



Statistical Report: CCSP and DACBSP examinations November 2021 administration

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Executive Summary

This report provides a summary of the results for the November 2021 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 61 candidates took the CCSP and 3 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 (0.857 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. In addition, each contained several unscored items at the end to explore the use of high-resolution images.

November 2022 Administration

The tests were delivered on November 7, 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

The pass/fail standard for each form was set in the past with the modified-Angoff method. 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 2021 CCSP exam was 141.711. Converting this to the Fall 2021 scale with nominal weights equating produces a cutscore of 140.06, rounded to 140.

The DACBSP had a sample size of only 3 candidates in this administration, which is insufficient to perform any statistical analysis. Therefore the previous cutscore of 137.12 was maintained. Since the current form overlapped by more than 80% with the previous form, this is more stable than attempting nominal weights equating. Moreover, no candidate scored within 5 points of this cutscore, so a change of a few points in either direction would not matter.

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 0.857 for the CCSP, which is sufficiently reliable. The sample size was too low with DACBSP to calculate.

Stats/Program	CCSP	DACBSP
Examinees	61	3
Items	200	200
Mean	159.43	134.67
SD	14.37	16.17
Variance	206.62	261.33
Min	117	120
Max	186	152
Pass rate	88.52%	33.33%
Alpha	0.857	N/A
SEM	5.448	N/A

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)	20.15	23	24
/ C - 01B - Exercise Physiology (IB)	12.85	17	17
/ C - 01C - Clinical Biomechanics (IC)	13.92	18	18
/ C - 01D - Sports Nutrition (ID)	10.77	14	14
/ C - 01E - Environment and the Athlete (IE)	8.02	10	10
/ C - 01F - Medical Legal Aspects (IF)	9.13	10	10
/ C - 02A - Clinical Competency (IIA)	48.89	59	61
/ C - 02B - Diagnostic Imaging (IIB)	10.51	14	14
/ C - 02C - CPR and Emergency Procedures (IIC)	8.98	11	11
/ C - 02D - Special Clinical Considerations (IID)	7.87	10	10
/ C - 02E - Adjunctive Therapy (IIE)	8.31	11	11

DACBSP Domain	Mean	Max	Items
/ D - 01 - Exercise Physiology	7.00	9	13
/ D - 02 - Rehab Concepts and Applications to Athletes (II)	14.00	15	18
/ D - 03 - Sport Specific Biomechanics (III)	13.33	14	16
/ D - 04 - Diagnostics in Sports Medicine (IV)	15.67	19	25
/ D - 05 - Adaptive and Functional Taping Bracing and Splinting (V)	6.33	8	10
/ D - 06 - Sport and Exercise Psychology (VI)	7.67	10	12
/ D - 07 - Sports Equipment and Technology (VII)	6.33	7	10
/ D - 08 - Advanced Principles of Joint Manipulation (VIII)	6.00	7	13
/ D - 09 - Evaluation and Management of Soft Tissue (IX)	13.33	16	22
/ D - 10 - Special Populations In Sport (X)	6.67	8	11
/ D - 11 - Emergency Procedures (XI)	12.00	13	18
/ D - 12 - Sports Medicine Research (XII)	8.33	10	10
/ D - 13 - Team Physician Concepts (XIII)	11.67	13	14
/ D - 14 - Anti-doping and Pharmacology in Sports Medicine (XIV)	6.33	7	8

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

Row Labels	Fail	Pass	N	Mean Score
Cleveland College		1	1	155.00
Completed the first year of a sports medicine residency program at an accredited college	1	1	2	145.00
I have a valid and current ATC certification		4	4	168.75
I have completed a MS degree in an equivalent program in the domain of sports medicine		4	4	161.75
Logan University		7	7	154.71
National University of Health Sciences	2	1	3	139.00
Northeast College of Health Sciences (formerly NYCC)	2	3	5	155.80
Northwestern Health Sciences University		2	2	164.50
Other College or University		5	5	158.40
Palmer College of Chiropractic		1	1	145.00
Southern California University of Health Sciences	1	2	3	155.67
University of Western States	1	23	24	164.42
Total	7	54	61	164.42

Table 6: Program Statistics for DACBSP

Program	Fail	Pass	N
I have completed a MS degree in an equivalent program in the domain of sports medicine		1	1
Southern California University of Health Sciences	1		1
Cleveland University-Kansas City	1		1

Total	2	1	3
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Since only 3 examinees, averages not provided

Summary

November 2021 was a successful administration of the CCSP and DACBSP examinations. Candidates scored well, and the test forms performed with quality psychometrics. The delivery 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.

In this administration, ACBSP also successfully piloted the use of images in computer-delivered exams. Examinee comments indicated that they liked this approach, but agreed that the current configuration provided the images too small to be of effective use. We will work to provide a different presentation next time.

Appendix A: Statistics for Programs

PERFORMANCE ON THE NOVEMBER 2021 CCSP EXAM Program: Cleveland 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)	21.00	20.15	24
01B - Exercise Physiology (IB)	13.00	12.85	17
01C - Clinical Biomechanics (IC)	13.00	13.92	18
01D - Sports Nutrition (ID)	11.00	10.77	14
01E - Environment and the Athlete (IE)	8.00	8.02	10
01F - Medical Legal Aspects (IF)	9.00	9.13	10
02A - Clinical Competency (IIA)	47.00	48.92	61
02B - Diagnostic Imaging (IIB)	9.00	10.51	14
02C - CPR and Emergency Procedures (IIC)	9.00	8.98	11
02D - Special Clinical Considerations (IID)	7.00	7.87	10
02E - Adjunctive Therapy (IIE)	8.00	8.31	11



PERFORMANCE ON THE NOVEMBER 2021 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)	21.25	20.15	24
01B - Exercise Physiology (IB)	13.00	12.85	17
01C - Clinical Biomechanics (IC)	16.00	13.92	18
01D - Sports Nutrition (ID)	9.50	10.77	14
01E - Environment and the Athlete (IE)	7.50	8.02	10
01F - Medical Legal Aspects (IF)	8.25	9.13	10
02A - Clinical Competency (IIA)	54.75	48.92	61
02B - Diagnostic Imaging (IIB)	11.50	10.51	14
02C - CPR and Emergency Procedures (IIC)	9.25	8.98	11
02D - Special Clinical Considerations (IID)	8.00	7.87	10
02E - Adjunctive Therapy (IIE)	9.75	8.31	11



PERFORMANCE ON THE NOVEMBER 2021 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)	21.00	20.15	24
01B - Exercise Physiology (IB)	12.50	12.85	17
01C - Clinical Biomechanics (IC)	14.25	13.92	18
01D - Sports Nutrition (ID)	9.25	10.77	14
01E - Environment and the Athlete (IE)	8.25	8.02	10
01F - Medical Legal Aspects (IF)	9.50	9.13	10
02A - Clinical Competency (IIA)	50.25	48.92	61
02B - Diagnostic Imaging (IIB)	11.00	10.51	14
02C - CPR and Emergency Procedures (IIC)	8.75	8.98	11
02D - Special Clinical Considerations (IID)	7.50	7.87	10
02E - Adjunctive Therapy (IIE)	9.50	8.31	11

PERFORMANCE ON THE NOVEMBER 2021 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)	20.29	20.15	24
01B - Exercise Physiology (IB)	12.43	12.85	17
01C - Clinical Biomechanics (IC)	13.43	13.92	18
01D - Sports Nutrition (ID)	11.14	10.77	14
01E - Environment and the Athlete (IE)	8.00	8.02	10
01F - Medical Legal Aspects (IF)	8.29	9.13	10
02A - Clinical Competency (IIA)	47.14	48.92	61
02B - Diagnostic Imaging (IIB)	9.71	10.51	14
02C - CPR and Emergency Procedures (IIC)	8.43	8.98	11
02D - Special Clinical Considerations (IID)	7.14	7.87	10
02E - Adjunctive Therapy (IIE)	8.71	8.31	11

PERFORMANCE ON THE NOVEMBER 2021 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)	17.67	20.15	24
01B - Exercise Physiology (IB)	10.33	12.85	17
01C - Clinical Biomechanics (IC)	13.33	13.92	18
01D - Sports Nutrition (ID)	10.33	10.77	14
01E - Environment and the Athlete (IE)	8.00	8.02	10
01F - Medical Legal Aspects (IF)	9.00	9.13	10
02A - Clinical Competency (IIA)	41.67	48.92	61
02B - Diagnostic Imaging (IIB)	7.33	10.51	14
02C - CPR and Emergency Procedures (IIC)	8.33	8.98	11
02D - Special Clinical Considerations (IID)	6.33	7.87	10
02E - Adjunctive Therapy (IIE)	6.67	8.31	11

PERFORMANCE ON THE NOVEMBER 2021 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)	19.20	20.15	24
01B - Exercise Physiology (IB)	13.20	12.85	17
01C - Clinical Biomechanics (IC)	12.80	13.92	18
01D - Sports Nutrition (ID)	11.20	10.77	14
01E - Environment and the Athlete (IE)	7.60	8.02	10
01F - Medical Legal Aspects (IF)	9.80	9.13	10
02A - Clinical Competency (IIA)	47.00	48.92	61
02B - Diagnostic Imaging (IIB)	11.00	10.51	14
02C - CPR and Emergency Procedures (IIC)	9.00	8.98	11
02D - Special Clinical Considerations (IID)	7.80	7.87	10
02E - Adjunctive Therapy (IIE)	7.20	8.31	11



PERFORMANCE ON THE NOVEMBER 2021 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)	18.80	20.15	24
01B - Exercise Physiology (IB)	13.80	12.85	17
01C - Clinical Biomechanics (IC)	13.80	13.92	18
01D - Sports Nutrition (ID)	11.20	10.77	14
01E - Environment and the Athlete (IE)	8.60	8.02	10
01F - Medical Legal Aspects (IF)	9.80	9.13	10
02A - Clinical Competency (IIA)	49.00	48.92	61
02B - Diagnostic Imaging (IIB)	11.00	10.51	14
02C - CPR and Emergency Procedures (IIC)	9.20	8.98	11
02D - Special Clinical Considerations (IID)	8.40	7.87	10
02E - Adjunctive Therapy (IIE)	8.40	8.31	11



PERFORMANCE ON THE NOVEMBER 2021 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)	20.00	20.15	24
01B - Exercise Physiology (IB)	12.60	12.85	17
01C - Clinical Biomechanics (IC)	13.00	13.92	18
01D - Sports Nutrition (ID)	10.40	10.77	14
01E - Environment and the Athlete (IE)	7.60	8.02	10
01F - Medical Legal Aspects (IF)	9.40	9.13	10
02A - Clinical Competency (IIA)	49.60	48.92	61
02B - Diagnostic Imaging (IIB)	10.60	10.51	14
02C - CPR and Emergency Procedures (IIC)	8.60	8.98	11
02D - Special Clinical Considerations (IID)	7.80	7.87	10
02E - Adjunctive Therapy (IIE)	8.80	8.31	11



PERFORMANCE ON THE NOVEMBER 2021 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)	18.00	20.15	24
01B - Exercise Physiology (IB)	10.00	12.85	17
01C - Clinical Biomechanics (IC)	13.00	13.92	18
01D - Sports Nutrition (ID)	11.00	10.77	14
01E - Environment and the Athlete (IE)	9.00	8.02	10
01F - Medical Legal Aspects (IF)	8.00	9.13	10
02A - Clinical Competency (IIA)	43.00	48.92	61
02B - Diagnostic Imaging (IIB)	10.00	10.51	14
02C - CPR and Emergency Procedures (IIC)	8.00	8.98	11
02D - Special Clinical Considerations (IID)	7.00	7.87	10
02E - Adjunctive Therapy (IIE)	8.00	8.31	11



PERFORMANCE ON THE NOVEMBER 2021 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)	20.00	20.15	24
01B - Exercise Physiology (IB)	12.33	12.85	17
01C - Clinical Biomechanics (IC)	13.67	13.92	18
01D - Sports Nutrition (ID)	10.33	10.77	14
01E - Environment and the Athlete (IE)	7.67	8.02	10
01F - Medical Legal Aspects (IF)	9.33	9.13	10
02A - Clinical Competency (IIA)	48.00	48.92	61
02B - Diagnostic Imaging (IIB)	10.67	10.51	14
02C - CPR and Emergency Procedures (IIC)	8.33	8.98	11
02D - Special Clinical Considerations (IID)	8.00	7.87	10
02E - Adjunctive Therapy (IIE)	7.33	8.31	11



PERFORMANCE ON THE NOVEMBER 2021 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)	20.58	20.15	24
01B - Exercise Physiology (IB)	13.29	12.85	17
01C - Clinical Biomechanics (IC)	14.42	13.92	18
01D - Sports Nutrition (ID)	11.25	10.77	14
01E - Environment and the Athlete (IE)	8.21	8.02	10
01F - Medical Legal Aspects (IF)	9.25	9.13	10
02A - Clinical Competency (IIA)	50.38	48.92	61
02B - Diagnostic Imaging (IIB)	10.88	10.51	14
02C - CPR and Emergency Procedures (IIC)	9.46	8.98	11
02D - Special Clinical Considerations (IID)	8.25	7.87	10
02E - Adjunctive Therapy (IIE)	8.46	8.31	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, etc. **x28**
N/A or no comment (that is, candidate actually typed in "no comment") **x32**
I found working with proctur frustrating but it worked out.
Please offer instruction on what to do if the video on your phone goes down during testing.
Some the questions apperead to ask for opinions rather than based off certain standard of care.
the admin of the test has been very good the live proctor was helpful on my start up and being able to take the test in my own office made things much easier.
the instructions given on how to take the test online where straight forward and simple
The questions are very challenging. Would be helpful to offer a much longer review considering the amount of material needed to prepare for this exam.
The test administration procedures are easy to understand and follow.
They are efficient and easy to follow.
They were great. I really appreciate the practice test setup before taking the actual exam.
Totally fine!
VERY HARD EXAM . VERY CHALLENGING
Very thorough, provided difficulties with administering tests online.

Diplomate

Notes were not provided on all taping applications. Kreb cycle was not discussed in any of the lectures nor in the lecture notes.
Need to be able to go back any of the question at the end of the exam not just at the end of the section. Unfair.
Unable to go back to question at the beginning of the exam. 45% of the Material present in the exam was not discussed in the lectures nor where any notes given on the material being test. - Adjustment question, tapping questions, kreb cycle / citric acid cycle, biomechanics. Adjusting techniques and when to and when not to adjust are very subjective from physician to physician. One doctor may opt for a different hand placement than another. I would advise these types of questions about hand placement and technique to be left out. For instance, not all sports docs will opt to adjust a TMJ even if it is indicated.