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ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## การคำนวณ n

## ANALYSIS OF VARIANCE TABLE

1 Pn(x)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	3605.570	11	327.779	30.097	0.000
AGE	3599.070	10	359.907	33.047	0.000
SEX	6.500	1	6.500	0.597	0.440
2 - WAY INTERACTIONS	281.512	10	28.151	2.585	0.004
AGE     SEX	281.512	10	28.151	2.585	0.004
EXPLAINED	3887.082	21	185.099	16.996	0.0
RESIDUAL	6948.258	638	10.891		
TOTAL	10835.341	659	16.442		

660 CASES WERE PROCESSED.  
0 CASES ( 0.0 PCT ) WERE MISSING

2 Pn(y)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	5965.604	11	542.328	54.758	0.000
AGE	5553.540	10	555.354	56.073	0.000
SEX	412.064	1	412.064	41.605	0.000
2 - WAY INTERACTIONS	193.557	10	19.356	1.954	0.036
AGE     SEX	193.557	10	19.356	1.954	0.036
EXPLAINED	6159.161	21	293.293	29.613	0.0
RESIDUAL	6318.858	638	9.904		
TOTAL	12478.019	659	18.935		

660 CASES WERE PROCESSED.  
0 CASES ( 0.0 PCT ) WERE MISSING

## 3 Sn(x)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	1046.664	11	95.151	6.139	0.000
AGE	1038.210	10	103.821	6.698	0.000
SEX	8.455	1	8.455	0.545	0.460
2 - WAY INTERACTIONS	185.485	10	18.549	1.197	0.290
AGE      SEX	185.485	10	18.549	1.197	0.290
EXPLAINED	1232.150	21	58.674	3.785	0.000
RESIDUAL	9888.987	638	15.500		
TOTAL	11121.137	659	16.876		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

## 4 Sn(y)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	7127.259	11	647.933	45.902	0.000
AGE	6469.657	10	646.966	45.833	0.000
SEX	657.603	1	657.602	46.587	0.000
2 - WAY INTERACTIONS	259.747	10	25.975	1.840	0.051
AGE      SEX	259.747	10	25.975	1.840	0.051
EXPLAINED	7387.006	21	351.762	24.920	0.0
RESIDUAL	9005.772	638	14.116		
TOTAL	16392.778	659	24.875		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING



## 5 Lm(x)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	761.777	11	69.252	4.414	0.000
AGE	756.592	10	75.659	4.822	0.000
SEX	5.185	1	5.185	0.330	0.566
2 - WAY INTERACTIONS	165.452	10	16.545	1.054	0.396
AGE      SEX	165.452	10	16.545	1.054	0.396
EXPLAINED	927.229	21	44.154	2.814	0.000
RESIDUAL	10010.808	638	15.691		
TOTAL	10938.037	659	16.598		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT) WERE MISSING

## 6 Lm(y)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	8503.457	11	773.042	56.580	0.000
AGE	7364.534	10	736.453	53.902	0.000
SEX	1138.923	1	1138.923	83.359	0.000
2 - WAY INTERACTIONS	249.569	10	24.957	1.827	0.053
AGE      SEX	249.569	10	24.957	1.827	0.053
EXPLAINED	8753.026	21	416.811	30.507	0.0
RESIDUAL	8716.900	638	13.663		
TOTAL	17469.926	659	26.510		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

7 Ls(x)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	1022.117	11	92.920	2.649	0.003
AGE	881.170	10	88.117	2.512	0.006
SEX	140.947	1	140.947	4.019	0.045
2 - WAY INTERACTIONS	307.645	10	30.764	0.877	0.554
AGE    SEX	307.645	10	30.764	0.877	0.554
EXPLAINED	1329.762	21	63.322	1.805	0.015
RESIDUAL	22377.283	638	35.074		
TOTAL	23707.045	659	35.974		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

8 Ls(y)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	10203.489	11	927.590	57.074	0.000
AGE	8522.570	10	852.257	52.746	0.000
SEX	1630.919	1	1630.919	100.349	0.000
2 - WAY INTERACTIONS	317.502	10	31.750	1.954	0.036
AGE    SEX	317.502	10	31.750	1.954	0.036
EXPLAINED	10520.991	21	501.000	30.826	0.0
RESIDUAL	10369.092	638	16.252		
TOTAL	20890.083	659	31.700		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

## 9. Li(x)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	1528.678	11	138.971	4.481	0.000
AGE	1497.477	10	149.748	4.828	0.000
SEX	31.200	1	31.200	1.006	0.316
2 - WAY INTERACTIONS	250.162	10	25.016	0.807	0.622
AGE    SEX	250.162	10	25.016	0.807	0.622
EXPLAINED	1778.840	21	84.707	2.731	0.000
RESIDUAL	19786.925	638	31.014		
TOTAL	21565.765	659	32.725		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT) WERE MISSING

## 10. Li(y)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	20935.767	11	1903.252	90.163	0.0
AGE	18904.003	10	1890.400	89.554	0.0
SEX	2031.764	1	2031.764	96.251	0.000
2 - WAY INTERACTIONS	587.336	10	58.734	2.782	0.002
AGE    SEX	587.336	10	58.734	2.782	0.002
EXPLAINED	21523.103	21	1024.910	48.553	0.0
RESIDUAL	13467.600	638	21.109		
TOTAL	34990.703	659	53.097		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

11 St(x)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	1104.712	11	100.428	4.157	0.000
AGE	1097.602	10	109.760	4.543	0.000
SEX	7.109	1	7.109	0.294	0.588
2 - WAY INTERACTIONS	174.361	10	17.436	0.722	0.704
AGE      SEX	174.361	10	17.436	0.722	0.704
EXPLAINED	1279.073	21	60.908	2.521	0.000
RESIDUAL	15415.158	638	24.162		
TOTAL	16694.231	659	25.333		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT) WERE MISSING

12 St(y)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	14091.092	11	1281.008	82.859	0.0
AGE	12743.745	10	1274.375	82.429	0.0
SEX	1347.347	1	1347.347	87.149	0.000
2 - WAY INTERACTIONS	389.120	10	38.912	2.517	0.006
AGE      SEX	389.120	10	38.921	2.517	0.006
EXPLAINED	14480.212	21	689.534	44.601	0.0
RESIDUAL	9863.600	638	15.460		
TOTAL	24343.812	659	36.941		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

13 Sm(x)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	1221.359	11	111.033	3.146	0.000
AGE	891.629	10	89.163	2.527	0.005
SEX	329.731	1	329.731	9.344	0.002
2 - WAY INTERACTIONS	166.015	10	16.602	0.470	0.909
AGE      SEX	166.015	10	16.602	0.470	0.909
EXPLAINED	1387.375	21	66.065	1.872	0.011
RESIDUAL	22514.875	638	35.290		
TOTAL	23902.250	659	36.270		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT) WERE MISSING

14 Sm(y)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	23059.089	11	2096.281	102.865	0.0
AGE	21071.994	10	2107.199	103.401	0.0
SEX	1987.096	1	1987.096	97.508	0.000
2 - WAY INTERACTIONS	595.247	10	59.525	2.921	0.001
AGE      SEX	595.247	10	59.525	2.921	0.001
EXPLAINED	23654.336	21	1126.397	55.273	0.0
RESIDUAL	13001.712	638	20.379		
TOTAL	36656.048	659	55.624		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

15 Pog(x)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	1908.890	11	173.535	3.049	0.001
AGE	1440.502	10	144.050	2.531	0.005
SEX	468.388	1	468.388	8.229	0.004
2 - WAY INTERACTIONS	469.187	10	46.919	0.824	0.605
AGE    SEX	469.187	10	46.919	0.824	0.605
EXPLAINED	2378.077	21	113.242	1.990	0.005
RESIDUAL	36314.167	638	56.919		
TOTAL	38692.244	659	58.714		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT) WERE MISSING

16 Pog(y)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	34512.648	11	3137.513	102.072	0.0
AGE	31880.642	10	3188.064	103.717	0.0
SEX	2632.006	1	2632.006	85.627	0.000
2 - WAY INTERACTIONS	830.344	10	83.034	2.701	0.003
AGE    SEX	830.344	10	83.034	2.701	0.003
EXPLAINED	35342.992	21	1683.000	54.753	0.0
RESIDUAL	19610.983	638	30.738		
TOTAL	54953.976	659	83.390		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

17 Me(x)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	1583.751	11	143.977	1.813	0.048
AGE	1393.342	10	139.334	1.755	0.065
SEX	190.409	1	190.409	2.398	0.122
2 - WAY INTERACTIONS	886.278	10	88.628	1.116	0.347
AGE      SEX	886.278	10	88.628	1.116	0.347
EXPLAINED	2470.029	21	117.620	1.481	0.077
RESIDUAL	50659.475	638	79.404		
TOTAL	53129.504	659	80.621		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT) WERE MISSING

18 Me(y)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	37732.444	11	3430.222	115.421	0.0
AGE	34522.626	10	3452.263	116.163	0.0
SEX	3209.819	1	3209.819	108.005	0.000
2 - WAY INTERACTIONS	1039.277	10	103.928	3.497	0.000
AGE      SEX	1039.277	10	103.928	3.497	0.000
EXPLAINED	38771.722	21	1846.272	62.124	0.0
RESIDUAL	18960.792	638	29.719		
TOTAL	57732.513	659	87.606		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

## 19 Ans Soft tissue thickness at Ans

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	2645.845	11	240.531	22.817	0.000
AGE	2611.069	10	261.107	24.769	0.000
SEX	34.776	1	34.776	3.299	0.070
2 - WAY INTERACTIONS	47.361	10	4.776	0.453	0.920
AGE      SEX	47.761	10	4.776	0.453	0.920
EXPLAINED	2693.606	21	128.267	12.168	0.0
RESIDUAL	6725.625	638	10.542		
TOTAL	9419.231	659	14.293		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT) WERE MISSING

20 A Soft tissue thickness at A

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	1763.234	11	160.294	15.615	0.000
AGE	1570.670	10	157.067	15.300	0.000
SEX	192.564	1	192.564	18.758	0.000
2 - WAY INTERACTIONS	136.448	10	13.645	1.329	0.211
AGE      SEX	136.448	10	13.645	1.329	0.211
EXPLAINED	1899.682	21	90.461	8.812	0.0
RESIDUAL	6549.492	638	10.266		
TOTAL	8449.174	659	12.821		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING





21 Pr Soft tissue thickness at Pr

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	566.002	11	51.455	20.259	0.000
AGE	248.178	10	24.818	9.772	0.000
SEX	317.824	1	317.824	125.138	0.000
2 - WAY INTERACTIONS	129.667	10	12.967	5.105	0.000
AGE    SEX	129.667	10	12.967	5.105	0.000
EXPLAINED	695.670	21	33.127	13.043	0.0
RESIDUAL	1620.383	638	2.540		
TOTAL	2316.053	659	3.514		

660 CASES WERE PROCESSED.  
0 CASES ( 0.0 PCT) WERE MISSING

22 Ic Soft tissue thickness at Ic

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	692.594	11	62.963	10.105	0.000
AGE	145.320	10	14.532	2.332	0.011
SEX	547.274	1	547.274	87.833	0.000
2 - WAY INTERACTIONS	120.376	10	12.038	1.932	0.038
AGE    SEX	120.376	10	12.038	1.932	0.038
EXPLAINED	812.970	21	38.713	6.213	0.000
RESIDUAL	3975.267	638	6.231		
TOTAL	4788.236	659	7.266		

660 CASES WERE PROCESSED.  
0 CASES ( 0.0 PCT ) WERE MISSING

## 23 Is Soft tissue thickness at Is

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	308.623	11	28.057	3.060	0.001
AGE	169.059	10	16.906	1.844	0.050
SEX	139.564	1	139.564	15.222	0.000
2 - WAY INTERACTIONS	252.198	10	25.220	2.751	0.003
AGE      SEX	252.198	10	25.220	2.751	0.003
EXPLAINED	560.822	21	26.706	2.913	0.000
RESIDUAL	5849.692	638	9.169		
TOTAL	6410.513	659	9.723		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT) WERE MISSING

## 24 Id Soft tissue thickness at Id

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	536.812	11	48.801	14.617	0.000
AGE	337.711	10	33.771	10.115	0.000
SEX	199.100	1	199.100	59.635	0.000
2 - WAY INTERACTIONS	74.887	10	7.489	2.243	0.014
AGE      SEX	74.887	10	7.489	2.243	0.014
EXPLAINED	611.699	21	29.129	8.725	0.0
RESIDUAL	2130.042	638	3.339		
TOTAL	2741.741	659	4.160		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

## 25 B Soft tissue thickness at B

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	512.867	11	46.624	9.130	0.000
AGE	388.933	10	38.893	7.616	0.000
SEX	123.933	1	123.933	24.268	0.000
2 - WAY INTERACTIONS	136.450	10	13.645	2.672	0.003
AGE, SEX	136.450	10	13.645	2.672	0.003
EXPLAINED	649.317	21	30.920	6.055	0.000
RESIDUAL	3258.200	638	5.107		
TOTAL	3907.517	659	5.929		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

## 26 Pog Soft tissue thickness at Pog

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SINNIFICANCE OF F
MAIN EFFECTS	225.770	11	20.525	5.139	0.000
AGE	225.429	10	22.543	5.645	0.000
SEX	0.341	1	0.341	0.085	0.770
2 - WAY INTERACTIONS	30.209	10	3.021	0.756	0.671
AGE, SEX	30.209	10	3.021	0.756	0.671
EXPLAINED	255.979	21	12.189	3.052	0.000
RESIDUAL	2547.983	638	3.994		
TOTAL	2803.962	659	4.255		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT ) WERE MISSING

## 27 Me Soft tissue thickness at ME

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	398.079	11	36.189	5.320	0.000
AGE	315.115	10	31.512	4.633	0.000
SEX	82.964	1	82.964	12.197	0.001
2 - WAY INTERACTIONS	113.736	10	11.374	1.672	0.083
AGE      SEX	113.736	10	11.374	1.672	0.083
EXPLAINED	511.815	21	24.372	3.583	0.000
RESIDUAL	4339.683	638	6.802		
TOTAL	4851.498	659	7.362		

660 CASES WERE PROCESSED.

0 CASES ( 0.0 PCT) WERE MISSING

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## ประวัติผู้เขียน

นางสาววรรณดี ชินเวศยวงศ์ เกิดเมื่อวันที่ 30 สิงหาคม 2499 ที่กรุงเทพมหานคร สำเร็จการศึกษาทันตแพทยศาสตรบัณฑิต จากคณะทันตแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย พ.ศ. 2523 และเป็นทันตแพทย์ฝึกหัดที่คณะทันตแพทยศาสตร์ มหาวิทยาลัยมหิดล พ.ศ. 2524 ได้เข้าศึกษาต่อในสาขาวิชาทันตกรรมจัดฟัน ภาควิชาทันตกรรมจัดฟัน บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย พ.ศ. 2525



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