



# Statistical Report: CCSP and CDACBSP examinations Spring 2022 administration

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## Executive Summary

This report provides a summary of the results for the Spring 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 40 candidates took the CCSP and 4 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 (0.88 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.

### Spring 2022 Administration

The tests were delivered on April 23, 2022, 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 Fall 2021 CCSP exam was 140.06. Converting this to the Spring 2022 scale with nominal weights equating produces a cutscore of 141.58, rounded to 142. A score of 142 and above will pass.

The DACBSP had a sample size of only 4 candidates in this administration, which is insufficient to perform any statistical analysis. Therefore, the previous cutscore of 137 was maintained. Since the current form overlapped heavily with the previous form, this is more stable than attempting a statistical equating.

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

Stats/Program	CCSP	DACBSP
<b>Examinees</b>	40	4
<b>Items</b>	200	200
<b>Mean</b>	149.93	151.25
<b>SD</b>	15.62	13.96
<b>Variance</b>	243.91	194.91
<b>Min</b>	116	137
<b>Max</b>	170	168
<b>Pass rate</b>	75%	100%
<b>Alpha</b>	0.88	N/A
<b>SEM</b>	5.39	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)	19.08	23	24

/ C - 01B - Exercise Physiology (IB)	12.63	15	17
/ C - 01C - Clinical Biomechanics (IC)	13	18	18
/ C - 01D - Sports Nutrition (ID)	11.18	14	14
/ C - 01E - Environment and the Athlete (IE)	7.75	10	10
/ C - 01F - Medical Legal Aspects (IF)	8.15	10	10
/ C - 02A - Clinical Competency (IIA)	45.5	55	61
/ C - 02B - Diagnostic Imaging (IIB)	9.33	12	14
/ C - 02C - CPR and Emergency Procedures (IIC)	7.35	10	11
/ C - 02D - Special Clinical Considerations (IID)	7.75	10	10
/ C - 02E - Adjunctive Therapy (IIE)	8.23	11	11

<b>DACBSP Domain</b>	<b>Mean</b>	<b>Max</b>	<b>Items</b>
/ D - 01 - Exercise Physiology	9.25	10	13
/ D - 02 - Rehab Concepts and Applications to Athletes (II)	13.75	16	18
/ D - 03 - Sport Specific Biomechanics (III)	11.5	14	16
/ D - 04 - Diagnostics in Sports Medicine (IV)	19	22	25
/ D - 05 - Adaptive and Functional Taping Bracing and Splinting (V)	6.75	8	10
/ D - 06 - Sport and Exercise Psychology (VI)	8.5	10	12
/ D - 07 - Sports Equipment and Technology (VII)	7.25	8	10
/ D - 08 - Advanced Principles of Joint Manipulation (VIII)	7.75	11	13
/ D - 09 - Evaluation and Management of Soft Tissue (IX)	16.75	20	22
/ D - 10 - Special Populations In Sport (X)	8.25	10	11
/ D - 11 - Emergency Procedures (XI)	14	15	18
/ D - 12 - Sports Medicine Research (XII)	8.25	10	10
/ D - 13 - Team Physician Concepts (XIII)	10.25	12	14
/ D - 14 - Anti-doping and Pharmacology in Sports Medicine (XIV)	5.75	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**

Program	Fail	Pass	Mean Score
I have a valid and current ATC certification	2	2	146.75
I have completed a MS degree in an equivalent program in the domain of sports medicine		2	163.00
Logan University	2	3	148.60
National University of Health Sciences	1	1	129.50
Northeast College of Health Sciences (formerly NYCC)	3	3	138.83
Northwestern Health Sciences University		4	163.75
Palmer College of Chiropractic	1	1	134.00
Southern California University of Health Sciences	1		132.00
University of Western States		13	156.23
(Missing)		1	163.00
<b>Total</b>	<b>10</b>	<b>30</b>	<b>149.93</b>

**Table 6: Program Statistics for DACBSP**

Program	Pass	Mean Score
Southern California University of Health Sciences	3	145.67
University of Western States	1	168.00
<b>Total general</b>	<b>4</b>	<b>151.25</b>



## Summary

Spring 2022 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 from 2021 indicated that they liked this approach, but agreed that the configuration provided the images too small to be of effective use. Spring 2022 utilized a different configuration and negative feedback was lessened.

## Appendix A: Statistics for Programs

### PERFORMANCE ON THE SPRING 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)	18.4	19.08	24
01B - Exercise Physiology (IB)	13.4	12.63	17
01C - Clinical Biomechanics (IC)	11.2	13	18
01D - Sports Nutrition (ID)	11.4	11.18	14
01E - Environment and the Athlete (IE)	8.4	7.75	10
01F - Medical Legal Aspects (IF)	7.6	8.15	10
02A - Clinical Competency (IIA)	45	45.5	61
02B - Diagnostic Imaging (IIB)	10.2	9.33	14
02C - CPR and Emergency Procedures (IIC)	8	7.35	11
02D - Special Clinical Considerations (IID)	7.4	7.75	10
02E - Adjunctive Therapy (IIE)	7.6	8.23	11

PERFORMANCE ON THE SPRING 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)	17	19.08	24
01B - Exercise Physiology (IB)	10.5	12.63	17
01C - Clinical Biomechanics (IC)	11	13	18
01D - Sports Nutrition (ID)	8.5	11.18	14
01E - Environment and the Athlete (IE)	5	7.75	10
01F - Medical Legal Aspects (IF)	8	8.15	10
02A - Clinical Competency (IIA)	40.5	45.5	61
02B - Diagnostic Imaging (IIB)	9	9.33	14
02C - CPR and Emergency Procedures (IIC)	5.5	7.35	11
02D - Special Clinical Considerations (IID)	7	7.75	10
02E - Adjunctive Therapy (IIE)	7.5	8.23	11



PERFORMANCE ON THE SPRING 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)	19	19.08	24
01B - Exercise Physiology (IB)	14	12.63	17
01C - Clinical Biomechanics (IC)	15.5	13	18
01D - Sports Nutrition (ID)	13	11.18	14
01E - Environment and the Athlete (IE)	8.5	7.75	10
01F - Medical Legal Aspects (IF)	8	8.15	10
02A - Clinical Competency (IIA)	48.5	45.5	61
02B - Diagnostic Imaging (IIB)	9.5	9.33	14
02C - CPR and Emergency Procedures (IIC)	7.5	7.35	11
02D - Special Clinical Considerations (IID)	9	7.75	10
02E - Adjunctive Therapy (IIE)	10.5	8.23	11

PERFORMANCE ON THE SPRING 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	19.08	24
01B - Exercise Physiology (IB)	12.5	12.63	17
01C - Clinical Biomechanics (IC)	12	13	18
01D - Sports Nutrition (ID)	11.25	11.18	14
01E - Environment and the Athlete (IE)	7	7.75	10
01F - Medical Legal Aspects (IF)	9	8.15	10
02A - Clinical Competency (IIA)	46.25	45.5	61
02B - Diagnostic Imaging (IIB)	7.5	9.33	14
02C - CPR and Emergency Procedures (IIC)	7.25	7.35	11
02D - Special Clinical Considerations (IID)	7	7.75	10
02E - Adjunctive Therapy (IIE)	8	8.23	11

PERFORMANCE ON THE SPRING 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)	20.00	19.08	24
01B - Exercise Physiology (IB)	12.67	12.63	17
01C - Clinical Biomechanics (IC)	15.33	13	18
01D - Sports Nutrition (ID)	12.33	11.18	14
01E - Environment and the Athlete (IE)	7.67	7.75	10
01F - Medical Legal Aspects (IF)	8.33	8.15	10
02A - Clinical Competency (IIA)	46.33	45.5	61
02B - Diagnostic Imaging (IIB)	11.00	9.33	14
02C - CPR and Emergency Procedures (IIC)	8.00	7.35	11
02D - Special Clinical Considerations (IID)	7.67	7.75	10
02E - Adjunctive Therapy (IIE)	8.67	8.23	11



PERFORMANCE ON THE SPRING 2022 CCSP EXAM  
Program: Northeast College of Health Sciences (formerly NYCC)

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)	17.33	19.08	24
01B - Exercise Physiology (IB)	10.67	12.63	17
01C - Clinical Biomechanics (IC)	10.33	13	18
01D - Sports Nutrition (ID)	8.67	11.18	14
01E - Environment and the Athlete (IE)	7.00	7.75	10
01F - Medical Legal Aspects (IF)	7.00	8.15	10
02A - Clinical Competency (IIA)	34.33	45.5	61
02B - Diagnostic Imaging (IIB)	6.67	9.33	14
02C - CPR and Emergency Procedures (IIC)	5.00	7.35	11
02D - Special Clinical Considerations (IID)	6.67	7.75	10
02E - Adjunctive Therapy (IIE)	6.00	8.23	11



PERFORMANCE ON THE SPRING 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)	20	19.08	24
01B - Exercise Physiology (IB)	13.5	12.63	17
01C - Clinical Biomechanics (IC)	15	13	18
01D - Sports Nutrition (ID)	11.25	11.18	14
01E - Environment and the Athlete (IE)	8.75	7.75	10
01F - Medical Legal Aspects (IF)	9	8.15	10
02A - Clinical Competency (IIA)	49.75	45.5	61
02B - Diagnostic Imaging (IIB)	10.5	9.33	14
02C - CPR and Emergency Procedures (IIC)	8.25	7.35	11
02D - Special Clinical Considerations (IID)	8.25	7.75	10
02E - Adjunctive Therapy (IIE)	9.5	8.23	11



PERFORMANCE ON THE SPRING 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)	17.5	19.08	24
01B - Exercise Physiology (IB)	11.5	12.63	17
01C - Clinical Biomechanics (IC)	10.5	13	18
01D - Sports Nutrition (ID)	10	11.18	14
01E - Environment and the Athlete (IE)	8	7.75	10
01F - Medical Legal Aspects (IF)	8	8.15	10
02A - Clinical Competency (IIA)	40.5	45.5	61
02B - Diagnostic Imaging (IIB)	7	9.33	14
02C - CPR and Emergency Procedures (IIC)	7	7.35	11
02D - Special Clinical Considerations (IID)	7	7.75	10
02E - Adjunctive Therapy (IIE)	7	8.23	11



PERFORMANCE ON THE SPRING 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)	18	19.08	24
01B - Exercise Physiology (IB)	14	12.63	17
01C - Clinical Biomechanics (IC)	11	13	18
01D - Sports Nutrition (ID)	10	11.18	14
01E - Environment and the Athlete (IE)	9	7.75	10
01F - Medical Legal Aspects (IF)	9	8.15	10
02A - Clinical Competency (IIA)	39	45.5	61
02B - Diagnostic Imaging (IIB)	5	9.33	14
02C - CPR and Emergency Procedures (IIC)	7	7.35	11
02D - Special Clinical Considerations (IID)	6	7.75	10
02E - Adjunctive Therapy (IIE)	4	8.23	11



PERFORMANCE ON THE SPRING 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)	19.69	19.08	24
01B - Exercise Physiology (IB)	12.69	12.63	17
01C - Clinical Biomechanics (IC)	13.77	13	18
01D - Sports Nutrition (ID)	11.69	11.18	14
01E - Environment and the Athlete (IE)	7.77	7.75	10
01F - Medical Legal Aspects (IF)	8.08	8.15	10
02A - Clinical Competency (IIA)	47.92	45.5	61
02B - Diagnostic Imaging (IIB)	10.00	9.33	14
02C - CPR and Emergency Procedures (IIC)	7.54	7.35	11
02D - Special Clinical Considerations (IID)	8.31	7.75	10
02E - Adjunctive Therapy (IIE)	8.77	8.23	11



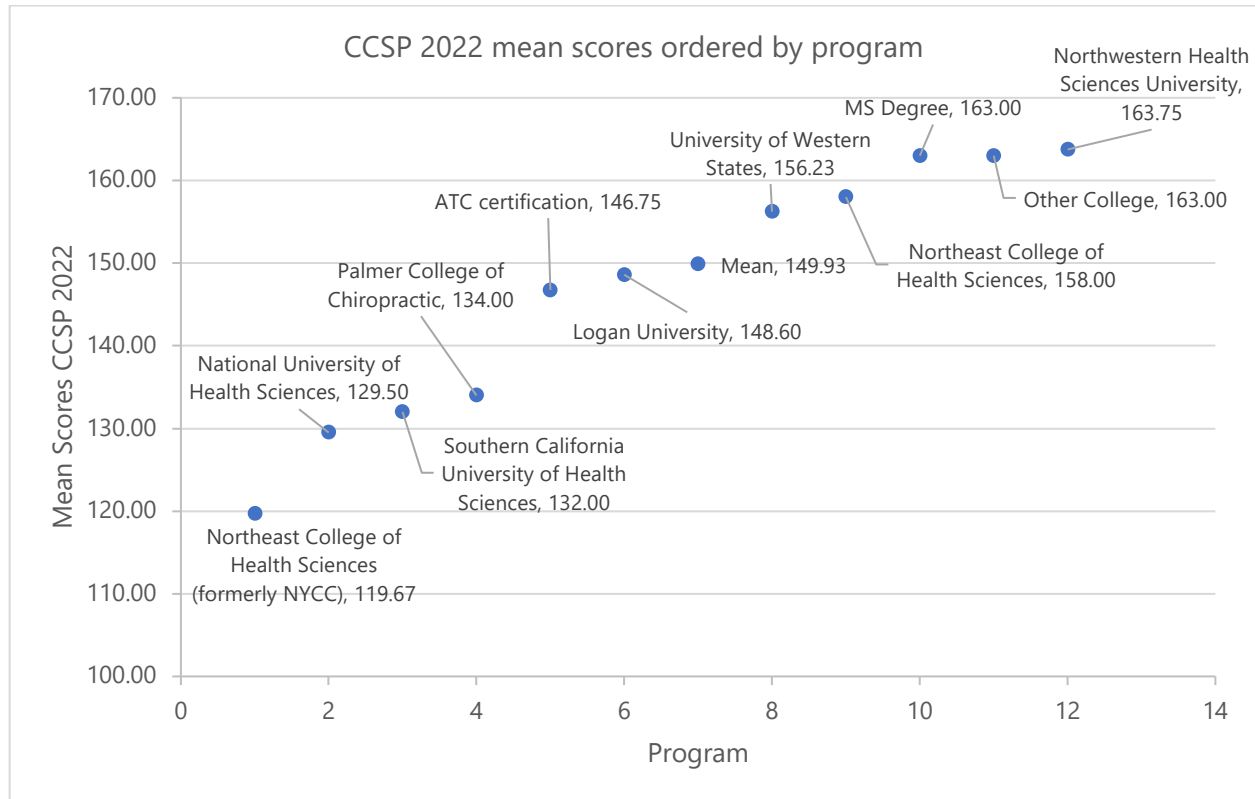
PERFORMANCE ON THE SPRING 2022 CCSP EXAM  
Program: Other College

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)	21.36	19.08	24
01B - Exercise Physiology (IB)	13.54	12.63	17
01C - Clinical Biomechanics (IC)	15.33	13	18
01D - Sports Nutrition (ID)	12.39	11.18	14
01E - Environment and the Athlete (IE)	8.58	7.75	10
01F - Medical Legal Aspects (IF)	8.72	8.15	10
02A - Clinical Competency (IIA)	49.50	45.5	61
02B - Diagnostic Imaging (IIB)	10.78	9.33	14
02C - CPR and Emergency Procedures (IIC)	8.45	7.35	11
02D - Special Clinical Considerations (IID)	8.92	7.75	10
02E - Adjunctive Therapy (IIE)	9.41	8.23	11

## PERFORMANCE ON THE SPRING 2022 CCSP EXAM

### Mean Scores comparison between programs



## Appendix B: Examinee Comments

The following tables provide a summary of examinee comments regarding the exam process; item-specific comments are pulled out and provided to the exam committee during the item review process, before releasing results. Note that examinees are asked for comments on two aspects: the exam/preparation, and the delivery/proctoring.

### CCSP

Simple positive comment (e.g. "Good" or "Smooth")	<b>x12</b>
Testing is convenient.	
Test administration procedures were efficient.	
they work. I'm good with all the procedures.	
it was good. No complaints. I felt comfortable in this virtual testing environment.	
Proctors are too busy	
There are a couple of questions worth challenging but I am unable to look up the exam number now that I am on this screen. An option to place notes on questions while in the section would be a nice addition.	
I feel like the test questions were fair. There was a variety of general and more specific questions asked, which I think is relevant to real-life scenarios. Sometimes the injuries are very general and basic while other times there is more complicated things present.	
All has gone smoothly thus far.	
Everything was done well. I did have a lot of connection issues even though I have never had internet issues in the past.	
The link for weblock was unavailable to download if you didn't take the practice test. Nowhere in the directions did it say you could download it at time of testing. Needless stress.	
A lot of these questions are vague, there are multiple answers for each one. Either the questions have to have best answer available or the ability to choose multiple. And if you are able to choose multiple on that last section i'm screwed.	
There were a few that were not clear but I did not make a note of them. I was not aware that we could add information about them here. I will keep that in mind for the other section.	
I wish you had a more specific study guide as there were a number of things in here that I had no idea I would be tested on. I hope if I do not pass that you will at least let me and others know what areas or sections we did well on and what we did not so we can put more focus on that material for the next test. Thanks.	
A few of the questions pertaining training were written in a vague format and designed to trick the test taker, not exactly test their knowledge.	
It would be better to let the exam takers know to record which Q's they have problems on so we could report more accurately. I cannot since I cannot go back and look at the section.	
No concerns with the test administration procedures at this point.	

## Diplomate

The Ti' Chi (spelling this wrong) question was a very random/odd question to ask on a Board Exam. Very niche activity.
No comments
Less questions on research construction
none