



# Statistical Report: CCSP and DACBSP Examinations April 2023 Administration

Prepared for:

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## Executive Summary

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This report provides a summary of the results for the spring 2023 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 10 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

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## 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.

## Spring 2023 Administration

The tests were delivered on April 8, 2023, 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

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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 two forms, A and B, each have 100 items and are both delivered to a large, representative sample of test takers. Let us also assume that 50 items are the same between Form A and Form B. After we score the test for each group of test takers we get the results in Table 1 below. As we know that the 50 items in common between Form A and B are the same (no changes to the question or answers), because the mean score on the anchor items was higher for the Form B test takers, we can assume that this group was a little more able, which leads to their higher overall test score.

Table 1. Mean scores on Total Test and Anchor across two forms

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

Now, let us assume we see the results in Table 2 instead. Here, we see that the mean scores for both groups on the common (overlapping) items are the same. Since these items are identical for both groups of test takers, we have evidence that the groups are of equal ability. Therefore, the higher score that we see on Form B is most likely due to the unique (different) items on Form B, which may be a bit easier.

Table 2. Mean scores on Total Test and Anchor across two forms

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

As you can see from this example, making inferences about the scores when there are differences in items across forms may lead to incorrect inferences about test scores. Using the process of equating, we can adjust the scores between forms so as we can establish comparable scores, with equivalent meaning, across different test forms.

There are several approaches that can be used to equate forms. The ACBSP program uses the non-equivalent group with anchor test (NEAT) design using nominal weights equating (Babcock,

Albano, & Raymond, 2012) as this method has been shown to work well with samples sized less than 100.

### Spring 2023 Exam Cutscores

The cutscore for the Fall CCSP exam was 141. Using nominal weights equating between administrations, the resulting Spring 2023 cutscore was 139.

The DACBSP had a new Test Plan for the Fall 2022 administration. Using nominal weights equating between administrations, the resulting Spring 2023 cutscore was 133.

## 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.

Table 3. Summary statistics for each ABSCP exam

Statistic	Exam	
	CCSP	DACBSP
Examinees	59	10
Items	200	200
Mean	157.4	142.9
SD	19.0	9.2
Variance	359.1	84.6
Min	128	131
Max	179	159
Pass rate	90%	90%
Alpha	0.85	N/A
SEM	5.2	N/A

\* Note: Statistics are calculated after any problematic items are removed due to statistical and/or content issues.

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

Table 4. Summary statistics on the CCSP domains

CCSP Domain	Items	Mean	Min	Max
01A - Concepts of a Sports Physician (IA)	24	18.9	13	24
01B - Exercise Physiology (IB)	17	13.8	10	17
01C - Clinical Biomechanics (IC)	18	13.6	8	17
01D - Sports Nutrition (ID)	14	11.5	8	14
01E - Environment and the Athlete (IE)	10	8.5	5	10
01F - Medical Legal Aspects (IF)	10	9.5	7	10
02A - Clinical Competency (IIA)	61	48.6	36	57
02B - Diagnostic Imaging (IIB)	14	9.9	5	14
02C - CPR and Emergency Procedures (IIC)	11	7.1	3	11
02D - Special Clinical Considerations (IID)	10	7.5	5	10
02E - Adjunctive Therapy (IIE)	11	8.4	4	11

Table 5. Summary statistics on the DACBSP domains

DACBSP Domains	Items	Mean	Min	Max
D01 - Exercise Physiology	8	5.6	3	7
D02 - Rehabilitation Concepts and their Application to Athletes	16	12.6	9	15
D03 - Sport Specific Biomechanics	7	4.5	3	6
D04 - Diagnostics in Sports Medicine	7	4.2	3	7
D05 - Functional and Supportive Taping, Bracing and Splinting	8	6.2	4	8
D06 - Biopsychosocial Considerations	7	4	2	6
D07 - Sports Equipment and Technology	4	2.7	2	4
D08 - Advanced Principles of Joint Manipulation	10	7.1	5	8
D09 - Evaluation and Management of Soft Tissue	21	15.2	13	18
D10 - Special Populations in Sport	32	21.2	18	27
D11 - Emergency Procedures	18	14.9	13	16
D12 - Sports Medicine Research	5	3.7	2	5
D13 - Team Physician Concepts	25	18.9	16	22
D14 - Anti-doping and Pharmacology in Sports Medicine	4	2.9	2	4
D15 - Concussion	19	13.9	12	17
D16 - Nutrition	4	2.1	1	3
D17 - Preparticipation Exam	5	3.2	2	4

## 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 6. Program Statistics for the CSSP

Program	Fail	Pass	Mean
DC Online	1	16	155.1
Logan University	--	8	156.0
National University of Health Sciences	--	1	178.0
Northeast College of Health Sciences (formerly NYCC)	--	3	164.3
Northwestern Health Sciences University	1	2	156.7
Southern California University of Health Sciences	--	1	175
University of Western States	2	19	157.9
Other	1	--	137
MS Degree	1	3	158.5
Total	6	53	157.4

Table 7. Program Statistics for the DACBSP

Program	Fail	Pass	Mean
DC Online	--	2	147.5
National University of Health Sciences	--	1	139.0
Northwestern Health Sciences University	--	2	143.0
University of Western States	--	4	144.5
Other	1	--	131.0
Total		10	142.9

## Summary

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April 2023 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

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### PERFORMANCE ON THE SPRING 2023 CCSP EXAM ACROSS PROGRAMS

Listed below are the performance on the Spring 2023 CCSP exam for various programs. Each table shows the average performance for the program compared to the average performance across all programs. Also listed are the total numbers of items for each examination.

Program:

DC Online

CCSP Scores	Items	Program Average	All Colleges
Total Score	200	155.1	157.4
01A - Concepts of a Sports Physician (IA)	24	18.8	18.9
01B - Exercise Physiology (IB)	17	14.1	13.8
01C - Clinical Biomechanics (IC)	18	12.8	13.6
01D - Sports Nutrition (ID)	14	10.9	11.5
01E - Environment and the Athlete (IE)	10	8.5	8.5
01F - Medical Legal Aspects (IF)	10	9.5	9.5
02A - Clinical Competency (IIA)	61	47.9	48.6
02B - Diagnostic Imaging (IIB)	14	10.1	9.9
02C - CPR and Emergency Procedures (IIC)	11	7.3	7.1
02D - Special Clinical Considerations (IID)	10	7.4	7.5
02E - Adjunctive Therapy (IIE)	11	7.9	8.4

Program:

**Logan University**

CCSP Scores	Items	Program Average	All Colleges
Total Score	200	156.0	157.4
01A - Concepts of a Sports Physician (IA)	24	19.4	18.9
01B - Exercise Physiology (IB)	17	13.8	13.8
01C - Clinical Biomechanics (IC)	18	13.6	13.6
01D - Sports Nutrition (ID)	14	11.3	11.5
01E - Environment and the Athlete (IE)	10	8.5	8.5
01F - Medical Legal Aspects (IF)	10	9.6	9.5
02A - Clinical Competency (IIA)	61	48.4	48.6
02B - Diagnostic Imaging (IIB)	14	8.6	9.9
02C - CPR and Emergency Procedures (IIC)	11	6.8	7.1
02D - Special Clinical Considerations (IID)	10	7.0	7.5
02E - Adjunctive Therapy (IIE)	11	9.1	8.4

Program:

**National University of Health Sciences**

CCSP Scores	Items	Program Average	All Colleges
Total Score	200	178.0	157.4
01A - Concepts of a Sports Physician (IA)	24	20.0	18.9
01B - Exercise Physiology (IB)	17	14.0	13.8
01C - Clinical Biomechanics (IC)	18	16.0	13.6
01D - Sports Nutrition (ID)	14	13.0	11.5
01E - Environment and the Athlete (IE)	10	10.0	8.5
01F - Medical Legal Aspects (IF)	10	10.0	9.5
02A - Clinical Competency (IIA)	61	56.0	48.6
02B - Diagnostic Imaging (IIB)	14	12.0	9.9
02C - CPR and Emergency Procedures (IIC)	11	7.0	7.1
02D - Special Clinical Considerations (IID)	10	10.0	7.5
02E - Adjunctive Therapy (IIE)	11	10.0	8.4

Program:

**Northeast College of Health Sciences (formerly NYCC)**

CCSP Scores	Items	Program Average	All Colleges
Total Score	200	164.3	157.4
01A - Concepts of a Sports Physician (IA)	24	21.3	18.9
01B - Exercise Physiology (IB)	17	14.0	13.8
01C - Clinical Biomechanics (IC)	18	14.7	13.6
01D - Sports Nutrition (ID)	14	12.7	11.5
01E - Environment and the Athlete (IE)	10	8.0	8.5
01F - Medical Legal Aspects (IF)	10	9.7	9.5
02A - Clinical Competency (IIA)	61	50.0	48.6
02B - Diagnostic Imaging (IIB)	14	9.3	9.9
02C - CPR and Emergency Procedures (IIC)	11	6.7	7.1
02D - Special Clinical Considerations (IID)	10	7.7	7.5
02E - Adjunctive Therapy (IIE)	11	10.3	8.4

Program:

**Southern California University of Health Sciences**

CCSP Scores	Items	Program Average	All Colleges
Total Score	200	175	157.4
01A - Concepts of a Sports Physician (IA)	24	20	18.9
01B - Exercise Physiology (IB)	17	14	13.8
01C - Clinical Biomechanics (IC)	18	17	13.6
01D - Sports Nutrition (ID)	14	11	11.5
01E - Environment and the Athlete (IE)	10	10	8.5
01F - Medical Legal Aspects (IF)	10	10	9.5
02A - Clinical Competency (IIA)	61	56	48.6
02B - Diagnostic Imaging (IIB)	14	9	9.9
02C - CPR and Emergency Procedures (IIC)	11	10	7.1
02D - Special Clinical Considerations (IID)	10	8	7.5
02E - Adjunctive Therapy (IIE)	11	10	8.4

Program:

University of Western States

CCSP Scores	Items	Program Average	All Colleges
Total Score	200	157.9	157.4
01A - Concepts of a Sports Physician (IA)	24	18.7	18.9
01B - Exercise Physiology (IB)	17	13.5	13.8
01C - Clinical Biomechanics (IC)	18	14.0	13.6
01D - Sports Nutrition (ID)	14	11.9	11.5
01E - Environment and the Athlete (IE)	10	8.5	8.5
01F - Medical Legal Aspects (IF)	10	9.3	9.5
02A - Clinical Competency (IIA)	61	48.5	48.6
02B - Diagnostic Imaging (IIB)	14	10.3	9.9
02C - CPR and Emergency Procedures (IIC)	11	7.1	7.1
02D - Special Clinical Considerations (IID)	10	7.7	7.5
02E - Adjunctive Therapy (IIE)	11	8.3	8.4

Program:

Other

CCSP Scores	Items	Program Average	All Colleges
Total Score	200	137	157.4
01A - Concepts of a Sports Physician (IA)	24	16	18.9
01B - Exercise Physiology (IB)	17	13	13.8
01C - Clinical Biomechanics (IC)	18	10	13.6
01D - Sports Nutrition (ID)	14	11	11.5
01E - Environment and the Athlete (IE)	10	9	8.5
01F - Medical Legal Aspects (IF)	10	10	9.5
02A - Clinical Competency (IIA)	61	42	48.6
02B - Diagnostic Imaging (IIB)	14	8	9.9
02C - CPR and Emergency Procedures (IIC)	11	7	7.1
02D - Special Clinical Considerations (IID)	10	6	7.5
02E - Adjunctive Therapy (IIE)	11	5	8.4

Program:

**MS Degree**

CCSP Scores	Items	Program Average	All Colleges
Total Score	200	158.5	157.4
01A - Concepts of a Sports Physician (IA)	24	18.3	18.9
01B - Exercise Physiology (IB)	17	14.5	13.8
01C - Clinical Biomechanics (IC)	18	14.5	13.6
01D - Sports Nutrition (ID)	14	12.3	11.5
01E - Environment and the Athlete (IE)	10	8.8	8.5
01F - Medical Legal Aspects (IF)	10	9.5	9.5
02A - Clinical Competency (IIA)	61	49.0	48.6
02B - Diagnostic Imaging (IIB)	14	9.5	9.9
02C - CPR and Emergency Procedures (IIC)	11	7.0	7.1
02D - Special Clinical Considerations (IID)	10	7.5	7.5
02E - Adjunctive Therapy (IIE)	11	7.8	8.4

## 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 Comments
Brief positive comment: "Great", "Thorough", "Fair & Efficient", "Test items were fair", "No issues", "Fine", "No complaints": 32
N/A or no comment (that is, candidate actually typed in "no comment"): 8
Test administration process was "simple", "easy and smooth": 15
Easy check in, however not allowing scratch paper is irritating/Impossible to comment/Need scratch paper: 4
3 minutes is not enough time to write feedback
Ability to zoom in/out on radiographs would be helpful, unless the intention is specifically to be vague and show poorly cropped radiographs to see how well we can read x-rays that are improperly shot/scaled: x 4
I thought the questions were fair, some were poorly written but not so poorly written that they were unable to answer.
There seemed to be a number of questions that were not explicitly covered in DC Online course review, but overall, it was a fair assessment.
The test I thought was good. Well worded and constructed.
The X rays were very difficult to fully analyze. The majority of the films I could not scroll far enough to actually see the injury. I have a touch screen was able to zoom in however no matter how I tried I couldn't move the box or scroll far enough to see the entire injury.
Super easy. Very happy with my first online test taking experience.
DACBSP Comments
Brief positive comment: "Great", "Just fine", "No issues", "Overall very good", "Was appropriate": 6
It would be nice if the exam started with question 1 instead of 2. It took me an hour to get me access to the test after I tried to go back to question 1 (which isn't a thing)
Relatively smooth test