

Interpreting Advanced Dental Admission Test (ADAT) Results: 2020 Administrations

This document provides information that is intended to assist candidates and programs with interpreting official ADAT results for administrations occurring in 2020. The descriptive statistics and percentiles contained in this document are based on data from the 2019 administration of the ADAT. Normative information based on data from 2020 ADAT administrations will be provided in September 2020, after the 2020 ADAT testing window has closed.

In interpreting ADAT results, candidates and programs should consider the following:

- The ADAT should be used in conjunction with other admission tools that provide insight into candidate qualifications as they relate to core program requirements.
- The Department of Testing Services recommends that candidates and programs focus their attention on the ADAT Overall scale. This scale is based on more items and is therefore more reliable than scales based on fewer items (e.g., Data, Research Interpretation, & Evidence Based Dentistry).
- Additional guidance regarding ADAT score interpretation is available in the 2019 ADAT User's Guide, which can be accessed via the link below:

[ADAT User's Guide 2019](#)

- Additional general information about the ADAT is available on the [ADAT website](#).

Additional information and updates are forthcoming, and will be shared on the ADAT website and in updates to the ADAT User's Guide (see above links).

ADAT Scale Scores. Official ADAT results are reported as scale scores, which can range from 200 to 800 in 10-point increments. Descriptive statistics for 2019 ADAT scale scores are provided in Table 1.

Table 1. Descriptive statistics for ADAT scale scores: 2019 (358 administrations)

Scale Type	Scale	Mean	SD	Min	Max
Composite	ADAT Overall (ADAT)	502.7	80.0	220	680
Discipline	Biomedical Sciences (BIO)	507.9	91.4	200	750
	Clinical Sciences (CLI)	497.7	88.1	200	760
	Data, Research Interpretation, & Evidence Based Dentistry (DRI)	501.5	109.1	200	800

The ADAT Overall scale is referred to as a composite scale, because it is calculated using scale scores (i.e., the discipline-based scales). The ADAT Overall score is a weighted average of scale scores from all three ADAT disciplines. Weights are proportional to the number of items in each area, and the final score is rounded to the nearest ten.

Interpretation of the ADAT Overall score is slightly different from interpretation of discipline-based scale scores. It is important to note that observed scores on the ADAT Overall scale have a narrower range than scores on the three discipline scales. While higher scores (e.g., 750 to 800) are possible on the ADAT Overall scale, such scores are more difficult to achieve, and were in fact not observed in the 2019 sample.

Scale scores for the three ADAT disciplines are based on candidate skill level estimates determined from an Item Response Theory (IRT) analysis using the Three-Parameter Logistic (3PL) scoring model. The 3PL model takes into account the following when examining candidate responses and estimating candidate skills:

- The difficulty level of each test item
- The quality of each test item (item discrimination)
- The impact of guessing on item performance

The 3-PL model gives a more accurate and precise measurement of candidate skills than that provided by simply relying on the number of items answered correctly.

A frequency distribution of the ADAT Overall scale is presented in Figure 1 of Appendix B. The horizontal axis of the figure shows the range of possible ADAT scale scores (200 to 800), the left vertical axis shows the number of times each scale score was observed, the right vertical axis shows the cumulative percentile associated with scale scores (superimposed in black line on the graph). Figure 2 of that appendix shows a frequency distribution of the ADAT Overall scale for the 4 years of administration (2016-2019). The graph is interpreted the same way as the Figure 1 graph, but a larger sample size is used.

2019 ADAT Percentiles. Appendix A1 presents the percentiles associated with scores on each ADAT scale, based on the 358 ADAT administrations which occurred in 2019. For each scale and scale score in Appendix A1, the corresponding scale score percentile can be interpreted as the percentage of ADAT 2019 candidates who achieved that scale score or lower. For example, if a given scale score corresponds to a percentile of 88, then 88% of ADAT 2019 candidates achieved that scale score or lower.

2016-2019 ADAT Percentiles. Appendix A2 presents the percentiles associated with scores on each ADAT scale, based on all 1,688 ADAT administrations between 2016 and 2019. These percentiles are interpreted in a similar manner to the 2019 percentiles, except they rely on a broader normative group.

Importantly, percentiles do NOT provide information concerning the absolute level of skills that a candidate has displayed on the examination. Percentiles are designed to provide information concerning how a given candidate performed relative to others. Candidates with lower percentile standing may still potentially possess high levels of the skills being evaluated.

ADAT Score Reliability. Reliability coefficient estimates for the 2019 ADAT scale scores are given in Table 2¹. Reliability coefficients can range from zero to one, with higher values indicating higher reliability.

Table 2. Reliability coefficients for ADAT scale scores: 2019 (358 administrations)

ADAT Scale	Reliability
ADAT Overall (ADAT)	.92
Biomedical Sciences (BIO)	.80
Clinical Sciences (CLI)	.78
Data, Research Interpretation, & Evidence Based Dentistry (DRI)	.80

¹ The reliability coefficients reported in Table 2 are calculated from Item Response Theory (IRT) 3- Parameter Logistic (3PL) model estimates of candidate skill levels and their standard errors using the methods described by Sireci, Thissen and Wainer (1991) and Childs et al. (2004).

References

Childs, R.A., Elgie, S., Gadalla, T., Traub, R., & Jaciw, A.P. (2004). Irt-linked standard errors of weighted composites. *Practical Assessment, Research & Evaluation*, 9. Retrieved September 7, 2016 from <http://PAREonline.net/getvn.asp?v=9&n=13>

Sireci, S.G., Thissen, D., & Wainer, H. (1991). On the reliability of testlet-based tests. *Journal of Educational Measurement*, 28, 237-247.

Appendix A1

Percentiles Associated with ADAT Scale Scores: 2019 (358 administrations)

ADAT=ADAT Overall; BIO=Biomedical Sciences; CLI=Clinical Sciences
DRI=Data, Research Interpretation, & Evidence Based Dentistry

Scale Score	ADAT	BIO	CLI	DRI
800	.	.	.	99
790	.	.	.	99
780	.	.	.	99
770	.	.	.	99
760	.	.	99	99
750	.	99	99	99
740	.	99	99	99
730	.	99	99	99
720	.	99	99	99
710	.	99	99	99
700	.	99	99	98
690	.	99	99	97
680	99	98	99	96
670	99	97	98	95
660	99	97	98	94
650	98	95	97	93
640	98	94	97	92
630	97	92	96	91
620	94	89	95	89
610	92	87	92	87
600	91	86	90	84
590	88	83	87	81
580	86	80	85	78
570	81	77	82	74
560	78	72	79	70
550	74	70	74	68
540	70	65	71	66
530	66	61	67	62
520	60	56	62	58
510	54	53	56	53
500	49	50	51	48
490	43	45	45	44
480	38	39	39	39
470	34	35	36	36
460	29	31	32	35
450	25	28	29	32
440	22	24	26	28

Scale Score	ADAT	BIO	CLI	DRI
430	17	22	23	24
420	14	18	20	23
410	13	14	18	19
400	11	11	15	17
390	8	9	13	16
380	6	7	11	14
370	6	6	8	12
360	5	5	7	10
350	4	4	5	9
340	4	4	4	9
330	4	3	3	8
320	4	3	3	7
310	3	3	3	7
300	3	3	3	5
290	2	2	1	4
280	2	2	1	4
270	2	2	1	3
260	1	2	1	3
250	1	1	1	3
240	1	1	1	3
230	1	1	1	3
220	1	1	1	2
210	.	1	1	2
200	.	1	1	2

Appendix A2

Percentiles Associated with ADAT Scale Scores: 2016-2019 (1,688 administrations)

ADAT=ADAT Overall; BIO=Biomedical Sciences; CLI=Clinical Sciences
DRI=Data, Research Interpretation, & Evidence Based Dentistry

Scale Score	ADAT	BIO	CLI	DRI
800	.	99	99	99
790	.	99	99	99
780	.	99	99	99
770	.	99	99	99
760	.	99	99	99
750	.	99	99	99
740	99	99	99	99
730	99	99	99	99
720	99	99	99	99
710	99	99	99	98
700	99	98	99	98
690	99	98	99	98
680	99	97	98	97
670	99	96	98	96
660	98	96	97	95
650	98	95	96	94
640	97	93	95	93
630	96	92	94	92
620	95	90	93	90
610	94	88	91	89
600	92	86	89	87
590	90	84	87	84
580	87	81	85	82
570	84	78	82	79
560	80	73	78	75
550	76	69	75	71
540	72	65	70	67
530	68	60	66	63
520	61	56	61	59
510	55	52	56	55
500	49	47	51	50
490	43	43	46	46
480	39	38	43	41
470	33	34	38	37
460	30	30	34	34
450	25	27	31	30
440	21	23	26	26

Scale Score	ADAT	BIO	CLI	DRI
430	17	21	24	23
420	14	18	20	21
410	12	15	18	18
400	9	11	15	16
390	7	10	13	14
380	5	8	11	12
370	5	6	8	11
360	4	5	7	10
350	3	4	6	8
340	3	4	5	7
330	2	3	4	6
320	2	3	4	5
310	2	2	3	4
300	1	2	2	4
290	1	2	2	3
280	1	1	1	2
270	1	1	1	2
260	1	1	1	2
250	1	1	1	2
240	1	1	1	2
230	1	1	1	2
220	1	1	1	1
210	1	1	1	1
200	1	1	1	1

Appendix B

Figure 1. Frequency distribution for the ADAT Overall scale: 2019 (358 administrations)

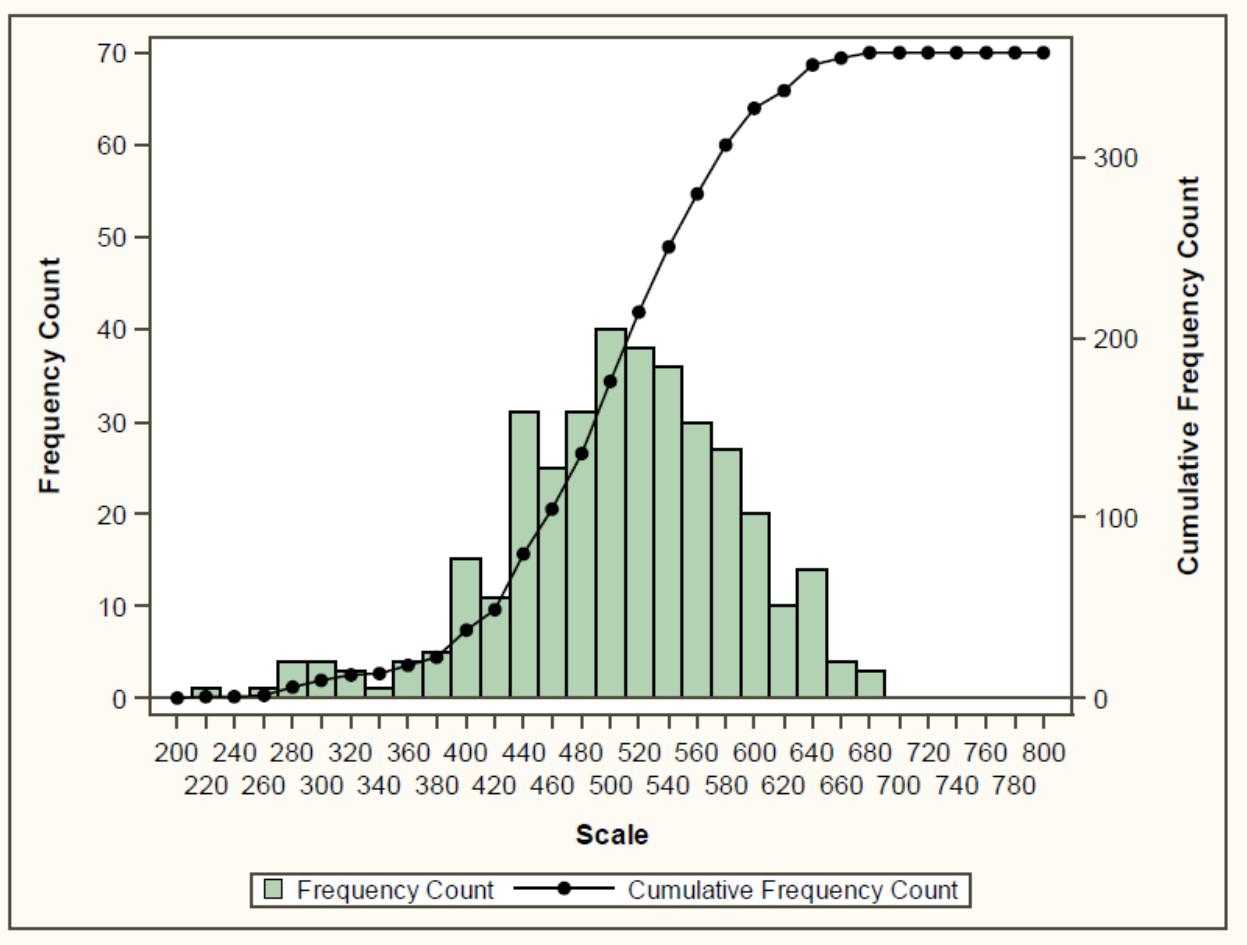


Figure 2. Frequency distribution for the ADAT Overall scale: 2016-2019 (1,688 administrations)

