutrition and Sports Performance industries responded to trends at the time by hiring dietitians to full-time sports-related positions.[7,8] This increase in demand for sports dietitians lead to the creation of the Certified Specialist in Sports Dietetics (CSSD) credential by the CDR in 2006 to tailor the job qualifications of the RDN to work exclusively with athletes.[9]

RDNs seeking a career in the field of Sports Nutrition and the CSSD credential must first undergo two thousand hours of specialty practice along with the maintenance of the RDN credential for a minimum of two years to qualify for the CDR exam and the associated credential.[9] As of August 24th, 2020, less than one percent of the 106,241 RDNs also hold the CSSD credential.[10] These numbers are quickly rising as evidenced by the 82% increase in full-time collegiate sports dietitians over the past ten years within the NCAA and the rise in NFL teams with a full-time sports dietitian on staff from a singular team in 2007 to over 50% of teams, as of 2017.[11] Despite the growing interest in the CSSD profession, little research has been done to explore the career development, experiences, and job satisfaction of CSSDs. Research like this can provide a framework for the field as well as current and future CSSDs and identify

future research areas for research to continue to provide credibility to the fast-growing profession.

Purpose Statement

This objective of this study was to examine, identify, and explore the career trajectory, satisfaction and experiences of registered dietitians who have obtained the Certified Specialist in Sports Dietetics (CSSD) credential through a mixed-methods approach utilizing an online survey followed by semi-structured interviews.

The specific aims of this research were to:

1. Identify common themes in the careers of RDNs with the CSSD credential with a focus on examination of career trajectory and experiences and perceptions.
2. Explore job satisfaction of RDNs with the CSSD credential.
3. Identify the professional development opportunities and certifications commonly sought by RDNs with the CSSD credential.

Chapter 2: Literature Review

Foundational RDN Training and Practice

Training, General Roles and Responsibilities

The profession of nutrition and dietetics is a diverse and rapidly expanding field that contains many opportunities for those who possess the credential of RDN. Regardless of their area of practice, the primary responsibility of the RDN is to assess the nutritional needs of individuals or communities and optimize nutritional status to improve health. [12] Standards of practice for the profession have been created by the Academy and include three different levels of competency: competent, proficient, and expert.[5,13] The phase of competency refers to the beginning of employment for a registered dietitian, where an RDN begins to develop the interpersonal and interprofessional skills required to perform their job safely and effectively. The phase of proficiency refers to where an RDN has displayed their proficiency within their chosen nutritional field for three or more years and is ready to seek advanced certification within their specialty. The last phase of competency is the expert phase, wherein an RDN has mastered the necessary skills within their specialty field and often displays a high level of autonomy and responsibilities within their practices. While all RDNs advance through the phases of competency, the specific duties they perform are not the same.

As a diverse position, the roles and responsibilities of the RDN vary depending on the context, setting, and specific service they are providing. Through the use of resources and professional development courses endorsed by the Academy, RDNs are able to gain the expertise necessary to broaden the scope of their practice.

The scope of practice and responsibilities for a dietitian largely depends on their previous experiences, education, certifications, training, and documented history of competence.[5] The main areas dietitians work within are healthcare-related fields, community-based settings, and foodservice management.[14] While most settings have clear cut lines between areas, some settings in the diverse field of Dietetics, such as international sporting events, integrate the three main dietetics practice areas into one position.[15,16] A dietitian working within Sports Nutrition is expected to have an extensive understanding of cultural food preparation similar to a dietitian in food service management, the medical conditions that are affecting every athlete similar to a dietitian in healthcare-related fields, as well as the ability to assess and overcome the main barriers that groups of athletes face while staying in peak condition in a foreign setting similar to a dietitian in community-based settings.

Motivation and Job Satisfaction

The wide range of career opportunities and settings for RDNs appears to suit practitioners well, as overall job satisfaction levels within the profession and career are reported to be moderate to high.[17–22] Research has examined the perceptions and satisfaction levels of both dietetic students and currently practicing RDNs to ascertain what has attracted them to the field. Significant motivators reported by dietetic students to pursue the RDN certification are the opportunity to help others[23,24] as well as positive childhood experiences with nutrition.[25] Among practicing dietitians, the aspects that best improve job satisfaction include professional independence,[17] professional involvement,[18] and perceived success.[19] In specialty areas like nutrition support, elements of overall job satisfaction, such as personal and training satisfaction, were enhanced by the completion of advanced dietetic credentials.[20]

While there have been many areas for satisfaction reported, barriers to job satisfaction have also been reported and include perceived lower equity/professional importance[21,22] and low salary.[17,19] Both management level dietitians[19] and Canadian public health dietitians[17] have rated tangible attributes such as income as lower priority measures for career satisfaction compared to intangible measures such as personal independence,[17] professional involvement,[18] perceived success,[19] and perceived equity.[19] A study by the Academy that assessed the job satisfaction of management dietitians suggests that "it is not always the level of pay that determines satisfaction, but rather perceived fairness or equity with pay."[19] Satisfaction has not been examined within the context of most specialty practice areas and warrants further exploration and examination, particularly in Sports Nutrition and among those holding the CSSD credential.

RDN Career Outlook

While satisfaction studies within the field of Nutrition and Dietetics are limited, the satisfaction and positive experience of RDNs working within the field of Nutrition and Dietetics are complimented by a projected growth rate within the U.S. much higher than the average growth rate for all occupations at 8%.[12] Potentially fueling this growth is the emergence of "healthy living" as a global trend within the food industry and the general confusion of the public regarding nutrition which has dramatically impacted careers of those in the nutritional fields such as food scientists and registered dietitian nutritionists.[2] The healthy living trend includes efforts by consumers to improve both nutritional intake and activity levels and has been brought about "due to an increased awareness of global issues through Internet and social media."[2] This has greatly impacted the food industry due to the influx of "connected and informed consumers [who] are going back to nature and unprocessed foods, to preserve most of the natural vitamins

and minerals."[2] These consumers that are also more inclined to lead active lifestyles are looking to dietitians to educate them as societies' stewards of evidence-based nutritional knowledge.

Despite the increase in the "healthy living" trend, consumers are still confused by the process of discovering what to eat to be healthy. A 2012 survey by the International Food Information Council Foundation discovered that 52% of the American population found it easier to complete their own taxes than determine what they should or should not eat to be healthy.[26] These trends have led consumers to seek out dietitians for their knowledge and expertise in nutritional matters. Due in part to these trends, the field of Dietetics continues to expand. The Bureau of Labor Statistics states that the projected largest areas of growth from 2018 to 2028 are in healthcare-related fields, including home healthcare services (47.2%) and outpatient care centers (37.4%), food and beverage stores (34%), professional, scientific, and technical services (18%), and arts, entertainment, and recreation (14.9%).[12] Therefore, opportunities for the RDN will likely continue to expand to meet consumer and healthcare interests and needs.

Specialist RDN Positions

Specialist Credentials for RDNs

As the field continues to expand, and opportunities expand with it, specialty credentials afford RDNs additional opportunities to increase their expertise and potentially their marketability. These specialty credentials are further outlined in the subsequent section. The sports nutrition-focused credential of the CSSD is also contained within these specialties.

As a fast-growing and increasingly diverse field, Nutrition and Dietetics includes a range of specialty credentials that contain their own specific responsibilities and requirements. The main credentialing body of the Academy, the CDR, has developed seven specialties and

associated a credential with each one. These seven specialties include gerontology, obesity, oncology, pediatric, pediatric critical care, renal, and sports. An RDN that acquires one of these credentials can be recognized as a professional with a proficient skillset and the appropriate experiences to optimize nutrition in their chosen field.[27]

Each specialty the RDN can achieve requires specific skills and responsibilities.[28] The criteria for obtaining a specialist credential requires that a person must obtain and maintain the RDN qualification for two or more years and have amassed a minimum of two thousand hours within the past five years of working within their specialty area.[9]

The seven specialty areas certified by the CDR do not include the entirety of the specialty areas within the field of Dietetics. It only consists of the specialty areas in which specialty certifications have been prioritized. RDNs often obtain certifications from organizations outside the CDR, such as the National Strength and Conditioning Association (NSCA), Certification Board for Diabetes Care and Education (CBDCE), or National Board of Nutrition Support Certification (NBNSC) which offer certifications to health professionals. The NSCA offers the Certified Strength and Conditioning Specialist (CSCS) certification which allows RDNs to "apply scientific knowledge to train athletes for the primary goal of improving athletic performance."[29] Another popular certification is the Certified Diabetes Care and Education Specialist (CDCES) offered by the CBDCE which increases an RDNs ability to "[educate], [support], and [advocate] for people affected by diabetes."[30] A third popular certification for RDNs is the Certification for Nutrition Support Clinicians (CNSC) offered by the NBNSC which allows RDNs to have a greater level of expertise in nutrition support which is "the application of nutritional interventions to patients who have been affected by various diseases which affect processes such as eating, digesting & absorbing nutrients required for health."[31]

Given that the profession of Nutrition and Dietetics is a vast field, there are numerous specialty areas that contain their own certifications. Examples of other specialty areas, services, and activities include, but are not limited to, the following: acute and ambulatory outpatient, business and communications, coaching, community and public health, culinary and retail, entrepreneurial and private practice, food service systems, global health, integrative and functional medicine, malnutrition, management and leadership, military service, nutrition informatics, post-acute, long-term, home, and palliative care, preventive care, wellness, and weight management, quality management, research, school nutrition, sustainable, resilient, and healthy food and water systems, telehealth, U.S. public health service, and universities and other academic settings.[5] The seven specific specialty certification areas for practice are further outlined in the subsequent section and within Table 1.

Gerontological

A registered dietitian who has obtained the Certified Specialist in Gerontological Nutrition certification (CSG) provided by the CDR primarily treats older adults in a manner that promotes quality of life and optimal health. They care for older adults in a variety of settings including acute, primary, long-term care, as well as assisted living, and foodservice.[28]

Obesity and Weight Management

A registered dietitian who has obtained the Certified Specialist in Obesity and Weight Management certification (CSOWM) provided by the CDR primarily treats patients through the use of education and counseling to manage their weight and its associated conditions.[28]

Oncology

A registered dietitian who has obtained the Certified Specialist in Oncology Nutrition certification (CSO) provided by the CDR primarily treats patients at risk for or diagnosed with any form of cancer. They treat their patients in a variety of settings including hospitals, clinics, cancer centers, and hospices.[28]

Pediatric

A registered dietitian who has obtained the Certified Specialist in Pediatric Nutrition certification (CSP) provided by the CDR primarily treats healthy and ill infants, children, and adolescents through the use of medical nutrition therapy. They treat their pediatric patients in a variety of settings including hospitals, community-based programs, and homes.[28]

Pediatric (Critical Care)

A registered dietitian who has obtained the Certified Specialist in Pediatric Critical Care Nutrition certification (CSPCC) provided by the CDR primarily treats critically ill infants, children, and adolescents through the use of medical nutrition therapy.[28]

Renal

A registered dietitian who has obtained the Certified Specialist in Renal Nutrition certification (CSR) provided by the CDR primarily treats patients with various kidney disorders, including chronic kidney disease, acute kidney injuries, and those who are on kidney replacement treatments such as dialysis. They care for both pediatric and adult patients in a

variety of settings such as dialysis centers, hospitals, and private practice facilities alongside roles within the fields of research, management, and education.[28]

Sport

A registered dietitian who has obtained the Certified Specialist in Sports Dietetics certification (CSSD) provided by the CDR primarily serves professional and amateur athletes and their support groups with the goal of increasing athletic performance by providing nutritional counseling and education.[28] This certification's credential history and professional field are further described in the subsequent section below.

Table 1. Overview of the 7 Nutritional Specialty Areas Offered by the CDR

Certification	Abbreviation	Responsibilities
Certified Specialist in Gerontological Nutrition	CSG	Primarily treats older adults in a manner that promotes quality of life and optimal health
Certified Specialist in Obesity and Weight Management	CSOWM	Primarily treats patients through the use of education and counseling to manage their weight and its associated conditions
Certified Specialist in Oncology Nutrition	CSO	Primarily treats patients at risk for or diagnosed with any form of cancer
Certified Specialist in Pediatric Nutrition	CSP	Primarily treats healthy and ill infants, children, and adolescents through the use of medical nutrition therapy
Certified Specialist in Pediatric Critical Care Nutrition	CSPCC	CDR primarily treats critically ill infants, children, and adolescents through the use of medical nutrition therapy
Certified Specialist in Renal Nutrition	CSR	Primarily treats patients with various kidney disorders, including chronic kidney disease, acute kidney injuries, and those who are on kidney replacement treatments such as dialysis
Certified Specialist in Sports Dietetics	CSSD	Primarily serves professional and amateur athletes and their support groups with the goal of increasing athletic performance by providing nutritional counseling and education

The Certified Specialist in Sports Dietetics Credential

Factors that Impacted the Formation of the CSSD Credential

The position of Certified Specialist in Sports Dietetics (CSSD) can be traced to World War I when dietitians were hired to improve the performance of tactical athletes within the United States military.[6] Interest in improving athletic performance by manipulating diet rose around the turn of the century as the Sports Nutrition industries grew largely due to the public interest in the relationship between nutrition and physical activity,[2] while also coinciding with rising obesity rates.[32] David Costello of Ball State University, an expert in Sports Nutrition at the time, was quoted, saying, "No single factor plays a greater role in optimizing performance than diet."[33] One of the first areas to echo his sentiments and realize the impact that nutrition can have on athletic performance was collegiate sports. In 1992, Pennsylvania State University hired Kristine Clark, a registered dietitian, to be their first Director of Sports Nutrition.[7] At the time, there were no standards of practice for sports dietitians[34] and the practices and recommendations of dietitians in these settings may have been less than optimal, as evidenced by a 1993 study that found that sports nutritionists were more concerned about encouraging a healthy diet than improving athletic performance.[35] As more sports dietitians were hired, research expanded to investigate the best interventions for sports dietitians to serve athletes,[8,34,35] yet the lack of a standardized position remained a problem after the turn of the century. However, in 2006, the CDR created the CSSD position that produced a standard of practice for sports dietitians.[9]

Need for the CSSD by Athletes and Teams- The Dietary Knowledge Deficit

Once the CSSD position was created and dietitians began to receive the appropriate training within the field of Sports Dietetics, nutritional knowledge assessments among various

athletic teams began to reveal a nutritional knowledge deficit consistently. Players have been identified as one of the factions within teams to possess a nutritional knowledge deficit,[7,36–41] along with supportive professionals such as sports coaches,[37,42–44] athletic trainers,[37,44,] and strength conditioning coaches.[37,44]

Athletes supported by professionals with a nutritional knowledge deficit may have difficulty finding ideal sources of nutritional information. One of the largest factors leading to the knowledge deficit among players is that dietitians are commonly not their number one source for nutritional information. Athletes have cited coaches, the internet, mass media, parents, and peers as more widely used sources of nutritional information than dietitians.[36,45] Poor sources of nutritional information can affect athletes by leading to non-optimal athletic performances.

To clearly ascertain the effects of the nutritional knowledge deficit, studies have been done to assess athletes' diets. When comparing the diets of athletes based upon sex, it was found that the diets of male athletes were closer to meeting nutritional guidelines, primarily due to the increased amounts of calories that male athletes consumed.[46] A lack of nutritional education presents a problem for female athletes greatly due to the different barriers that they face as athletes when compared to men, such as the conditions involved within the female athlete triad.[46–48] Occurrences of conditions such as these increase when a female athlete fails to meet the nutritional guidelines and negatively impact health and athletic performance.

It must also be mentioned that all athletes do not suffer from the adverse effects on health and athletic performance brought about by the nutritional knowledge deficit because nutritional knowledge levels vary among athletes. In some sports where nutrition is highly crucial to an athlete's performance, such as long-distance running and cycling, athletes display a

"reasonable" level of nutritional knowledge despite having received a large amount of their knowledge from their peers.[49] Even among groups with higher levels of nutritional knowledge, dietitians can identify areas where they can improve athletes' nutritional knowledge that may positively impact their athletic performance.

The acquisition of an RDN has a profound impact on athletes because they introduce professional nutritional expertise to athletic teams and organizations. The nutritional knowledge that registered dietitians can provide players helps them make better nutritional decisions by influencing their dietary habits.[46] It is the dietitian's responsibility to provide athletes with a targeted nutritional approach that accounts for their pre-existing knowledge levels to ensure athletes' needs are met. This is a task that can be performed best by those who have obtained the necessary experience and training within the field such as those who have obtained the CSSD certification.

Expanded Roles and Responsibilities of the CSSD

As mentioned earlier, the prominent roles and responsibilities of the Certified Specialist in Sports Dietetics are to serve professional and amateur athletes and their support groups with the goal of increasing athletic performance by providing nutritional counseling and education.[28] The specific responsibilities of the sports dietitian are to work with athletes to create and implement a periodized plan that matches an athlete's training year in order to fuel their performance optimally. Their job requires them to assess the needs of athletes and counsel them on a variety of topics including appropriate portion sizes, nutrient timing, body composition, and fluid replacement. [9] Sports dietitians often have a focus on using strategies that not only enhance physical performance but lifelong health as well.[35] The promising career outlook that dietitians

who maintain the CSSD certification have may be due in part to the increased roles and responsibilities that come with the CSSD position.

Career Outlook

Since the creation of the position, colleges have hired CSSDs in full-time positions within their interdisciplinary health teams at an increasing rate and professional teams have followed suit. As of 2017, the number of NFL teams that have hired CSSDs has increased from 1 in 2006 to 17.[11] This dramatic increase has been mirrored in other professional organizations, such as the military. With roots of hiring dietitians dating back to the first World War,[6] the military continues to be an employer of CSSDs. As of 2017, there are full-time sports dietitians in every branch of the military.[11]

One of the largest organizations for sports dietitians, the Collegiate and Professional Sports Dietitians Association (CPSDA), surveyed its members to examine salary changes with increased experience.[11] The salaries of sports dietitians compared favorably to the salaries of RDNs. With less than one years' experience, a registered dietitian makes $55,143, but after seven years, the average salary rises to $90,623. In comparison, with less than a single year's experience, sports dietitians make $56,215, but after seven years, the average salary rises to $99,297. Additionally, seeking specialty certifications within the field of Dietetics, such as the CSSD certification, in this case, leads to an average salary of $71,354. CSSDs that chose to seek advanced certifications outside of their field, such as the CSCS, in this case, experienced an average increase in their salary to $78,421. The increased wages that accompany advanced certifications may serve as a benefit that lures RDNs to accompanying fields and those in accompanying fields to Dietetics.

Impact of Nutrition on Athletic Performance

The promising salaries and influx of dietitians to the field of Sports Nutrition have been aided by increased amounts of evidence-based literature that discusses the impact of nutrition on athletic performance. Two recent position papers on this topic were written by the Academy, the American College of Sports Medicine (ACSM), and the Dietitians of Canada that discuss six main pathways for nutrition to impact athletic performance.[3,50]

Energy Balance and Body Composition

The factor that has the most influence on energy balance is physical activity because total energy expenditure is dependent on the duration, the frequency, and the mode of exercise an athlete completes.[51] An athlete's energy expenditure levels usually are higher than the levels for sedentary individuals[52] which leads to athletes needing an increased amount of calories and nutrients to maintain their lean body mass, recover from intense training sessions, and to promote optimal physical fitness.[50] While a loss of lean tissue is generally associated with decreased athletic performances, athletes that consume more calories than their energy expenditure requires may be at risk for gaining weight, which depending on the demands of their sport, may positively or negatively affect their performance.[50] Generally, the best time for body composition changes for athletes is during the non-competitive seasons where they can focus heavily on the behavior changes necessary to make weight gains or losses possible in a healthy manner.[50]

Macronutrients

In addition to overall energy needs, another important dietary aspect critical to athletic performance is the macronutrient make-up of the diet. The three macronutrients: fat,

carbohydrates, and protein play different roles in both health and fueling athletic performance. Fats fuel athletic performance as the secondary energy source after carbohydrates while also as a source of fat-soluble vitamins.[3,50,52,53] They are increasingly important during exercise that involves extended periods of low to moderate intensities.[52,53] Carbohydrates fuel athletic performance as the body's primary energy source in addition to playing a role in keeping blood glucose levels high and glycogen levels within the muscles at appropriate levels.[50,52,54] Carbohydrates and fats are the primary and secondary energy sources; however, carbohydrates, unlike fats, are primarily used as an energy source during periods of higher intensity exercise.[52,54] The third macronutrient, protein, is responsible for fueling recovery and support muscle growth. Therefore, it is critical that the body's protein stores are replenished after periods of physical activity.[50,54,55] However, the normal protein recommendation of 0.8 g/kg body weight may not be appropriate for all athletes. There is some evidence that athletes that compete in either endurance or strength-related sports need higher amounts of protein (1.2-1.7 g/kg bodyweight) to fuel their recovery.[50,54,55]

Micronutrients and Supplementation

While macronutrient intake should be prioritized given that the body needs greater amounts of macronutrients compared to micronutrients, micronutrient intake should not be neglected. Micronutrients, such as vitamins and minerals, play a large variety of roles within the body, such as assisting in energy production by behaving as a cofactor, helping to regulate immune function, and forming proteins such as hemoglobin, which transports oxygen within the blood.[3,50] In athletes that do not meet their macronutrient or micronutrient needs, supplementation is an appropriate option.[3,50,54] While supplementation is not required if an athlete is eating the appropriate amounts of a wide variety of foods, it can be helpful in situations

where athletes are unable to consume a balanced diet.[3,50,54]

Fluids and Electrolytes

One of the most popular supplements for athletes, Gatorade, is a concoction made mostly of fluids and electrolytes and is drunk to combat dehydration. Dehydration, which is defined as a loss of >2% body weight from the water deficit, can negatively impact athletic performance by reducing aerobic exercise performance and cognitive performance, especially in hot environments.[50,56] Appropriate hydration before, during, and after periods of exercise can help to prevent dehydration.[50,56] Consumption of beverages with a high glycemic index[54] supplemented with electrolytes like Gatorade, can help maintain high levels of exercise performance.[50,56]

Nutrient Timing

While it is vital for athletes to meet their energy needs and consume the appropriate amounts of macronutrients, micronutrients, fluids, and electrolytes, this can all be for naught if nutrient timing is not considered with care. Appropriate timing of nutrients before, during, and following workouts can fuel optimal performance.[3,50] Before workouts, snacks that include fluids and carbs while limiting high amounts of protein, fat, and fiber are best to help athletes maintain sustainable energy levels.[3,50] During workouts, fluids and carbohydrates are highly essential to maintain energy levels.[3,50] After workouts, snacks or meals that include fluids, electrolytes, carbohydrates, and protein are best to refuel the body and start the adaptive processes brought upon by exercise.[50,55]

Individualized Nutritional Periodization

While appropriate nutrient timing is assuredly a step towards adequate nutritional

practices, nutritional recommendations need to be personalized to impact athletic performance optimally. There are several ways to individualize recommendations based on body composition, age, sex, genetics, competition programming, goal assessment, past experiences, training level, and, most recently, genotype.[3,50,57] An individual's levels of caffeine, vitamin A, folate, iron, vitamin B_{12}, vitamin C, vitamin D, calcium, choline, fats, saturated fatty acids, polyunsaturated fatty acids, and monounsaturated fatty acids can be optimized based on knowledge of the metabolic demands of an athlete's sport to improve their athletic performance. The improved athletic performance can come in the form of increased endurance, improved sleep quality, and the optimization of body composition.[57]

Summaries and Gaps

Over the past twenty-five years, the rise of the obesity epidemic[32] has coincided with an increase in interest in the relationship between nutrition and physical activity as well as interest in global trends such as the "healthy living" trend.[2] These variables have led to a rise in demand for dietitians[12] and, more specifically, for dietitians within the field of Sports Dietetics.[11] This demand has been met by the CDR which formed the certification of the CSSD to represent sports dietitians who have been deemed adequately educated and experienced.[9] These professionals, along with previous sports dietitians, have identified an extensive nutrition-related knowledge deficit that exists within athletes, sports coaches, strength and conditioning coaches, and athletic trainers.[7,36–44] The Certified Specialist in Sports Dietetics (CSSD) is uniquely qualified to address this need and optimize the nutritional practices of athletes.[9,46]

However, the specialty practice of RDNs with the CSSD credential working within the field of Sports Dietetics remains an under-researched field. For the CSSD to perform his/her job to its highest capability, several gaps within the research need to be addressed. Research that

examines the career trajectory, job satisfaction and experience of CSSDs is limited to non-existent. For this reason, it is critical to identify unique and specific barriers that RDNs with the CSSD credential face and begin to document strategies to overcome these barriers.

Chapter 3: Methods

This objective of this study was to examine, identify, and explore the career trajectory, satisfaction and experiences of registered dietitians who have obtained the Certified Specialist in Sports Dietetics (CSSD) certification through a mixed-methods approach utilizing an online survey followed by semi-structured interviews.

The specific aims of this research were to:

1. Identify common themes in the careers of RDNs with the CSSD certification with a focus on examination of career trajectory and experiences and perceptions.
2. Explore job satisfaction of RDNs with the CSSD certification.
3. Identify the professional development opportunities and certifications commonly sought by RDNs with the CSSD certification.

Study Design

This exploratory study included a mixed-methods approach that utilized an initial, brief web-based quantitative survey via Qualtrics followed by a semi-structured phone interview. This mixed-method design was chosen due to the limited literature within the field and the benefits of a mixed-methods approach for exploratory research.[58] Exploratory studies pair well with qualitative data collection methods such as semi-structured interviews.[58] The open-ended questions relayed during interviews can provide details where researchers are without prior precedence.

Study inclusion criteria included individuals with both the RDN as well as the CSSD certification from the CDR. Recruitment targeted members identified by a listserv containing current CSSDs obtained from the CDR. The CSSDs within the listserv received a recruitment email (See Appendix A) on September 3rd, 2021 which included a link to the survey that

provided an overview of the study, required consent language, and documentation per the IRB at East Carolina University (UMCIRB 21-000621). Upon review of the consent and agreement to voluntarily participate in the study, participants could proceed to complete the full survey. A total of 817 individuals were contacted via email and 112 (13.7%) agreed to participate in this study. Of those who agreed to participate and completed the survey, the first 30 participants (3.7%) to schedule interviews were prioritized for interviews.

Both the survey and interview guide were developed specifically for this project and are further described in a subsequent section below. The primary researcher conducted semi-structured interviews using Rev, a speech to text transcription company, that were audio recorded verbatim and transcribed. Rev was chosen for its ability to quickly transcribe lengthy interviews into written transcripts,[59] which is a common barrier to qualitative research.[60] Due to the non-sensitive nature of the data collected and inability for the identity of the interviewer to be ascertained, this approached was deemed appropriate with regards to participant and data confidentiality. Interviews were completed during September and October 2021. Following IRB approval, an East Carolina University College of Allied Health Sciences thesis grant was obtained in order to fund the Rev transcript production. Upon completion of the survey and interview, respondents' emails were provided an electronic $20 Amazon gift card as a token of appreciation for their time after completing their interview.

Sampling

Purposeful sampling, a form of non-probability sampling that identifies individuals within an intimate understanding of the research topic,[61] was used to recruit participants who are

currently CSSDs. Given that the CSSD is a specialty position among dietitians, purposeful sampling was justified to ensure that the study reached the ideal sample size.

For qualitative research, the ideal sample size can be primarily determined based upon theme saturation.[58,60,61] Theme saturation describes the practice of discontinuing data collection when new information/themes are no longer being discovered.[58,60–62] This is useful because an adequate sample size is specific to the topic and size of the population being studied in qualitative research.[61] According to Creswell,[61] a sample size between twenty and thirty participants is ideal for most qualitative studies. However, given that this is an exploratory study using a population that targets CSSDs who represent less than one percent of the total registered dietetic workforce,[10] the use of theme saturation was deemed useful to judge the quality of the sample size based upon information obtained rather than solely relying on Creswell's recommendation that may be unrealistic for a specialized population.

Instrument Design

A draft survey and interview guide were developed specifically for this research study (See Appendix B and C). The survey was designed to collect data on: (a) basic demographic and personal information; (b) CSSD career trajectory; and (c) perceptions and experiences within Sports Dietetics. The second section of the survey asked participants to identify initial interest in the field of Sports Nutrition and experiences outside and within the field of Sports Nutrition.

The sociodemographic questions/descriptives within the first section of the survey were created based upon descriptives used in the 2020 United States Census.[63] Studies within the literature review[5,9,12,14,23–25,28] guided the development of the survey's questions while the Copenhagen Psychosocial Questionnaire[64] (COPSOQ) and the Measure of Job Satisfaction[65] (MJS) guided the development of the job task frequency table and descriptors of job satisfaction.

Additionally, the survey asked participants to justify initial interest in the CSSD position, identify the settings in which they completed their CSSD related practice hours, and record the frequency to which they complete specific tasks commonly attributed to the CSSD position in their current position. The third section of the survey asked participants about their overall levels of job satisfaction as a CSSD and satisfaction levels regarding their compensation. Additionally, participants were asked to compare their level of satisfaction working within the area of Sports Nutrition in comparison to other areas of nutrition and dietetics practice.

Lastly, the survey and interview guides were distributed for review to experts within the field of Sports Nutrition/Dietetics for content validation, as well as distributed via email for review to current CSSDs for face validation (including members of this committee and suggested individuals within the network of this committee). The interview guide was intended to expand upon the survey and gather further detailed information regarding the career trajectory, experiences and satisfaction of CSSDs working within the field of Sports Nutrition. The final survey included two open-ended questions and twenty close-ended questions while the interview guide was structured to have sixteen open-ended inquiries.

Data Collection and Measures

Data was collected using two approaches: a web-based survey and audio-recorded semi-structured phone interviews. Quantitative data was collected via a web-based survey designed on Qualtrics and emailed to participants to be completed before the interviewing process. Quantitative survey data included continuous (e.g., age, length of practice, length of time with CSSD credential), nominal (certifications, education) and ordinal variables (level of satisfaction) as well as some open-ended responses (e.g., why are you satisfied/unsatisfied). Qualitative data

was collected via audio-recorded web-based, semi-structured interviews conducted and transcribed using Rev.

During the interview, jottings were made by the interviewer regarding the topics that were discussed. The cell phone Rev application was used to record the interview audio. Following the recording, Rev was used to audio transcribe the audio into verbatim transcriptions. The transcript was decoded to maintain the anonymity of participants by replacing participant names with pseudonyms (e.g., the interviewer was referred to as Research Assistant 1 or RA-1 while the interviewee was Sports Dietitian 1 or SD-1).

Data Analysis

Quantitative Analysis

Quantitative survey data was analyzed using a report formed from the Qualtrics software, Version September 2022. This report focused on descriptive analysis including frequencies, percentages, means and standard deviations which were determined by rounding to one decimal place. Bivariate and/or inferential analysis was not performed due to the exploratory nature of this study (e.g., no predictions are being made per the study objective/aims).

Qualitative Analysis

Open-ended responses and transcripts were analyzed using the inductive reasoning framework described in Elo and Kyngäs.[60] Content analysis is a method of examining information systematically to increase understanding in a given subject area.[60] Inductive content analysis begins with specific pieces of information and synthesizes them to form more general ideas.[60] This form of content analysis makes it simple to understand how specific phenomena are

connected to the larger picture. An inductive approach suits exploratory research such as this where there is not much prior knowledge about the topic.[60]

Following the interviews, the transcripts created by Rev were analyzed by the primary researcher to find each interview's general themes. This process is completed by the repetitive reading of transcripts by the primary researcher to become "immersed in the data."[66] Following the identification of themes, each transcript was reread and open coded by assigning categories to describe all of the interview's relevant details.[60] These categories represented the entirety of all transcripts. Once all useful content has been organized into basic categories, they were grouped based on commonality to create broader categories to reduce the number of categories.[60] This broader group of categories were organized and defined along with the subcategories within them in order to produce a codebook.[58,60]

The creation of the codebook involved the primary investigator/author and two research assistants. These research assistants were trained to perform inductive content and qualitative analysis in order to form the codebook.[58] To complete this process, they examined the transcriptions created by Rev and grouped items to form the codebook in order to reach a consensus on the final categories and subcategories that can be obtained from the transcript.[58,66]

Chapter 4: Results

I. Quantitative (Survey) Findings

Out of eligible participants who agreed to participate (n=112) the majority fully completed the survey (n=91) and agreed to be interviewed (n=71). Study participants predominantly identified as white (89.2%) females (79.6%) with an average age of 37.1 years (SD = 7.0) in possession of advanced degrees (89.8%) who have maintained their status as RDNs for 12.5 years (*SD* = 8.5) & CSSDs for 6.1 years (*SD* = 4.5) (See Table 2)

Table 2. Demographics Among Registered Dietitian Nutritionists Respondents with the CSSD Credential Surveyed in 2021

Characteristics		
Gender (%)	Female	79.6
	Male	19.4
	Nonbinary	0
	Other	0
	Prefer not to say	1.0
Mean age in years (SD)		37.1 (7.0)
Race (%)	American Indian or Alaskan Native	0
	Asian	3.9
	Black or African American	2.0
	Native Hawaiian or Other Pacific Islander	0
	White	89.2
	Some other race	2.0
	Prefer not to say	2.9
Hispanic/Latinx Ethnicity (N)		
	Yes	2.0
	No	94.9
	Prefer not to say	3.0
Highest Level of Education (%)	Bachelor's Degree	10.2
	Master's Degree	77.6
	Doctorate Degree	12.2
Mean years as an RDN (SD)		12.5 (8.5)
Mean years as a CSSD (SD)		6.1 (4.5)

Participants most commonly worked with college teams (14.0%) and in private practice (12.2%), but also often spent time working in positions outside of performance settings (20.7%). (See Table 3)

Table 3: Self-Reported Work Settings Among Registered Dietitian Nutritionists Respondents with the CSSD Credential Surveyed in 2021

Question		%
What areas have you worked in within the field of Sports Nutrition?		
	Academia/College/University (Faculty)	8.4
	Athletic Performance Centers	9.2
	Corporate Wellness Centers	5.6
	Emergency Response Settings	0.8
	Healthcare Organizations	6.4
	Law Enforcement	1.3
	Military Bases and Affiliates	8.1
	Online Nutritional Coaching	8.7
	Private Companies Specializing in Wellness	4.6
	Private Practice	12.2
	Professional Sports Organizations	6.9
	Research	5.1
	United States Olympic Training Centers	2.3
	College or University Athletic Teams	14.0
	Youth or Club Teams	4.6
	Other	2.0

The motivation to obtain the CSSD credential was primarily due to the recognition associated with a CSSD's proficient skill level (36.3%), to qualify for a specific position or focus area that requires the CSSD credential (27.0%), and an increase in general job opportunities and/or salary associated with a CSSD's proficient skill level (23.0%). (See Table 4)

Table 4: Self-Reported Motivations to Obtain CSSD Credential Among Registered Dietitian Nutritionists Respondents with the CSSD Credential Surveyed in 2021

Question		%
What aspects of the CSSD credential made it appealing? Select all that apply.		
	Increase in general job opportunities and/or salary associated with a CSSD's proficient skill level	23.0
	Qualification for a specific position or focus area that requires the CSSD credential	27.0
	Recognition associated with a CSSD's proficient skill level	36.3
	Employer's offer to finance certification	7.2
	Other	6.7

The main daily tasks of participants included providing prescriptions on what, how much, and when to consume foods (55.4%), providing dietary assessments (50.0%), and translating the latest scientific evidence into practical sports nutrition recommendations (47.3%). (See Table 5)

Table 5. Self-Reported Job Tasks Among Registered Dietitian Nutritionists Respondents with the CSSD Credential Surveyed in 2021

Question		Daily	Weekly	Monthly	A Few Times a Year	Not Perf-ormed	Total
What tasks does your job include? Choose the statement that best describes the frequency in which you complete each task. (N)							
	Consulting with physicians and other health and sports/performance professionals on clinical and other health-related issues	25	31	11	19	7	93
	Generating and analyzing data to monitor and evaluate the effectiveness of past and present interventions	18	33	15	15	10	91
	Providing anthropometric assessments	20	24	13	19	15	91
	Providing dietary assessments	46	25	12	6	3	92
	Providing food and dietary supplement product evaluation	30	32	19	7	5	93
	Providing medical nutrition therapy	39	23	10	5	15	92
	Providing prescriptions on what, how much, and when to consume foods	51	21	9	6	5	92

	Serving as a food and nutrition resource for coaches, sports performance, support staff and families	38	21	14	10	10	93
	Serving as a preceptor to dietetic interns	9	7	3	38	36	93
	Translating the latest scientific evidence into practical sports nutrition recommendations	44	25	14	7	3	93
	Utilizing business skills relating to budget management, insurance billing, inventory tracking, ordering and distribution, negotiations for compensation and additional resources	25	14	12	14	28	93

Overall levels of job satisfaction (81.7%) surpassed levels of salary satisfaction (64.5%) with the majority of participants (59.0%) confirming that they are more satisfied overall in sports than other areas they have worked. (See Table 6)

Table 6. Career Satisfaction Among Registered Dietitian Nutritionists Respondents with the CSSD Credential Surveyed in 2021

Question	Very Dissatisfied	Dissatisfied	Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied	
What is your overall job satisfaction working as a CSSD? (%)	3.2	1.1	14.0	38.7	43.0	
Overall, how satisfied are you with your salary? (%)	2.2	15.1	18.3	50.5	14.0	
	I have not worked in other areas of nutrition and dietetics practice	No, not at all	No	Somewhat	Yes	Yes, very much
If you have worked in other areas of nutrition and dietetics practice, are you more satisfied working in sports than the other areas? (%)	17	2.2	11.0	11	24	35

II. Qualitative Findings (Themes)

The major themes revealed were centered around participants' career trajectory, career experiences, CSSD views/perceptions, barriers, professional development opportunities and certifications, and CEU topics and are further expanded in Table 7 and the subsections below.

Table 7. Qualitative Themes & Corresponding Quotes

Themes	Subthemes	Quote
Career Experiences	Job Tasks	"No day is exactly the same" (SD-022)
	Common Athletes' Knowledge Deficit	"They want a six pack, they want to look fit, but I have to encourage them that performance isn't about how you look necessarily, it's about how you fuel." (SD-002)
CSSD Views/Perceptions	Area of Enjoyment	"the biggest reason I went into sports was because … the collaboration and everyone who is involved in sports loves the atmosphere." (SD-021)
	Salary	"my biggest thing is you have to love what you do. It's not all about the money, but at the same time, you need to support your family and pay

		your bills and to have a savings" (SD-001)
	Growth in CSSD	"It's better now that sports dieticians are more well-known and more people are hiring them" (SD-011)
Barriers	CSSD Exam Barriers	"unless you're working full time, it's going to be difficult to get those hours." (SD-022)
	Workplace/Professional Barriers	"nutrition doesn't have as much respect, definitely doesn't have the pay, and I think that's what shows respect" (SD-006)

Career Trajectory

As sports dietetics is a field that has largely emerged in the last 30 years, the career trajectory of CSSDs varies greatly after individuals completed their undergraduate curriculum and internships to obtain the RDN credential. Despite the varied routes to the CSSD, all routes included the completion of undergraduate courses and dietetic internships to become an RDN. Following becoming an RDN, the common trajectory must include a combination of full-time or part-time positions inside of and outside of Sports Nutrition to gain the experience working with athletes required to qualify for the CSSD exam.

While some younger participants stated that they were able to gain undergraduate/internship sport-specific dietetic experiences at their universities, intensive performance-related opportunities were not common for CSSDs, especially the older ones, early in their career. Therefore, due to the limited opportunities to work in sports, most participants found that their early experiences had little impact on their future within the field of Sports Nutrition. Even so, several CSSDs did find avenues to gain experience with athletes after becoming an RDN such as,

> *"becom(ing) an eating disorder dietitian …(leading to) the niche of athletes struggling with eating disorders." (SD-016)*

Despite this lack of performance-related experiences, some participants did state that they found their early undergrad/internship clinical experiences helpful in their current roles as CSSDs. One respondent said,

> *"(I)t's very necessary… because you never know when you're going to have an athlete who … has medical issues." (SD-011)*

When respondents did not find full-time positions within sports following graduation, the next common stop on their route would be to begin their careers in clinical or fitness/wellness-related settings and/or to continue their education. The most common post-graduate degrees found among participants included advanced degrees related to Nutrition or Exercise Science.

CSSDs working full-time or part-time outside of Sports Nutrition often would often look for paid performance-related internships, part-time jobs, or create private practice companies to *"springboard (their) career in the field of sports dietetics." (SD-013)* Following the completion of the 2,000 hours in sports-related settings required to qualify for the CSSD exam which may

take several years for RDNs in part-time roles, a time period would be spent preparing for the exam before taking it.

Career Experiences

Job Tasks

The job tasks of CSSDs greatly differed based upon their area of employment. CSSDs that worked with athletes daily often cited individual and group consulting, staff communication/meetings, and creating education programs as the most common tasks within their role. However, CSSDs that did not work with athletes daily reported teaching collegiate nutrition and exercise science students in sports nutrition-related courses, and conducting sports nutrition research as their most common tasks.

Common Athletes' Knowledge Deficit

Participants stated that there were several nutrition topics to repeatedly address with athletes in order to improve their nutrition knowledge and performance. As athletes commonly would ask for consults to improve their body composition, one area of emphasis was healthy/sustainable weight loss strategies. One CSSD stated,

> *"(t)hey want a six pack, they want to look fit, but I have to encourage them that performance isn't about how you look necessarily, it's about how you fuel." (SD-002)*

Relating to food, athletes often struggled with misconceptions related to macronutrients namely carbohydrates and proteins. One respondent who spoke to many athletes with misconceptions about protein summarized the main problem by saying,

> *"people don't really understand what protein is or where it comes from or they just think, "Oh, it's just meat."" (SD-008)*

CSSDs also often must counsel athletes repeatedly on many areas outside of food such as utilizing hydration and supplementation properly to improve performance. Regarding hydration, one CSSD attributed the problem not to a knowledge deficit, but to the current market for sports drinks as,

> *"most sports drinks don't have nearly enough salt and nearly enough sodium for a lot of these athletes." (SD-011)*

Participant Perceptions of CSSD Credential/Sports Dietetics

CSSDs shared numerous viewpoints on their career and the industry of Sports Nutrition.

Areas of Enjoyment

The main areas of enjoyment commonly differed among participants. However, they often stated that they found the most enjoyment in working as a member of the athletic performance team. A CSSD who found high levels of enjoyment as part of a performance team said,

> *"the biggest reason I went into sports was because … the collaboration and everyone who is involved in sports loves the atmosphere." (SD-021)*

Additionally, many also enjoyed the flexibility of the profession which allowed them to make their own schedule and create time within their day. One CSSD who spent portions of her career as a contractor and working in a traditional full-time position said,

> *"there's definite benefits to having your own business and doing your own thing." (SD-011)*

A small group of CSSDs shared that they found their highest levels of enjoyment from the athletes. They cited the athletic atmosphere and the intrinsic motivation of the athletes as their highest areas of enjoyment within the profession.

Salary

While the topic of salary was not commonly brought up, participants that mentioned it had generally negative perceptions of their salary. One CSSD said,

"people talk about how little teachers are paid, but they're paid better than we are." (SD-006)

This was largely due in part to a feeling that their pay did not reflect the hours that they worked.

Growth in CSSD

CSSDs frequently spoke of the growth they noted within the field since the CSSD credential was created. One CSSD who had worked in Sports Nutrition prior to the creation of the CSSD stated,

"It's better now that sports dietitians are more well-known and more people are hiring them." (SD-011)

Perceptions of the Sports Nutrition Field

Despite the growth of the CSSD credential, CSSDs regularly shared negative perceptions of the field. These poor perceptions were commonly rooted in a belief that nutrition was not consistently valued within sports settings and that this was linked to an expectation that sports RDs work for little pay or in voluntary positions early in their careers. Even CSSDs within the highest levels of sport could be victims to being perceived as an *"overpaid, overeducated lunch lady." (SD-004)*

However, areas of practice are a very influential topic within sports dietetics. For example, one dietitian that works in private practice expressed,

"I'm satisfied in my own job because I'm my own boss" (SD-018).

Conversely, another RDN that worked within the military believed, *"nothing was as good as the military for a dietitian" (SD-006).* This belief was supported by certain aspects of the job such as the "older" patient population and reduced hours when compared to collegiate and professional sports.

Barriers

CSSD Exam Barriers

The CSSD exam featured a unique barrier to many CSSDs for two main reasons. The first reason was the rigidity of the certification process as intensive experience within sports dietetics over a multiple year period is required to sit for the exam. One CSSD who did not work full-time within sports stated,

> *"unless you're working full time, it's going to be difficult to get those hours." (SD-022).*

The second common barrier was the difficulty of the test. Many CSSDs felt that the exam was either not well-written or did not reflect their role as a sports dietitian. Some CSSDs believed that the difficulty of the exam warranted changes to the exam content as one CSSD stated,

> *"you don't feel like you just took and passed an exam that really represents what you bring to the field." (SD-023)*

However, participants in this study differed in how they perceived the difficulty of the exam. Others believed the difficulty enhanced the credibility of the exam thus raising the status of the CSSD credential.

Participants were also often dissatisfied with eligibility requirements associated with the CSSD exam. Each board-certified specialty requires 2,000 hours of practice experience in each specialty area to be eligible for the exam.[27] Obtaining the hours while continuing to work full-

time often was a barrier to RDNs who primarily worked outside of sports-related settings. Some believed the current eligibility requirement should change as they

> *"completely financially limit anyone from becoming a sports RD that doesn't have the financial privilege." (SD-018)*

Workplace/Professional Barriers

Participants often expressed their frustrations in the limitations they found professionally within their roles. These limitations most often stemmed from a lack of time due to the long hours. One CSSD experiencing this barrier summed it up as,

> *"Even if I meet with my four to five athletes every single day, I still can't even meet with all of them in a fall and winter semester." (SD-019)*

In her role, she existed as *"one dietitian to 650 athletes." (SD-019)*

CSSDs also often felt limited by the lack of respect from other professions and the awareness for their role. However, despite sharing this barrier, CSSDs commonly had different perceptions of it. Some CSSDs viewed it as part of their role.

> *"I think it's our job as sports dietitians to help people understand what we do and how we can add value." (SD-023)*

Other CSSDs view it as a systemic issue and take an active approach to combat this barrier.

> *"I do feel like I'm constantly having to prove myself and fight for what could already have been there if people just understood what dietitians can do and specifically sport dietitians, and already have a position for that." (SD-016)*

CSSDs have several theories to support why a perceived lack of respect is a prevalent experience within the field. Some individuals relate it to dietetics' perceived status as a female-dominated field. One experienced CSSD mentioned,

"they used to refer to dietetics and nutrition as a pink-collar job" (SD-006).

In accordance with this, one male CSSD believed during his clinical rotation that *"there's some natural associations culturally, that people just assume that because I'm wearing a lab coat and white and a male, that I must be [a doctor]" (SD-015)*

However, another male CSSD believed there were distinct disadvantages to being a male in dietetics. He found

"in general that being male helped with rapport with male patients in many ways, some times better and led to slightly more skepticism with female patients" (SD-029)

Not all CSSDs credit the lack of respect to be the fault of any particular group. In fact, many use the moments of poor awareness as opportunities to educate. One CSSD *"print(ed) off the CSSD rules and responsibilities (from the Academy's website)" (SD-013)* and offered them to her boss saying,

"This is how you can utilize me. These are the things I want to be doing. These are the tasks you should be including on my responsibilities in my contract." (SD-013)

She found her boss to be "*super grateful of that, because he didn't know. How would he know?" (SD-013)*

Another CSSD proposed,

"I think it's our job as sports dietitians to help people understand what we do and how we can add value." (SD-023)

Professional Development Opportunities and Certifications/CEU Topics

CSSDs were interested in learning about and obtaining advanced credentials regarding a wide variety of topics that complimented their work within sports nutrition as well as other areas.

Topics of Interest

The most common nutrition topic of interest for CSSDs was counseling eating disorders. One participant stated,

> *"I think a lot of dietitians come in really feeling ill equipped to working with people, with eating disorders as well." (SD-017)*

Despite the natural predisposition to favor learning about nutrition, many CSSDs cited that they commonly spent time learning in areas outside of Sports Nutrition to improve their practices as sports dietitians. The most common area of interest was within sports psychology as many CSSDs specifically found that increased understand improved their ability to counsel patients with eating disorders. One CSSD spoke about the importance of psychology by saying,

> *"I've always felt like I needed more as an understanding in psychology because nutrition is so psychological." (SD-019)*

Impact of Credentials

CSSDs commonly collect a variety of credentials to improve their practices as sports dietitians. The main impact of these credentials was an increase in the practitioner's ability to provide higher quality care for a specific athlete population. One respondent who possessed a CDCES credential prior to obtaining a CSSD credential called it *"valuable"* and especially helpful for counseling *"athletes who have type one or type two diabetes." (SD-017)* Similar to their wide variation found among CSSD within their topics of interest, respondents also commonly reported obtaining credentials outside of nutrition within the field of exercise. The

main impact of the credentials are that CSSDs gain the ability to write exercise programs. Other impacts of these credentials can be increased marketability/revenue. One CSSD who also possessed a CSCS credential believed,

> *"something that's going to be really helpful for sports dietitians going forward if they also have the ability to maybe fulfill some strength and conditioning needs as well." (SD-020)*

Chapter 5: Discussion

The objective of this study was to examine the career trajectory, satisfaction and experiences of RDNS who have obtained the CSSD certification with specific aims of identifying common career themes, exploring job satisfaction levels, and identifying common professional development opportunities and credentials. To the author's knowledge, only one article has been published that focuses on surveying RDNs with the CSSD credential. Due to the limited literature, there were few comparisons. However, the demographic characteristics of the sample group compared well with the demographics listed within a salary report among sports RDNs. [67]

This paper contributes to the extensive gaps within the literature around the field of Sports Nutrition by providing a broader scope that includes not only perceived value of their credential but also their experiences and barriers they have faced. Results from this study magnifies the need for this research as a means of raising awareness about the credential, attracting existing and prospective RDNs to the field of sport nutrition, and serving as a starting point for future studies to examine this area of dietetics practice. Participants' viewpoints on the CSSD credentialing exam, their job satisfaction levels, interest in eating disorder counseling, and perceptions in female-dominated field and were key results to be expanded upon in subsequent sections.

Viewpoints on the CSSD Exam

CSSDs largely recognized their credentialing exam as a challenging exam. This viewpoint is supported by statistics obtained from the CDR, as from January to June 2022, the CSSD exam has the second lowest overall pass rate[68] (65%) and the lowest first-time pass rate

(58%) among CDR board certification exams.[68-74] Currently, these are the lowest CSSD exam pass rates over a time period since the exam was made. This is especially concerning as the CSSD exam could be viewed as the most popular exam with 164 participants over the six-month period which is the highest among CDR board certification exams. The combination of low pass rates and high participant load fuel the perception of the CSSD exam as a difficult exam.

Despite the difference in scores between the CSSD exam and the other CDR board certification exams, the certification testing programs are developed in an identical manner.[27] They universally utilize a planning and development program beginning with analyzing the skills and knowledge needed to be a specialist in the dietetics specialty. Following this, they outline the test content and select experienced test creators from a variety of settings to form new questions. These questions are then reviewed by a separate group of test editors before being utilized in the testing item pool. Due to the thorough nature of this program, it remains unclear why the CSSD exam differs from the other board-certified exams.

Interest in Eating Disorders Among CSSDs

An area to be explored further is how the most commonly reported professional development opportunity sought by CSSDs were related to eating disorders (ED). ED is becoming a prevalent topic within the general public and sports as athletes in endurance, weight category, and aesthetic sports face considerable pressure to maintain lean physiques.[75] The prevalence rates among athletes tend to vary, but a 2004 study by Sundgot-Borgen and Torstveit suggested that rates among athletic populations are higher than the general public.[76]

CSSDs are positioned to provide counseling to disordered eating patterns as nutritional experts. However, the results of this paper support that despite the high interest in learning about ED, some CSSDs initially feel they lack the counseling knowledge and skills to appropriately

counsel ED. This is supported in the literature among RDNs as a survey of RDNs managing clients with eating disorders by Setnick et al reported that RDNs gained confidence in their ability to manage ED from conferences, workshops, and independent reading done as a professional.[77] Additionally, <10% of RDNs in this study reported receiving training on ED as part of their undergraduate coursework.

Based upon this, it seems that CSSDs need to be proactive in seeking education on ED early in their careers due to the high prevalence of ED among athletes.

Job Satisfaction

Participants in this study reported overall job satisfaction levels of 82%. This compares favorably with multiple job satisfaction studies from other dietetics practice areas.

Interestingly, a 1993 job satisfaction study among Canadian public health nutritionists which cited that 89% of participants were very satisfied or satisfied with their jobs.[17] Furthermore, the most satisfying dimensions were similar as both participant groups ranked independence/autonomy as factors closely related to their high levels of job satisfaction. Comparisons such as these suggest that while the dietetics industry has grown over the past 30 years, certain areas have remained unchanged. A 2022 study exploring the imposter syndrome phenomenon in the field of dietetics also evaluated job satisfaction levels and reported an average job satisfaction level of 73% among practicing RDNs and NDTRs.[78]

As little overall research has been done on RDNs that possess board certified credentials, no studies were found on job satisfaction levels among RDNs with board certified credentials. However, two studies were found that examined the perceived value of board-certified specialists in two specialty areas: sports and renal dietetics.[79-80] The results of these studies suggest that board certified specialist credentials have a high perceived value among RDNs.

While the high perceived value was coupled with high personal satisfaction among specialists in renal dietetics, the relationship remains unclear in sports dietetics.

One factor related to job satisfaction echoed in the research is working as part of a multidisciplinary team. Working as part of a multidisciplinary team was found to be one of the most prevalent areas of enjoyment cited by participants. This mirrors a 2019 study by Schneider and Sastre, in which RDNs that worked in primary care settings reported that 47.2% were very satisfied and 41.5% were satisfied working as part of multidisciplinary teams.[22]

Conversely, when examining the shared barriers that impact job satisfaction, the barrier of a lack of respect and awareness is often present within the literature. For example, Schneider and Sastre found that a lack of satisfaction was associated with a lack of respect from other health professionals.[22]

Leadership Positions & Awareness in a Female-Dominated Field

As mentioned in the previous section, a consistent theme expressed in this study was the lack of respect and awareness respondents felt from other professionals. In the minds of some participants, this was related to the RDN being a female-dominated profession. This is in direct contrast to the majority of positions in sports, especially leadership positions as a gender report card published by the Institute of Diversity and Ethics in Sports found that women typically hold far fewer leadership positions than with renowned organizations such as the International Olympic Committee having women fill <25% of women of senior leadership roles.[81] A paper by Hardin et al examining the career experiences of female RDNs in NCAA Division 1 athletic departments sums this up well by saying, “RDs are positioned in an overly feminized role in the overly masculinized culture of college sport.”[82]

The CSSD position, which establishes those who attain it as sports nutrition experts, is often a leadership role. This may make female CSSDs stand out more within athletic organizations as one of the few women in leadership positions. A review of women in leadership positions by Burton found that hegemonic masculinity often prevents women from obtaining leadership position in sport such as the CSSD.[83] This suggests that the CSSD is one of the only universally female-dominated positions in sports without precedence.

What may be important than the low number of women leading in sports organization is the gender roles that can be associated with female leadership positions. CSSDs in this paper often spoke of how their superiors were unaware of their capabilities as sports dietitians. A study by Sibson examining gender relations among a board of directors at a sports facility found that multiple female members of the organization did not have explicit roles and responsibilities while the men did.[84] Furthermore, when a female board member left her position, her duties were not adopted by a male board member, but were instead assigned to another woman. Sibson stated, "facility management and maintenance are appropriate for male members, while clerical work and home/kitchen based responsibilities… are suitable for female members".[84]

Despite the lack of awareness and mischaracterization of the role of women in sports within the literature, the literature lists strategies for RDNs to solidify themselves as the sports nutrition experts within their organizations that are also applicable to CSSDs. These strategies mirror the career trajectory and beliefs reflected by the CSSDs in this paper.

The attainment of the CSSD exists as a strong strategy to solidify oneself as an expert in Sports Nutrition. Additionally, before becoming a CSSD, students can begin establishing themselves as experts by completing unpaid internships and earning their master's degree (which is now required). After becoming a CSSD, Hardin et al found that "a key strategy… (is) to

improve relationships with the athletic administration (by) keeping in communication with them, and demonstrating the RD's role in the interprofessional team."[82]

Barriers and Opportunities

Since the CSSD credential was created in 2006, CSSDs have faced considerable barriers including defining an appropriate workload, advocating for better awareness and respect, and overcoming the faults of the credentialing exam. Despite these challenges, the following strategies can be used by CSSDs to potentially improve their profession and/or work environment(s).

Improving the CSSD Exam

- Change the exam format to more closely mimic actual practice by building a more diverse team of content experts to create/approve of exam
- Work with CSSD exam creators to create exam resources that translate easily to the CSSD exam
- Consider the use of up to 1000 hours in other areas of dietetic to qualify for the CSSD exam making the credential available to a more diverse population of dietitians

Workload Management

- Utilize student/intern workforces to introduce more students to sports dietetics and handle non-RD tasks
- Clearly define individual responsibilities and create a timeline for expansion of nutrition team with superiors during initial interview meetings
- Limit responsibilities taken on by a singular CSSD which will pave the way for more CSSDs to be hired

Improving Awareness and Respect

- Consider offering employers excerpts from the JAND article: Standards of Practice and Standards of Professional Performance for Registered Dietitian Nutritionists (Competent, Proficient, and Expert) in Sports and Human Performance Nutrition
- Leverage MNT knowledge to collaborate with interdisciplinary health teams by seeking opportunities to work with other health professionals such as physicians, athletic trainers, psychiatrists, etc
- Utilize toolkits and workshops created by professional Sports Nutrition organizations to improve communication/critical thinking/leadership skills such as the ELEVATE toolkit created by the CPSDA

Summary Statement

This paper describes the career development, experiences, and job satisfaction of registered dietitians who have received the Certified Specialist in Sports Dietetics (CSSD) certification through a mixed-methods approach utilizing semi-structured interviews and an online survey. Most CSSDs work primarily as part of collegiate athletic performance teams with the primary role of completing nutritional consults with student-athletes, communicating with the performance team, and creating/maintaining a nutritional education curriculum for athletes. CSSDs are generally highly satisfied with their jobs but struggle with the barriers of obtaining respect from other professionals and finding a work-life balance.

This study is limited by its broad scope, which was needed because few studies exist on the CSSD, but prevents a deeper examination of CSSD practices. In addition, the conclusions that can be drawn from this study are limited by its fairly small sample size. While this study determined the most common areas of sports nutrition practice, daily tasks, and job/salary

satisfaction levels CSSDs, future studies should focus on more qualitative interviews and bivariate quantitative analysis to determine how the roles, responsibilities, tasks, and job satisfaction/salary levels of CSSDs in different positions and experience levels differ. Additionally, to continue to uplift the profession, addressing the barriers in the CSSD exam, awareness/respect, and workload management by conducting studies on focused how the exam can be improved as well as successful interdisciplinary communication and marketing practices among CSSDs would be beneficial.

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Appendix A: CSSD Recruitment Email

Subject: Student Request for Participation in CSSD Research Study on Job Satisfaction and Career Experiences

Hello!

My name is Jordan Harris and I am a graduate student in the Department of Nutrition Science at East Carolina University. In the future, I plan to become an RDN and earn both the Certified Strength and Conditioning Specialist (CSCS) and Certified Specialist in Sports Dietetics (CSSD) credentials to become a professional that integrates fitness and nutrition to help people realize their athletic potential.

I am contacting you regarding a study of RDNs who hold the CSSD credential to explore their career development, experiences, and job satisfaction.

Participation in this research study includes the completion of a short survey regarding your career trajectory and experiences as a CSSD. We anticipate the survey to take approximately 10 minutes and can be completed on any device. No identifying information will be asked.

For those who participate in the survey, in the end, you will also be able to elect to provide your email address to set up an additional phone interview, and a $20 Amazon gift-card will be provided for the first 30 individuals who complete phone interviews.

For more information about this research study, please contact the principal investigator, Jordan Harris, by phone at 336-624-3191 or email at harrisjo15@students.ecu.edu. If you are interested

in voluntarily participating in the research study, click on the Qualtrics Survey link below to access the survey.

CSSD Survey Link

Thank you,

Jordan Harris

Principal Investigator

Appendix B: Survey Draft

Survey Draft

I. Demographic and Professional Information:

1. What is your sex?
    a) Female
    b) Male
    c) Nonbinary
    d) Prefer not to say

2. What is your age (years)? _____

3. Do you identify as Hispanic/Latinx?
    a) Yes
    b) No
    c) Prefer not to say

4. What is your race? *Select all that apply.*
    a) American Indian or Alaska Native
    b) Asian
    c) Black or African American
    d) Native Hawaiian or Other Pacific Islander

e) White

f) Some Other Race

g) Prefer not to say

5. Highest level of education:

a) Bachelor's Degree

b) Master's Degree

c) Doctorate

6. Credentials/Certifications obtained (other than RD/RDN and CSSD): *Check all that apply.*

Certifications Offered by CDR

_____ CSG (CDR Board Certified Specialist in Gerontological Nutrition)

_____ CSO (CDR Board Certified Specialist in Oncology Nutrition)

_____ CSOWM (CDR Board Certified Specialist in Obesity and Weight Management)

_____ CSP (CDR Board Certified Specialist in Pediatric Nutrition)

_____CSPCC (CDR Board Certified Specialist in Pediatric Critical Care Nutrition)

_____ CSR (CDR Board Certified Specialist in Renal Nutrition)

Condition-Specific Certifications not Offered by the CDR

_____CDCES (Certified Diabetes Care and Education Specialist)

_____CNSC (Certified Nutrition Support Clinician)

Exercise-Related Certifications

_____CEP/EPC (ACSM Clinical Exercise Physiologist)

_____CPT (ACSM Certified Personal Trainer)

_____CSCS (NSCA Certified Strength and Conditioning Specialist)

_____HFS (ACSM Health Fitness Specialist)

_____NSCA-CPT (NSCA Certified Personal Trainer)

7. How long have you maintained the RD/RDN credential? (in years) _____

8. How long have you maintained the CSSD credential? (in years) _____

II. Career Trajectory

9. What first interested you in the field of sports nutrition? *Select all that apply.*

a) A course in sports nutrition

b) Career aspirations in science or healthcare

c) Experiences with a dietitian

d) Experiences with an eating disorder or body image in self or others

e) Interest in health, sports, and fitness

f) Opportunity to help athletes

g) Positive childhood experiences with food and/or sports

h) Other (Please specify:) _____ _____

10. Have you been employed in any areas within the field of nutrition and dietetics outside of sports nutrition?

a) Yes
b) No

If yes, please specify

_____

11. What areas have you worked in within the field of sports nutrition? *Select all that apply.*

a) Athletic performance centers

b) Corporate wellness centers

c) Emergency responders

d) Law enforcement

e) Military

f) Private companies specializing in sports or wellness

g) Private practice

h) Professional sports organizations

i) Research

j) United States Olympic Training Centers

k) University teams

l) Youth or club teams

m) Other (Please specify:) _____

12. Which of these areas do you prefer?

_____

13. How did you learn about the CSSD position? *Select all that apply.*

a) Dietitian

b) Family members

c) Friends

d) Media

e) School/university

f) Work experience

g) Other (Please specify:) _____

14. What aspects of the CSSD position made this credential a necessity in your career? *Select all that apply.*

a) Increase in general job opportunities and/or salary associated with a CSSD's proficient skill level

b) Qualification for a specific position or focus area that requires the CSSD credential

c) Recognition associated with a CSSD's proficient skill level

d) Other (Please specify:) _____

15. In what settings did you complete the required 2000 hours of sports dietetics practice experience to become a CSSD?

_____

16. What tasks does your job include? *Place an X in the box that best describes the frequency in which you complete each task .*

CSSD Job Task Frequency					
Task Description	**Task Frequency**				
	Yes, daily	Yes, weekly	Yes, monthly	Yes, a few times	No
Consulting with physicians and other health and sports/performance professionals on clinical and other health-related issues					

Generating and analyzing data to monitor and evaluate the effectiveness of past and present interventions					
Providing anthropometric assessments					
Providing dietary assessments					
Providing food and dietary supplement product evaluation					
Providing medical nutrition therapy (MNT)					
Providing prescriptions on what, how much, and when to consume foods					
Serving as a food and nutrition resource for coaches, sports performance, support staff and families					
Serving as a preceptor to dietetic interns					
Translating the latest scientific evidence into practical sports nutrition recommendations					
Utilizing business skills relating to budget management, inventory tracking, ordering and distribution, negotiations for					

compensation and additional resources					

III. Perceptions and Experiences within Sports Dietetics

17. What is your overall job satisfaction working as a CSSD? *Place an X in the box that best describes your level of satisfaction.*

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
____	____	____	____	____

If you are satisfied or very satisfied with your job, what factors lead to your satisfaction level?

_____

If you are dissatisfied or very dissatisfied, what factors lead to your satisfaction level?

_____

18. Overall, how satisfied are you with your payment? *Place an X in the box that best describes your level of satisfaction.*

Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
____	____	____	____	____

19. If you have worked in other areas of nutrition and dietetics practice, are you more satisfied working in sports than the other areas?

a) Yes, very much
b) Yes
c) Somewhat
d) No
e) No, not at all
f) I have not worked in other areas of nutrition and dietetics practice

If you selected answer choices a-e, please explain why below.

_____

20. Is there anything you would like to add or is there anything I did not ask about your career in sports nutrition that you feel would be important for us to know?

If yes, please explain below.

_____

Appendix C: Interview Guide

Sample Interview Guide

Introduction Script:

Good morning/afternoon/evening! Thank you for being willing to talk with me today.

Before we get started, I want to tell you a little bit about me and the purpose of this interview.

I'm a graduate student and I'm seeking my master's degree in Nutrition at East Carolina University. My future goal is to become an RDN and earn both the Certified Strength and Conditioning Specialist (CSCS) and Certified Specialist in Sport Dietetics (CSSD) credentials to become a professional that integrates fitness and nutrition to help people realize their athletic potential.

In my undergrad, I earned degrees in both health fitness and nutrition which has led me to want to conduct this study because I feel that the CSSD profession really represents the intersection between athletics and nutrition.

The purpose of this interview is to gain a better understanding of the development, experiences, and job satisfaction among CSSDs, so I'm very interested in hearing more about your experiences within the field of sports nutrition.

Before we begin, I just want to remind you that everything that you share today will be completely anonymous and I will be audio-recording our conversation today to ensure that we accurately account for the information that you provide.

I am happy to share a transcript of our conversation today at any point if you would like to review the comments you provide today. You can follow-up via phone or email to request that.

Unless you have any questions, I am going to go ahead and start recording.

[Begin Recording]

Interview Questions:

I am going to start off this interview with questions about your path to becoming a CSSD.

Please describe to me your path to becoming an RDN and then a CSSD.

Additional Probes:

Did your undergraduate and/or graduate experiences impact your path to be a CSSD?

Did your internship experiences during your internship impact your path to be a CSSD?

Next, I would like to ask you some questions about your current position.

What is your current position?

Please describe to me a typical day at your current position.

Additional Probes:

What do you enjoy most about working there?

Are there any questions, areas, or subjects that you feel you need to repeatedly reinforce or discuss with your athletes or even your colleagues to really support the goals of your athletes?

Now that we've talked about your path to becoming a CSSD and what it's like at your current position, I want to learn more about some of the barriers that you face as a CSSD.

Tell me any of the barriers you face as a CSSD and what changes do you think need to be made to address these barriers?

Additional Probes:

What's the biggest barrier that you face?

Generally in the field of sports nutrition?

Specifically at your current position?

How does that impact your overall job satisfaction?

If these changes were made, how would you foresee your job changing?

Are there any areas of your job that you really want to focus on but don't feel that you have the time or resources because of the barriers that you face?

The last major topics that I want to discuss are your current certifications and certifications that you view as being or becoming essential for professionals as well as continuing education opportunities.

I've noted from the survey that you completed that you have obtained the (name of certification) certification(s). How does this impact how you perform your job?

What other additional certifications or qualifications are you interested in?

How do you foresee (name of certification) impacting how you perform your job? Do you feel that it would address any of the challenges that we discussed earlier?

As I'm sure you know, considerable amounts of time and effort go into creating continuing education opportunities for dietitians. This can leave a void where continuing education opportunities are warranted, but not provided. Are there any topics or subjects that you feel are deserving of continuing education opportunities, but, to your knowledge, are not currently being offered?

Is there anything you would like to add or is there anything I did not ask about your career in sports nutrition that you feel would be important for us to know?

Appendix D: IRB Approval Letter

IRB Approval Letter

EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building· Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** ·
rede.ecu.edu/umcirb/

Notification of Amendment Approval

From: Social/Behavioral IRB
To: Jordan Harris
CC: Lauren Sastre
Date: 3/9/2022
Re: Ame2 UMCIRB 21-000621
UMCIRB 21-000621
An Exploration of the Career Trajectory, Experiences and Satisfaction of Registered Dietitian Nutritionists (RDNs) who hold the Certified Specialist in Sports Dietetics (CSSD) Credential

Your Amendment has been reviewed and approved using expedited review on 3/9/2022. It was the determination of the UMCIRB Chairperson (or designee) that this revision does not impact the overall risk/benefit ratio of the study and is appropriate for the population and procedures proposed.

Please note that any further changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must adhere to all reporting requirements for this study.

If applicable, approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Document	Description
There are no items to display	

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.