



Statistical Report: CCSP and CDACBSP Examinations Fall 2022 Administration

Prepared for:



CEO

Prepared by:



Nathan Thompson, PhD



Table of Contents

Executive Summary	1
Introduction.....	2
The CCSP and DACBSP	2
November 2022 Administration	2
Standard Setting & Equating	2
Psychometric Performance	4
Program Statistics.....	6
Summary	7
Appendix A: Statistics for Programs	8
Appendix B: Examinee Comments	19

Executive Summary

This report provides a summary of the results for the fall 2022 administration of the two certifications offered by the American Chiropractic Board of Sports Physicians® (ACBSP): Certified Chiropractic Sports Physician® (CCSP) and Diplomate of the American Chiropractic Board of Sports Physicians® (DACBSP). A total of 59 candidates took the CCSP and 5 took the DACBSP. Items were flagged based on statistical considerations or candidates' comments, reviewed by experts, and some were rescored with credit to all examinees of determined flawed. The rescored results are presented in this report. Given the small sample sizes, the coefficient alpha reliability indices were strong (0.84 for CCPS; not calculable for DACBSP) and the pass rates were in line with historical rates, providing validity evidence for the quality of the examinations.

Introduction

The CCSP and DACBSP

The American Chiropractic Board of Sports Physicians® (ACBSP) provides two certifications to the field: Certified Chiropractic Sports Physician® (CCSP) and Diplomate of the American Chiropractic Board of Sports Physicians® (DACBSP). ACBSP administers the CCSP and DACBSP exams twice each year. Both consist of 200 4-option multiple choice items in a linear format, in two sections.

Fall 2022 Administration

The tests were delivered on November 5, 2021, with live remote proctoring using two video streams per candidate. After the tests were delivered, an initial psychometric analysis was performed. Items with very low difficulty (P-value) or discrimination (point-biserial) were flagged for review by content experts. Items with specific comments left by examinees were also flagged. Any items deemed to have issues by the experts were granted credit to examinees. Examinees were then rescored with the updated parameters.

Standard Setting & Equating

For the CCPS, the pass/fail standard for each form was set in the past with the modified-Angoff method, and this administration was equated to it. For the DACBSP, this administration was a new Angoff process.

The average Angoff value for the items in a form was calculated, and when multiplied by the number of items, a raw cutscore was determined. In the interest of fairness to the candidates, one standard error of measurement (SEM) was then subtracted to arrive at the final standard.

The National Commission for Certifying Agencies (NCCA) recommends that cutscores be set with a standard-setting approach like Bookmark or modified-Angoff, but only periodically. For continuous usage, they recommend that a statistical equating

procedure be employed. *Equating* means that the actual data be analyzed, comparing performance on overlapping and non-overlapping items.

Suppose you take Form A and get a score of 72/100 while your friend takes Form B and gets a score of 74/100. Is your friend smarter than you, or did his form happen to have easier questions? What if the passing score on the exam was 73? Well, if the test designers built-in some overlap of items between the forms, we can answer this question empirically.

Suppose the two forms overlap by 50 items, called anchor items or equator items. They are delivered to a large, representative sample. Here are the results.

Exam Form	Mean score on 50 overlap items	Mean score on 100 total items
A	30	72
B	32	74

Because the mean score on the anchor items was higher, we then think that the Form B group was a little smarter, which led to a higher total score.

Now suppose these are the results:

Exam Form	Mean score on 50 overlap items	Mean score on 100 total items
A	32	72
B	32	74

Now, we have evidence that the groups are of equal ability. The higher total score on Form B must then be because the unique items on that form are a bit easier.

The ACBSP exams utilize the approach described above, which is called a non-equivalent groups with anchor test (NEAT) design. There are several approaches that can be used to calculate the equating of the cutscore, but the approach utilized was Nominal Weights Equating (Babcock, Albano, & Raymond, 2012). This has been shown to work well with samples sized less than 100.

The cutscore for the Spring 2022 CCSP exam was 142. Converting this to the Fall 2022 scale with nominal weights equating produces a cutscore of 141.

The DACBSP had a new Test Plan for this administration, with a new cutscore based on a modified-Angoff procedure with the Beuk compromise and adjustment for the standard error of judgments. The cutscore was 125.

Psychometric Performance

The following table provides summary statistics across all three forms of each exam. Candidates performed very well, with high mean scores and pass rates, comparable to past administrations of these exams. The most important result in these tables is the coefficient alpha reliability index, which summarizes the consistency or repeatability of the measurement process onto a scale of 0 (random numbers) to 1 (perfect measurement). It was 0.84 for the CCSP, which is sufficiently reliable. The sample size was too low with DACBSP to calculate.

Stats/Program	CCSP	DACBSP
Examinees	59	5
Items	200	200
Mean	155	138
SD	13.75	7.52
Variance	189.1	56.5
Min	123	125
Max	190	144
Pass rate	88%	100%
Alpha	0.84	N/A
SEM	5.57	N/A

Note that this table, and other statistics, are calculated after the items are flagged and reviewed, and therefore include items where examinees are given credit based on issues approved by the exam committee.

The tables below provide summary statistics of examinee performance on the domains of each test.

CCSP Domain	Mean	Max	Items
/ C - 01A - Concepts of a Sports Physician (IA)	18.64	22	24
/ C - 01B - Exercise Physiology (IB)	13.48	17	17
/ C - 01C - Clinical Biomechanics (IC)	13.83	18	18
/ C - 01D - Sports Nutrition (ID)	11.00	14	14
/ C - 01E - Environment and the Athlete (IE)	8.12	10	10
/ C - 01F - Medical Legal Aspects (IF)	8.80	10	10
/ C - 02A - Clinical Competency (IIA)	47.53	59	61
/ C - 02B - Diagnostic Imaging (IIB)	9.61	13	14
/ C - 02C - CPR and Emergency Procedures (IIC)	7.95	11	11
/ C - 02D - Special Clinical Considerations (IID)	7.85	10	10
/ C - 02E - Adjunctive Therapy (IIE)	8.20	11	11

DACBSP Domain	Mean	Max	Items
1 - Exercise Physiology	6.20	7	8
2 - Rehabilitation Concepts and their Application to Athletes	10.60	12	16
3 - Sport Specific Biomechanics	4.00	7	7
4 - Diagnostics in Sports Medicine	3.20	5	7
5 - Evaluation And Management Of Soft Tissue	17.40	19	21
6 - Functional and Supportive Taping, Bracing and Splinting	7.00	8	8
7 - Biopsychosocial Considerations	5.00	7	7
8 - Sports Equipment and Technology	3.80	4	4
9 - Advanced Principles of Joint Manipulation	8.20	10	10
10 - Special Populations in Sport	18.40	22	32
11 - Emergency Procedures	13.40	15	18
12 - Sports Medicine Research	3.00	4	5
13 - Team Physician Concepts	16.80	19	25
14 - Anti-doping and Pharmacology in Sports Medicine	2.80	4	4
15 - Concussion	13.00	16	19
16 - Nutrition	1.20	2	4
17 - Preparticipation Exam	4.00	5	5

Program Statistics

To sit for the ACBSP exams, candidates must first complete extensive training at a university with a relevant training program. Candidates list this in their application process. The tables below provide student performance results for each program. Detailed reports, which can be provided to the schools are provided in Appendix A.

Table 5: Program Statistics for CSSP

Program	Fail	Pass	Mean Score
CCSP® - Completed the first year of a sports medicine residency program w/an accredited college	1	1	145.5
I have a valid and current ATC certification		4	165.25
I have completed a MS degree in an equivalent program in the domain of sports medicine	1	4	151.00
Logan University		4	152.00
National University of Health Sciences	1	1	143.00
Northeast College of Health Sciences		8	156.38
Northwestern Health Sciences University		2	153.50
Palmer College of Chiropractic	1	2	148.00
Southern California University of Health Sciences		1	173.00
University of Western States	2	23	157.36
Other College or University	1	2	145.00
Total	7	52	155.00

Table 6: Program Statistics for DACBSP

Program	Pass	Mean Score
Life University	1	139.00
National University of Health Sciences	1	125.00
Southern California University of Health Sciences	1	144.00
University of Western States	2	141.00
Total	5	138.00

Summary

Fall 2022 was a successful administration of the CCSP and DACBSP examinations. Candidates scored well, and the test forms performed with quality psychometrics. The proctoring process encountered no major issues; as seen by the comments in Appendix B, the vast majority of comments were positive or neutral, which means that no issues were encountered. Some candidates have suggestions which could be considered.

Appendix A: Statistics for Programs

PERFORMANCE ON THE FALL 2022 CCSP EXAM

Program: CCSP® - Completed the first year of a sports medicine residency program w/an accredited college

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	18.5	18.64	24
01B - Exercise Physiology (IB)	11.5	13.47	17
01C - Clinical Biomechanics (IC)	11.5	13.83	18
01D - Sports Nutrition (ID)	10	11	14
01E - Environment and the Athlete (IE)	8.5	8.12	10
01F - Medical Legal Aspects (IF)	8	8.8	10
02A - Clinical Competency (IIA)	45.5	47.53	61
02B - Diagnostic Imaging (IIB)	8.5	9.61	14
02C - CPR and Emergency Procedures (IIC)	6	7.95	11
02D - Special Clinical Considerations (IID)	8	7.85	10
02E - Adjunctive Therapy (IIE)	9.5	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM
Program: Logan University

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	18.25	18.64	24
01B - Exercise Physiology (IB)	15.25	13.47	17
01C - Clinical Biomechanics (IC)	13.5	13.83	18
01D - Sports Nutrition (ID)	10.75	11	14
01E - Environment and the Athlete (IE)	8.25	8.12	10
01F - Medical Legal Aspects (IF)	9.5	8.8	10
02A - Clinical Competency (IIA)	45.25	47.53	61
02B - Diagnostic Imaging (IIB)	8.75	9.61	14
02C - CPR and Emergency Procedures (IIC)	7.25	7.95	11
02D - Special Clinical Considerations (IID)	7	7.85	10
02E - Adjunctive Therapy (IIE)	8.25	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM
Program: National University of Health Sciences

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	19	18.64	24
01B - Exercise Physiology (IB)	11.5	13.47	17
01C - Clinical Biomechanics (IC)	13.5	13.83	18
01D - Sports Nutrition (ID)	10.5	11	14
01E - Environment and the Athlete (IE)	6	8.12	10
01F - Medical Legal Aspects (IF)	8	8.8	10
02A - Clinical Competency (IIA)	44	47.53	61
02B - Diagnostic Imaging (IIB)	9.5	9.61	14
02C - CPR and Emergency Procedures (IIC)	6.5	7.95	11
02D - Special Clinical Considerations (IID)	7	7.85	10
02E - Adjunctive Therapy (IIE)	7.5	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM
Program: MS Degree

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	17.6	18.64	24
01B - Exercise Physiology (IB)	13.2	13.47	17
01C - Clinical Biomechanics (IC)	14.2	13.83	18
01D - Sports Nutrition (ID)	10.2	11	14
01E - Environment and the Athlete (IE)	7.6	8.12	10
01F - Medical Legal Aspects (IF)	8.6	8.8	10
02A - Clinical Competency (IIA)	46	47.53	61
02B - Diagnostic Imaging (IIB)	10.2	9.61	14
02C - CPR and Emergency Procedures (IIC)	7.2	7.95	11
02D - Special Clinical Considerations (IID)	7.4	7.85	10
02E - Adjunctive Therapy (IIE)	8.8	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM

Program: ATC Certification

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	19	18.64	24
01B - Exercise Physiology (IB)	14.75	13.47	17
01C - Clinical Biomechanics (IC)	16	13.83	18
01D - Sports Nutrition (ID)	12.5	11	14
01E - Environment and the Athlete (IE)	8.5	8.12	10
01F - Medical Legal Aspects (IF)	9.5	8.8	10
02A - Clinical Competency (IIA)	51	47.53	61
02B - Diagnostic Imaging (IIB)	8.5	9.61	14
02C - CPR and Emergency Procedures (IIC)	8.75	7.95	11
02D - Special Clinical Considerations (IID)	7.75	7.85	10
02E - Adjunctive Therapy (IIE)	9	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM

Program: Northeast College of Health Sciences

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	19	18.64	24
01B - Exercise Physiology (IB)	13.5	13.47	17
01C - Clinical Biomechanics (IC)	14.63	13.83	18
01D - Sports Nutrition (ID)	11.63	11	14
01E - Environment and the Athlete (IE)	8	8.12	10
01F - Medical Legal Aspects (IF)	8.5	8.8	10
02A - Clinical Competency (IIA)	46.63	47.53	61
02B - Diagnostic Imaging (IIB)	9.63	9.61	14
02C - CPR and Emergency Procedures (IIC)	7.75	7.95	11
02D - Special Clinical Considerations (IID)	8.38	7.85	10
02E - Adjunctive Therapy (IIE)	8.75	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM
Program: Northwestern Health Sciences University

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	19	18.64	24
01B - Exercise Physiology (IB)	14	13.47	17
01C - Clinical Biomechanics (IC)	13	13.83	18
01D - Sports Nutrition (ID)	12	11	14
01E - Environment and the Athlete (IE)	8	8.12	10
01F - Medical Legal Aspects (IF)	9.5	8.8	10
02A - Clinical Competency (IIA)	46	47.53	61
02B - Diagnostic Imaging (IIB)	9.5	9.61	14
02C - CPR and Emergency Procedures (IIC)	8.5	7.95	11
02D - Special Clinical Considerations (IID)	8	7.85	10
02E - Adjunctive Therapy (IIE)	6	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM
Program: Palmer College of Chiropractic

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	17.67	18.64	24
01B - Exercise Physiology (IB)	13.67	13.47	17
01C - Clinical Biomechanics (IC)	13	13.83	18
01D - Sports Nutrition (ID)	10.33	11	14
01E - Environment and the Athlete (IE)	8.67	8.12	10
01F - Medical Legal Aspects (IF)	7.67	8.8	10
02A - Clinical Competency (IIA)	44.67	47.53	61
02B - Diagnostic Imaging (IIB)	10.33	9.61	14
02C - CPR and Emergency Procedures (IIC)	9.33	7.95	11
02D - Special Clinical Considerations (IID)	7.33	7.85	10
02E - Adjunctive Therapy (IIE)	5.33	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM

Program: Southern California University of Health Sciences

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	20	18.64	24
01B - Exercise Physiology (IB)	16	13.47	17
01C - Clinical Biomechanics (IC)	17	13.83	18
01D - Sports Nutrition (ID)	13	11	14
01E - Environment and the Athlete (IE)	9	8.12	10
01F - Medical Legal Aspects (IF)	9	8.8	10
02A - Clinical Competency (IIA)	50	47.53	61
02B - Diagnostic Imaging (IIB)	13	9.61	14
02C - CPR and Emergency Procedures (IIC)	11	7.95	11
02D - Special Clinical Considerations (IID)	9	7.85	10
02E - Adjunctive Therapy (IIE)	6	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM
Program: University of Western States

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	18.8	18.64	24
01B - Exercise Physiology (IB)	13.32	13.47	17
01C - Clinical Biomechanics (IC)	13.56	13.83	18
01D - Sports Nutrition (ID)	10.88	11	14
01E - Environment and the Athlete (IE)	8.4	8.12	10
01F - Medical Legal Aspects (IF)	8.92	8.8	10
02A - Clinical Competency (IIA)	49.08	47.53	61
02B - Diagnostic Imaging (IIB)	9.76	9.61	14
02C - CPR and Emergency Procedures (IIC)	8.2	7.95	11
02D - Special Clinical Considerations (IID)	8.08	7.85	10
02E - Adjunctive Therapy (IIE)	8.36	8.2	11

PERFORMANCE ON THE FALL 2022 CCSP EXAM

Program: **Other College**

Listed below is the performance of students from this program, compared to the average performance for all programs. Also listed are the total numbers of items for each examination.

Domain	Average for This Program	Average for All Colleges	Number Possible
01A - Concepts of a Sports Physician (IA)	18.33	18.64	24
01B - Exercise Physiology (IB)	12.33	13.47	17
01C - Clinical Biomechanics (IC)	13	13.83	18
01D - Sports Nutrition (ID)	10.33	11	14
01E - Environment and the Athlete (IE)	6.67	8.12	10
01F - Medical Legal Aspects (IF)	8.67	8.8	10
02A - Clinical Competency (IIA)	44.67	47.53	61
02B - Diagnostic Imaging (IIB)	9	9.61	14
02C - CPR and Emergency Procedures (IIC)	7	7.95	11
02D - Special Clinical Considerations (IID)	7	7.85	10
02E - Adjunctive Therapy (IIE)	8	8.2	11

Appendix B: Examinee Comments

The following tables provide a summary of examinee comments regarding the exam process; content-specific comments are pulled out and provided to the exam committee during the item review process, before releasing results.

CCSP

Brief positive comment: Acceptable, good, great, well done, seamless, smooth, fluid, effective, etc.	x36
N/A or no comment (that is, candidate actually typed in "no comment")	x7
Having the option to take at a testing center would be appreciated.	
practice exam should have 10 questions to better understand system	
Please make sure to let other test takers know that they will need to download google meet on their phones so the proctors can see them. I was not originally told this and didn't download it prior to the practice exam.	
There should be a next that takes you to a timer of the break, not immediately into the next section.	
I feel like this has been one of the smoothest remote proctoring tests I have done	
Test administration procedures were good. I was able to communicate with my proctor to adjust my camera after it fell off its stand out of the blue.	
no comment about test administration procedures. It was smooth and easy to log in for the exam.	
Thank you for everyone who works hard to put these tests together. I look forward to hopefully passing and moving on in the future to the diplomate program.	
The administration procedures were great. The practice test is a great idea and definitely helped with any pre-exam jitters on missing the exam due technical errors.	

Diplomate

Overall it works good. The proctor is great. However my practice test proctor told me my camera setup was perfect and it turns out it had to be completely redone with the real proctor. She was very supportive however they clearly don't all follow the standard of testing strategy.
I prefer the classroom.
Perfect.