



AMERICAN BOARD OF OTOLARYNGOLOGY 2009 OTOLARYNGOLOGY TRAINING EXAMINATION

UNDERSTANDING YOUR SCORE REPORT

THE TEST

The examination you took consisted of 300 multiple choice questions that evaluated recall of factual knowledge, interpretation skills, and problem-solving abilities. One hundred of the questions were field test items which are newly written questions that are placed in the test to see how they perform psychometrically but do not contribute to your score. If a field test item performs well psychometrically, it is placed in the pool of questions that will be used on subsequent tests as questions that count towards the score. In addition, 9 non-field items were deleted on the basis of psychometrically analyses resulting in 191 items used for scoring purposes.

Test items are assigned to subtest areas based on the question content which is the basis for calculating your performance in each of these areas (General, Head & Neck, Otolaryngology/Audiology, and Plastic & Reconstructive). The Basic Science classification has been eliminated, and those questions have been incorporated into their respective clinical area.

TRAINING GROUPS

In order to refine the analysis and assist your interpretation of your performance, test takers are divided into five training groups based on when they will complete their residency. The groups for this exam are those residents who will complete their residency in 2009, 2010, 2011, 2012, and 2013.

DEFINITIONS

Scale score is a transformation of your raw score adjusted for year-to-year variations in test difficulty. Scale scores should not be used to compare year to year performance.

Percent correct score is simply the number of items correct divided by the total number of items.

N represents the number of examinees in the group reported.

Mean is the arithmetic average of the scale scores or percent correct in the group.

Std. Deviation is a measure of scale score or percent correct variability; the greater the value the more variable the group's scores or percent correct.

Minimum is the lowest observed scale score or percent correct for the group.

Maximum is the highest computed scale score or percent correct for the group.

Skewness is a measure of the degree of asymmetry of a distribution. If the left tail is more pronounced than the right tail, the function is said to have negative skewness. If the reverse is true, it has positive skewness. If the two are equal, it has zero skewness.

Percentiles are score points (25, 50, 75) that identify performance at specifies score values.

Median corresponds to the 50th percentile.

REPORTS

INDIVIDUAL EXAMINEE REPORT

You will receive from your Program Director your Individual Examinee Report. Your name, ID number, and training group are indicated at the top of the page. Your raw score, scale score, percentile rank in your training group, and your percentile rank among all test takers for the four specialty areas are printed in the middle of the report. The total scale score is your overall performance on the 191 items in the examination.

The percentile rank is calculated from the distribution of resident scale scores for each group as well as for all test takers. Test takers in the 50th percentile received the median scale score. The highest score corresponds to the 100th percentile and the lowest score corresponds to the 0 percentile. Your percentile rank indicates the percent of residents who received the same or lower scores as you. Thus a person attaining a Percentile Rank of 73 equaled or surpassed 73 percent of the examinees in the comparison (norm) group of 2009 test takers. As residents progress in their training, they answer more questions correctly since they have had more education and experience. Therefore, it takes more correct answers (a higher scale score) to be at a given percentile rank in more senior groups than in groups who have had fewer years of training.

INDIVIDUAL PROGRAM REPORTS

The Program Director receives two Group Percentile Ranking reports both of which list the trainees in the program, their training group, and their raw scores, scale scores and percentile ranks for each specialty area and for the exam as a whole. The percentile rankings in the national report are based on all test takers whereas the percentile rankings in the training group report are based on the resident's appropriate training group (i.e., expected year of graduation).

NATIONAL STATISTICAL REPORTS

We have incorporated several tables and charts in to this document that you will find useful in interpreting the results of the OTE.

Figure 1 is a graph of the average (mean) scale scores among all programs which may be helpful in determining how your program compared to others nationally. The following factors will influence the appropriateness of comparisons.

- Displayed is each the program's scale score average, regardless the number of examinees.
- The number of examinees in the programs presented in the chart ranged from 1 to 25 program examinees. Thus an average, for example, based on 3 examinees is not as stable or dependable an average as one computed based on 6 examinees.
- There is no weighting or balancing to control/adjust for the expected graduation year. Thus, programs whose examinees are relatively new, even when the number tested is large, cannot be expected to perform as well as an average based on persons with greater experience, etc.

Table 1 shows various scale score data by expected year of resident graduation. Similarly, Table 2 provides the same data based on the percent of items answered correctly. Tables 3 through 7 (Descriptive Statistics and Frequency Distribution) are summaries of percent correct scores for the Total OTE score and by specialty area. A simple histogram of the scale score data for all examinees is located on the same page. The "normal curve" is superimposed as a reference.

Figures 2 through 6 are graphs which show the expected graduation year by the accumulated scale scores attained. These provide a perspective on the relative performance of examinees based on their expected year of graduation for the Total OTE score as well as each specialty area.

In these Figures, the baseline represents the scale scores of the examinees, and the plotted curve is the cumulative percent of examinees (Percentile Rank) attaining that scale score for each Expected Year of Graduation group. The plots are instructive when considering and evaluating the relative separation and variability among the resident graduation groups. To illustrate, consider the 2009 Total Scale Score chart (Figure 2). At a scale score of approximately 6.00 (use the value of 6.03 in the chart), about 1-2% of the 2009 Graduation examinees scored this low or lower, whereas about 23-24% of 2011 Graduation examinees scored 6.00 or lower. Continuing with a 6.00 Total scale score for this illustration, about 94-95% of the 2013 Graduate examinees scored 6.00 or lower. A review of the results in this chart clearly shows tremendous separation in performance across resident groups and considerable change between the earliest, most novice residents and more experienced residents.

Viewing the “steepness” of a plot is also useful: steeper areas of a group’s plot indicate scores of greater similarity within a narrow range of performance, while flattened areas suggest greater spread or separation among the examinees in that group. For example, the majority of 2009 graduating residents on the Total examination score from about 6.55 (about 38% score 6.55 or lower) to 7.19 (about 94% score 7.19 or lower); thus about 56% of the 2009 residents are located in this scale score range, while only about 16% of the 2011 residents score in this same range.

The charts also afford the opportunity for the conversion of an individual’s scale score to a Percentile Rank score. Scale scores represent the knowledge of the material covered on the test at large, whereas Percentile Ranks compare an individual’s performance to her/his “norm group” of other examinees.

To use the charts to convert a scale score to the corresponding Percentile Rank of performance for a specified resident level, you need to know the resident’s expected year of graduation and her/his scale score on a specific section of the 2009 Otolaryngology Training Examination. With this information, select the chart for the test section of interest. Then, locate on the baseline the scale score closest to the resident’s scale score, then read up to the appropriate Resident’s graduation “line” and across to the ordinate (Percentile Rank) to obtain the estimate of the resident’s Percentile Rank on that test section.

The charts may be used as information guides to obtain approximate percentile rank scores. By rounding and then grouping the percent correct scores into score intervals yields approximate, not exact, estimates of the individual’s performance and standing.

Figure 1

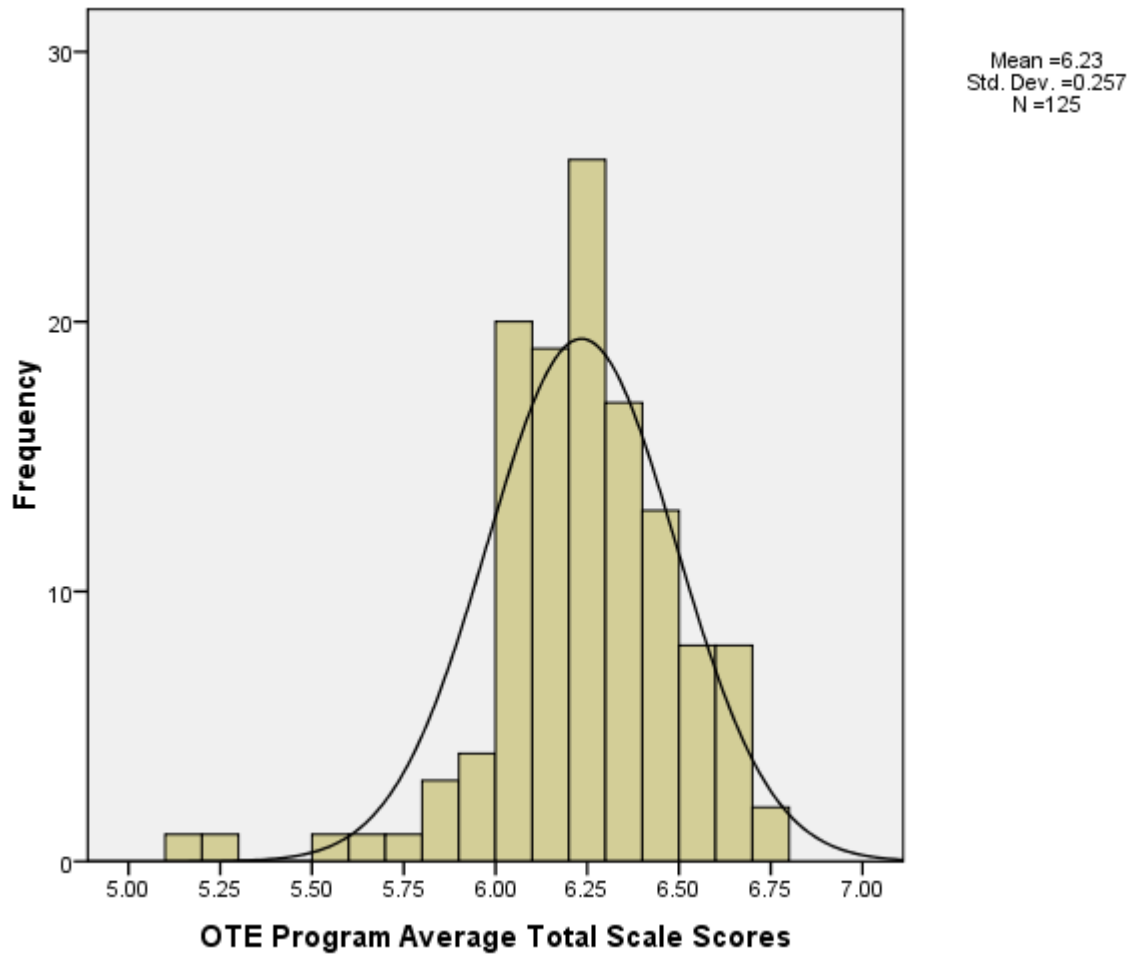


Table 1

Descriptive Scale Score Statistics by Resident Year

Resident Year	Summary Statistics	Total Examination	General Section	Head & Neck Section	Otology/Audiology Section	Plastic & Reconstructive Section
2009	N	295	295	295	295	295
	Mean	6.67	6.61	6.67	6.87	6.73
	Median	6.67	6.62	6.70	6.95	6.65
	Std. Deviation	0.35	0.40	0.48	0.58	0.48
	Minimum	4.88	4.95	4.82	4.96	4.71
	Maximum	7.66	8.03	7.92	8.84	8.29
	Skewness	-0.78	-0.08	-0.13	-0.21	-0.28
2010	N	305	305	305	305	305
	Mean	6.54	6.50	6.56	6.67	6.60
	Median	6.55	6.47	6.55	6.63	6.65
	Std. Deviation	0.35	0.39	0.50	0.59	0.50
	Minimum	5.49	5.37	5.07	5.22	5.10
	Maximum	7.52	7.61	8.26	8.84	9.47
	Skewness	-0.25	-0.12	-0.04	0.32	0.58
2011	N	298	298	298	298	298
	Mean	6.30	6.29	6.31	6.35	6.32
	Median	6.29	6.28	6.28	6.35	6.39
	Std. Deviation	0.38	0.41	0.56	0.58	0.49
	Minimum	4.86	4.82	4.69	5.09	4.57
	Maximum	7.27	7.38	7.92	8.38	7.48
	Skewness	-0.23	-0.08	0.22	0.51	-0.21
2012	N	320	320	320	320	320
	Mean	6.01	6.06	5.99	5.96	6.01
	Median	6.01	6.09	6.02	5.96	6.03
	Std. Deviation	0.37	0.43	0.50	0.54	0.46
	Minimum	4.73	4.76	4.25	4.40	4.85
	Maximum	7.35	7.88	7.41	7.76	7.28
	Skewness	0.00	0.11	-0.17	0.16	0.09
2013	N	164	164	164	164	164
	Mean	5.50	5.54	5.46	5.36	5.60
	Median	5.49	5.55	5.43	5.34	5.57
	Std. Deviation	0.33	0.37	0.53	0.47	0.45
	Minimum	4.75	4.49	4.09	4.08	4.57
	Maximum	6.47	6.47	7.02	6.95	6.95
	Skewness	0.37	-0.10	0.13	0.20	0.18

Table 2

Percent Correct Score Statistics by Resident Year

Resident Year	Summary Statistics	Total Examination	General Section	Head & Neck Section	Otology/Audiology Section	Plastic & Reconstructive Section
2009	N	295	295	295	295	295
	Mean	72.48	72.05	72.51	74.11	71.69
	Median	72.77	72.73	73.68	76.32	71.05
	Std. Deviation	6.42	7.24	8.37	9.45	8.91
	Minimum	35.08	37.66	34.21	36.84	28.95
	Maximum	86.91	90.91	89.47	94.74	92.11
	Skewness	-1.46	-0.72	-0.74	-0.97	-0.94
2010	N	305	305	305	305	305
	Mean	70.12	70.08	70.51	70.72	69.22
	Median	70.68	70.13	71.05	71.05	71.05
	Std. Deviation	6.55	7.27	9.04	9.92	9.17
	Minimum	48.17	46.75	39.47	42.11	36.84
	Maximum	85.34	87.01	92.11	94.74	97.37
	Skewness	-0.63	-0.51	-0.65	-0.30	-0.44
2011	N	298	298	298	298	298
	Mean	65.33	66.16	65.60	65.07	63.65
	Median	65.45	66.23	65.79	65.79	65.79
	Std. Deviation	7.49	8.11	10.67	10.38	10.09
	Minimum	34.55	35.06	31.58	39.47	26.32
	Maximum	82.20	84.42	89.47	92.11	84.21
	Skewness	-0.54	-0.36	-0.29	-0.07	-0.46
2012	N	320	320	320	320	320
	Mean	59.45	61.42	59.45	57.66	57.24
	Median	59.69	62.34	60.53	57.89	57.89
	Std. Deviation	7.74	8.85	10.27	10.73	9.98
	Minimum	31.94	33.77	23.68	26.32	31.58
	Maximum	83.25	89.61	84.21	86.84	81.58
	Skewness	-0.22	-0.19	-0.39	-0.09	-0.08
2013	N	164	164	164	164	164
	Mean	48.46	50.41	48.11	45.27	48.04
	Median	48.17	50.65	47.37	44.74	47.37
	Std. Deviation	7.28	8.00	11.36	9.71	10.00
	Minimum	32.46	28.57	21.05	21.05	26.32
	Maximum	69.11	70.13	78.95	76.32	76.32
	Skewness	0.36	-0.09	0.12	0.25	0.16

Table 3

**Descriptive Statistics and Frequency Distribution for
Percent Correct Scores - All Examinees**

Summary Statistics		Total Examination	General Section	Head & Neck Section	Otology/Audiology Section	Plastic & Reconstructive Section
No. Residents		1382	1382	1382	1382	1382
Mean		64.55	65.32	64.66	64.18	63.26
Std. Deviation		10.37	10.36	12.52	13.59	12.29
Minimum		31.94	28.57	21.05	21.05	26.32
Maximum		86.91	90.91	92.11	94.74	97.37
Percentiles	25	57.59	58.44	57.89	55.26	55.26
	50	65.97	66.23	65.79	65.79	65.79
	75	72.25	72.73	73.68	73.68	71.71

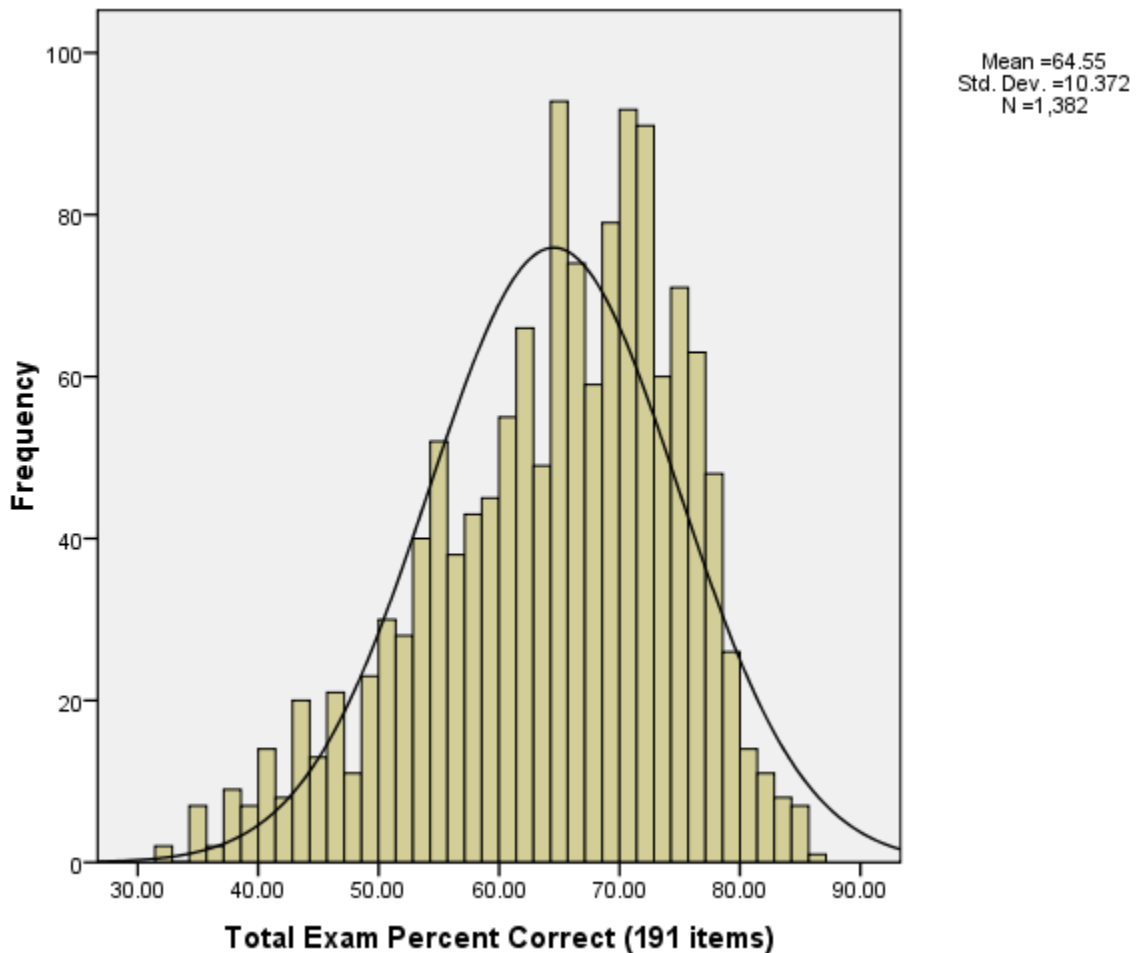


Table 4

**Descriptive Statistics and Frequency Distribution
for Percent Correct Scores
General Section - All Examinees**

Summary Statistics		General Section
No. Residents		1382
Mean		65.32
Std. Deviation		10.36
Minimum		28.57
Maximum		90.91
Percentiles	25	58.44
	50	66.23
	75	72.73

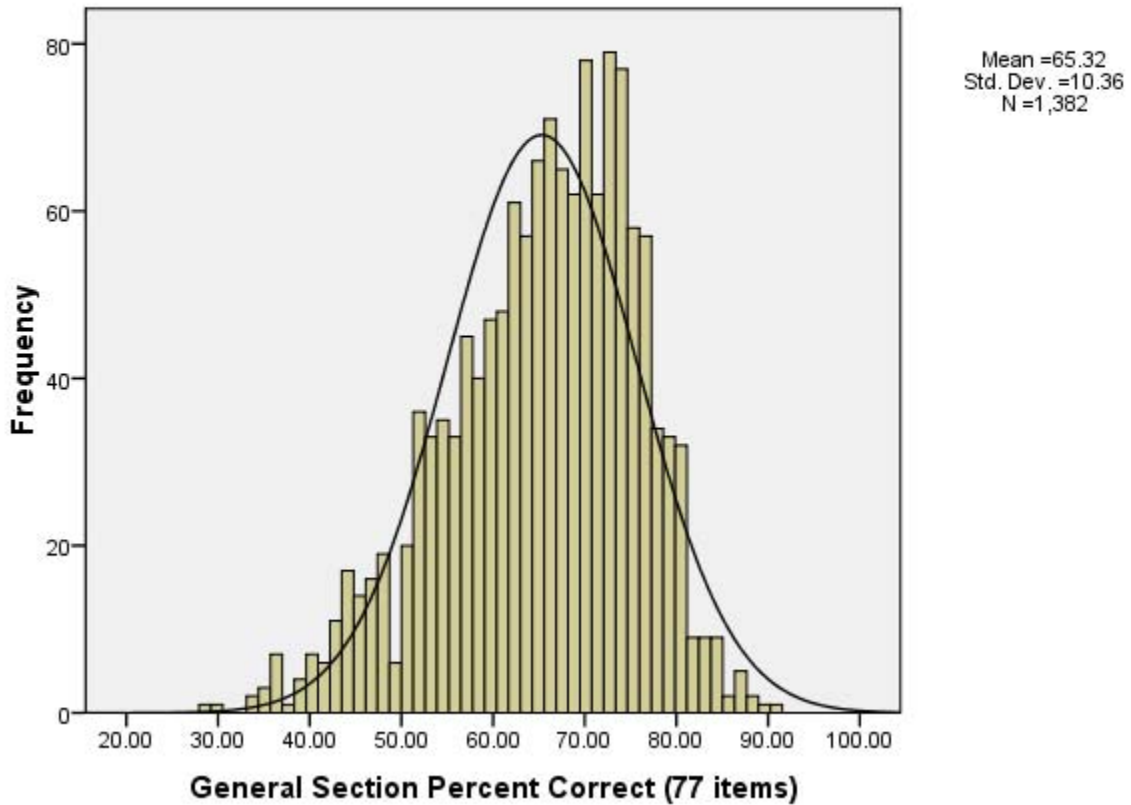


Table 5

**Descriptive Statistics and Frequency Distribution
for Percent Correct Scores
Head & Neck Section - All Examinees**

Summary Statistics		Head & Neck Section
No. Residents		1382
Mean		64.66
Std. Deviation		12.52
Minimum		21.05
Maximum		92.11
Percentiles	25	57.89
	50	65.79
	75	73.68

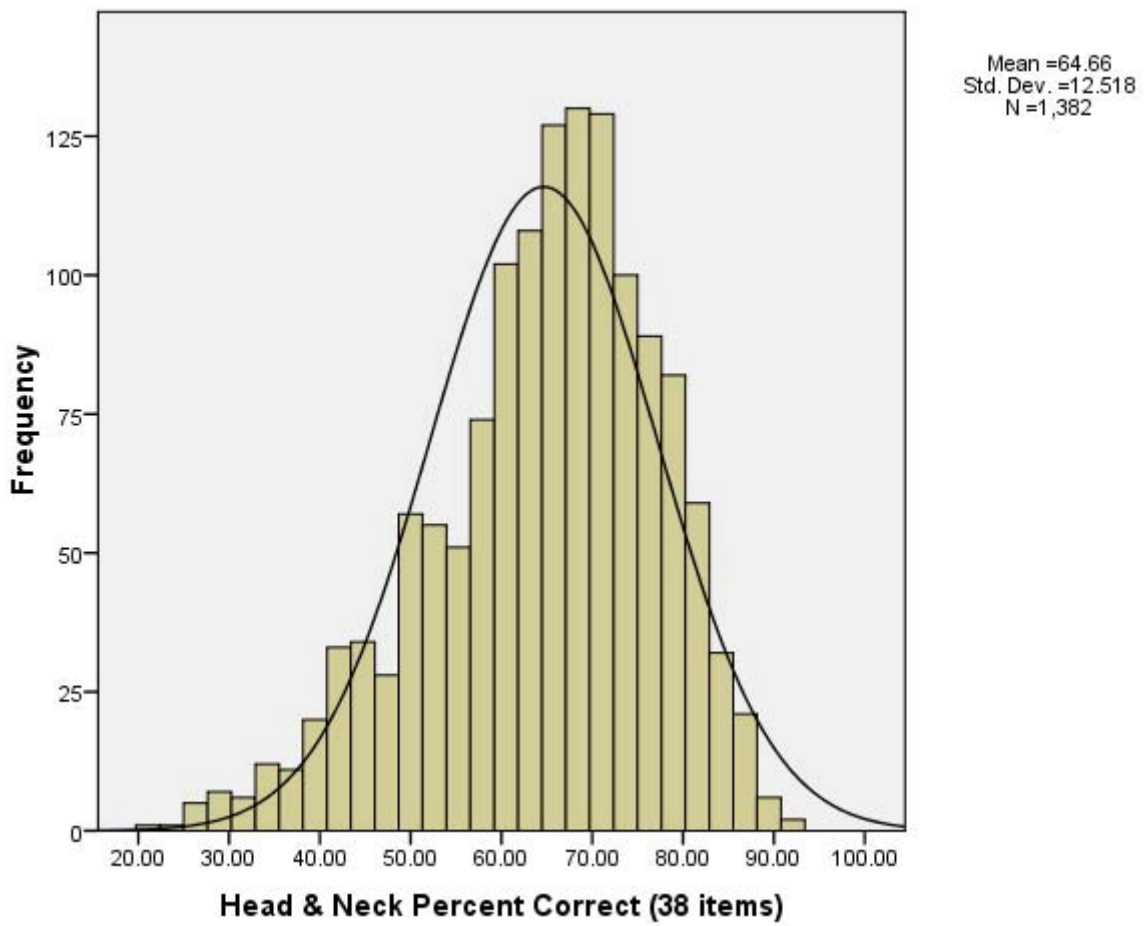


Table 6

**Descriptive Statistics and Frequency Distribution
for Percent Correct Scores
Otology/Audiology Section - All Examinees**

Summary Statistics		Otology/ Audiology Section
No. Residents		1382
Mean		64.18
Std. Deviation		13.59
Minimum		21.05
Maximum		94.74
Percentiles	25	55.26
	50	65.79
	75	73.68

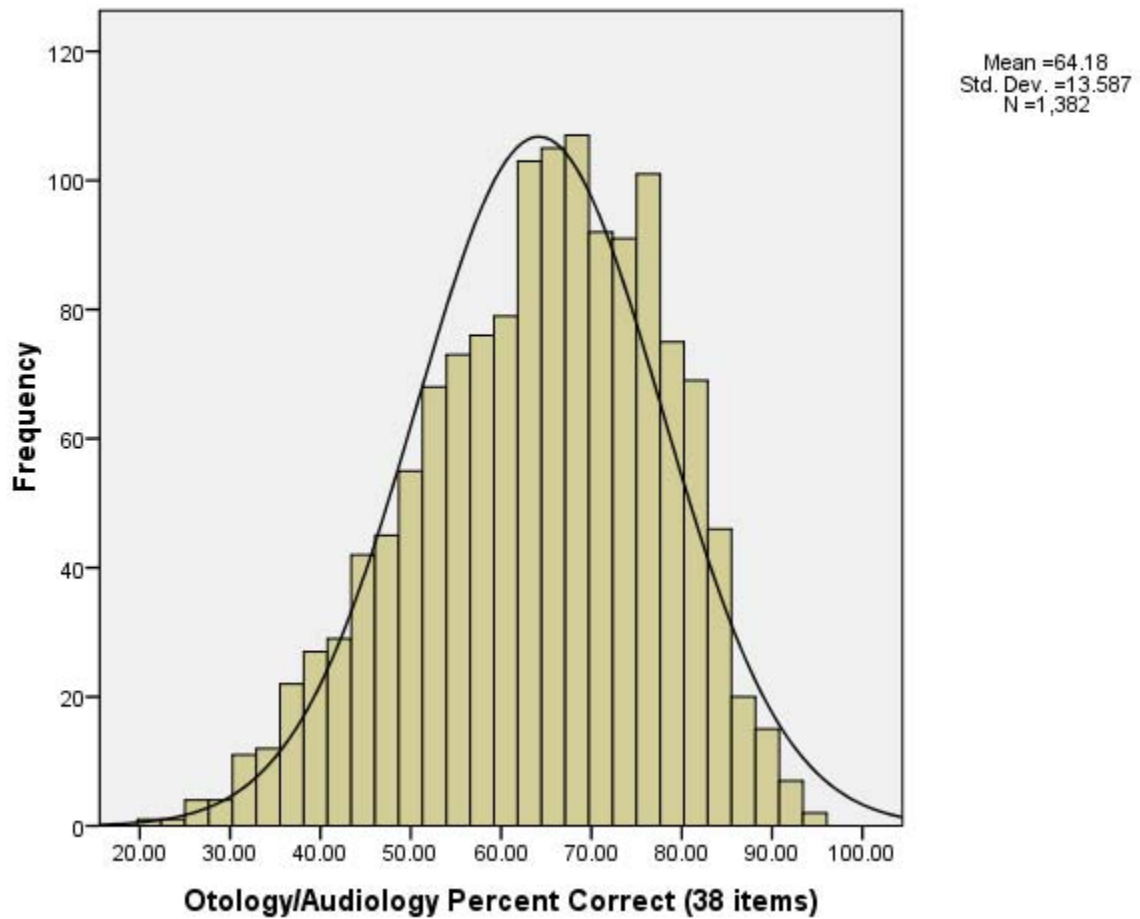
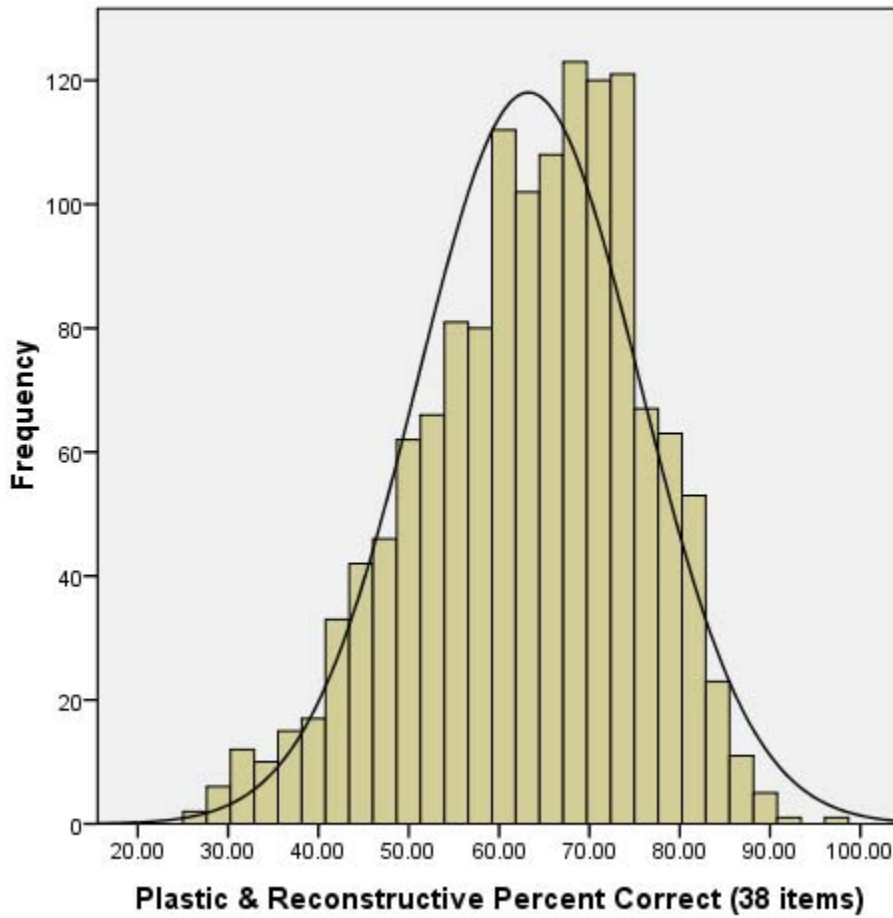


Table 7

**Descriptive Statistics and Frequency Distribution
for Percent Correct Scores
Plastic & Reconstructive Section - All Examinees**

Summary Statistics		Plastic & Reconstructive Section
No. Residents		1382
Mean		63.26
Std. Deviation		12.29
Minimum		26.32
Maximum		97.37
Percentiles	25	55.26
	50	65.79
	75	71.71



Mean =63.26
Std. Dev. =12.29
N =1,382

Figure 2

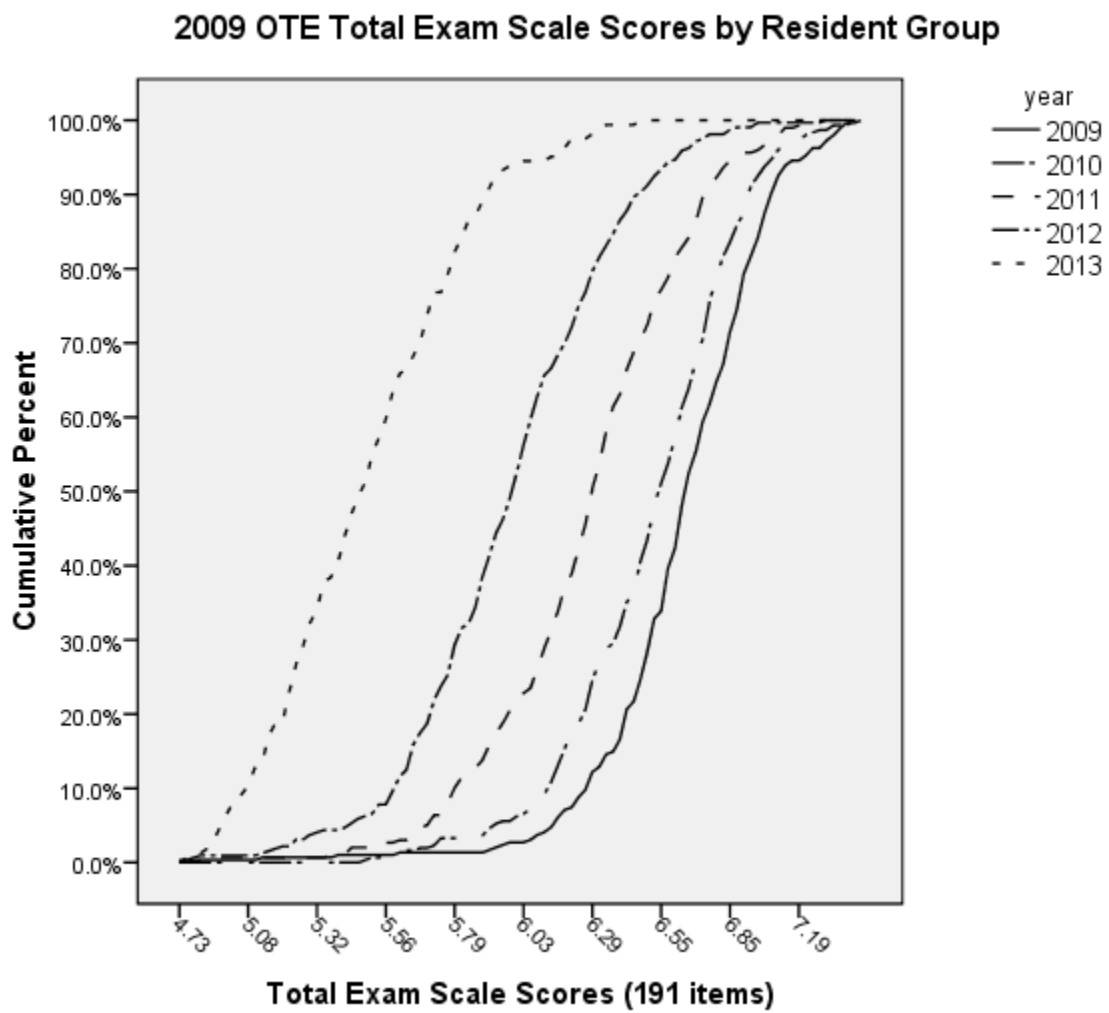


Figure 3

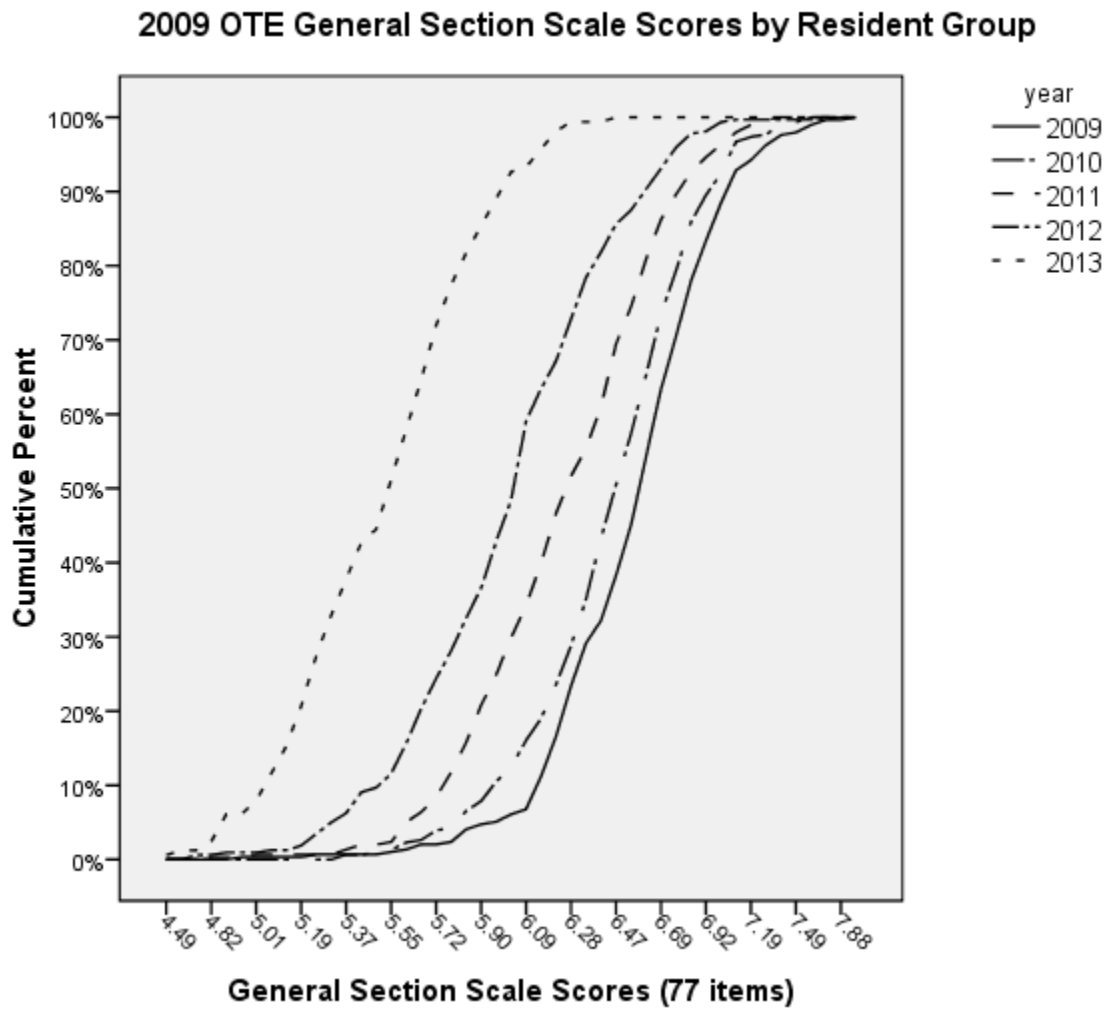


Figure 4

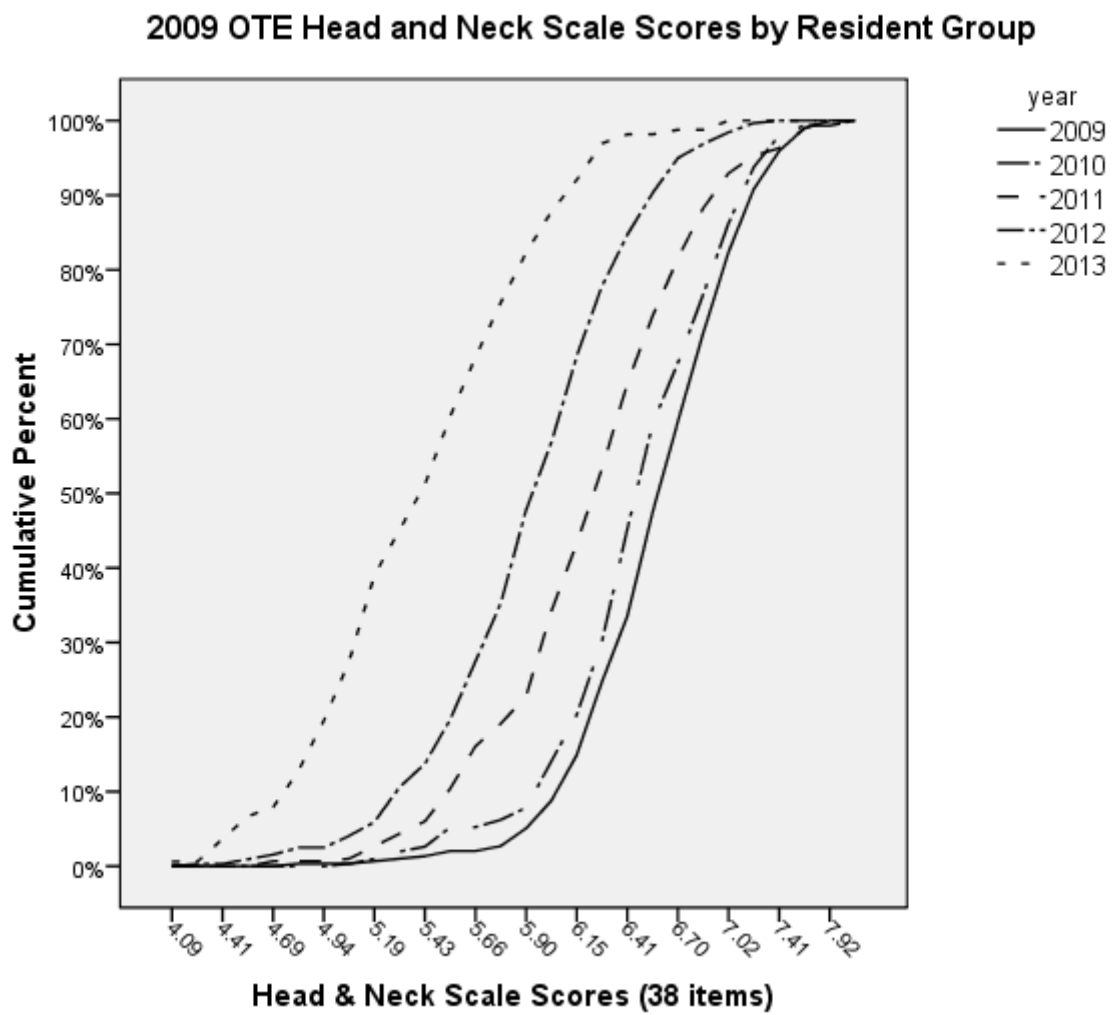


Figure 5

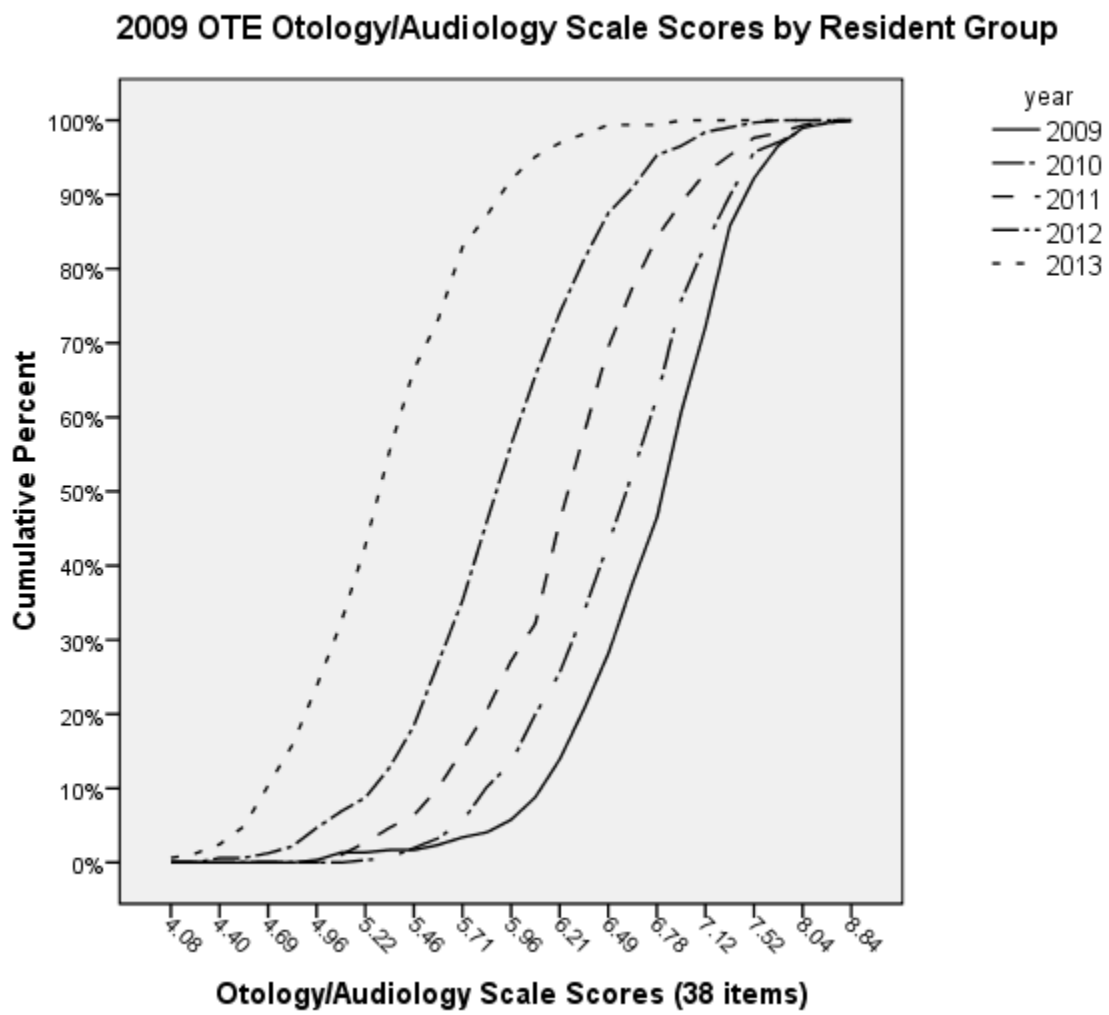


Figure 6

2009 OTE Plastic and Reconstructive Scale Scores by Resident Group

