



StatSpin, Inc.
85 Morse Street
Norwood, MA 02062
www.statspin.com

Toll-Free (800) 782-8774
Phone (781) 551-0100
Fax (781) 551-0036
info@statspin.com

LipoClear[®] Testing

Don Newton, MS, MT
Brockton Hospital Laboratory,
Brockton, Massachusetts

Various Analytes Tested Before and After Treatment with LipoClear[®], StatSpin's Lipemic Clearing Agent

Jessica Thibeault, MT (ASCP)

Purpose

To confirm that LipoClear[®], lipemic clearing agent does not interfere with the methodology used for determination of the most common chemistry analytes tested in the clinical laboratory.

Materials and Methods

Thirty volunteers each provided a Lithium Heparin plasma sample that was split into two aliquots. One aliquot was treated with LipoClear[®] and the other was tested straight. These samples were all non-lipemic to maintain an accurate baseline. The tubes were separated using a StatSpin MP, which spins for 95 seconds at 15,800 rpm. Each sample was tested for the following chemistries: Glucose (Glu), BUN, Creatinine (Creat), Albumin (Alb), Total Protein (T. Prot), Calcium (Ca⁺⁺), Uric Acid, Total Bilirubin (T. Bili), LDH, CPK, Alkaline Phosphatase (Alk. Phos.), SGPT, SGOT, GGPT, Amylase (Amy), Sodium (Na⁺), Potassium (K⁺), Chloride (Cl⁻), CO₂, TSH, T4, Troponin I, and CKMB.

Various methodologies were used in the testing of the above analytes. TSH, T4, Troponin I, and CKMB were all tested on a Bayer Centaur. Electrolytes were performed via indirect ISE methodology and the remaining analytes were all determined with an Olympus AU 400.

The samples were processed and treated according to the LipoClear[®] Product Insert Sheet. Upon

obtaining results, the values obtained on the treated samples were subsequently multiplied by a 1.2 dilution factor to account for the dilution of the actual reagent.

Interpretation

Most analytes tested presented acceptable correlation coefficients ranging from 0.886-0.999. These analytes included Glu, BUN, Creat, Alb, Ca⁺⁺, Uric Acid, T. Bili, LDH, CPK, Alk. Phos., SGPT, SGOT, GGPT, Amy, Na⁺, K⁺, Cl⁻, CO₂, TSH, T4 and CKMB. The p-values were mostly low however good correlation was noted and accepted based on the comparative values. Total protein was slightly decreased which has been noted in previous studies and was incorporated into the product insert. Troponin I was not calculated given that all samples analyzed were below detectable levels. Refer to Table 2.1 for all descriptive statistics

Discussion

The data reveals that Total Protein values are slightly decreased when treated with LipoClear[®] however this data confirms previous studies. This error may be due to the binding of high density proteins.

With exception to the above stated analyte, all other LipoClear[®] treated samples tested produced acceptable correlation when compared to the untreated aliquots.

Table 2.1 Statistical Summary

	Mean	STD. Dev.	Corr Coef	P value
Glucose	93.5	17.5	0.983	0.076
BUN	15.5	9.9	0.997	0.080
Creatinine	0.88	0.16	0.954	0.003
Albumin	4.43	0.22	0.890	0.000
Total Protein	7.26	0.50	0.659	0.000
Calcium	8.98	0.46	0.937	0.000
Uric Acid	5.18	1.63	0.993	0.006
Total Bilirubin	0.61	0.78	0.965	0.000
LDH	145.0	18.2	0.953	0.000
CPK	127.0	117.5	0.999	0.000
Alkaline Phosphatase	70.87	14.1	0.987	0.000
SGPT	17.73	6.8	0.936	0.096
SGOT	18.6	7.5	0.941	0.008
GGPT	25.83	21.6	0.999	0.001
Amylase	43.36	15.9	0.986	0.000
Sodium	136.9	3.5	0.886	0.456
Potassium	3.99	0.33	0.952	0.030
Chloride	102.27	2.9	0.902	0.443
CO2	24.6	1.8	0.888	0.000
TSH	1.45	0.89	0.991	0.446
T4	6.36	1.7	0.968	0.000
Troponin I	NA	NA	NA	NA
CKMB	1.67	1.3	0.957	0.000

Table 3.1 Data

Pat. No.	Glu	Glu (L)	BUN	BUN (L)	Creat	Creat (L)	Alb	Alb (L)	T. Prot	T. Prot (L)	Cal	Cal (L)	UrAc	UrAc (L)	T. Bili	T. Bili (L)	LDH	LDH (L)
1	84	85	7	7	1	1	4.4	4.2	6.9	6.2	8.5	8.0	7.8	7.7	0.8	0.7	135	124
2	111	109	10	10	1	1	4.4	4.3	7.5	6.8	9.5	9.0	8.4	8.2	0.9	0.5	132	121
3	98	98	13	13	0.8	0.8	4.4	4.2	7.4	6.4	9.1	8.5	4.5	4.4	0.2	0.2	140	128
4	73	73	11	11	0.7	0.7	4.4	4.2	7.0	6.2	8.9	8.4	3.2	3.1	1.1	1.0	144	130
5	86	85	13	13	1.0	1.0	4.2	4.0	7.3	6.4	10.2	9.6	3.7	4.3	1.6	1.4	139	132
6	71	72	13	13	0.7	0.7	4.7	4.6	7.5	6.6	9.8	9.4	6.5	6.2	0.3	0.2	130	125
7	90	89	27	26	1.3	1.3	4.6	4.4	7.4	6.4	9.0	8.4	6.3	6.0	1.2	1.1	170	151
8	96	95	11	11	0.7	0.6	4.3	4.1	6.6	5.9	8.5	8.0	3.8	3.6	0.4	0.5	124	114
9	83	80	12	12	0.9	0.8	4.6	4.3	7.8	6.6	9.1	8.5	3.0	2.8	0.3	0.2	191	179
10	96	97	11	11	0.9	0.8	4.3	4.1	7.9	6.6	8.3	7.7	5.5	5.4	0.3	0.1	158	137
11	89	90	27	26	0.8	0.7	4.2	4.0	7.4	6.1	8.0	7.7	6.2	6.0	0.5	0.5	157	133
12	90	91	18	18	0.7	0.6	4.2	4.1	6.9	6.1	8.6	8.2	7.0	7.0	0.4	0.4	150	144
13	134	136	9	10	1.1	1.1	4.2	4.2	7.6	6.9	9.0	8.9	5.9	5.9	0.5	0.5	143	139
14	85	86	28	26	0.8	0.7	4.4	4.2	6.7	6.4	9.4	8.9	3.6	3.5	0.8	0.7	168	160
15	84	85	7	7	1.0	1.0	4.4	4.2	6.9	6.2	8.5	8.0	7.8	7.7	0.8	0.7	135	129
16	98	98	13	13	0.8	0.8	4.4	4.2	7.4	6.9	9.1	8.5	4.5	4.4	0.2	0.2	140	128
17	73	73	11	11	0.7	0.7	4.4	4.2	7.0	6.8	8.9	8.4	3.2	3.1	1.1	1.0	144	130
18	132	131	8	9	0.9	1.0	4.2	3.9	7.6	7.4	9.0	8.8	5.9	5.4	0.5	0.4	143	141
19	85	72	28	26	0.8	0.6	4.4	3.9	6.3	6.4	9.4	9.1	3.6	3.3	0.8	0.6	168	153
20	88	87	55	53	1.2	1.2	4.3	4.4	7.7	7.5	8.5	8.5	6.5	6.8	0.4	0.3	169	166
21	107	104	15	14	0.8	0.7	4.2	4.0	7.3	6.4	8.7	8.2	4.6	4.6	0.2	0.2	122	118
22	88	86	15	16	0.8	0.7	5.0	4.7	8.3	7.2	9.1	8.5	5.6	5.5	0.4	0.4	113	100
23	91	89	11	12	1.0	1.0	4.8	4.7	7.9	7.1	9.3	8.8	5.3	5.2	0.5	0.4	157	146
24	143	146	13	13	1.0	1.0	4.8	4.7	7.9	7.1	9.3	8.8	5.3	5.2	0.5	0.4	157	146
25	106	102	11	10	0.7	0.7	5.0	4.8	7.5	6.6	9.1	8.6	2.8	2.6	0.4	0.4	116	106
26	88	78	9	10	1.1	1.1	4.2	4.2	7.6	7.3	9.0	8.9	5.9	5.9	0.5	0.5	143	140
27	85	86	28	25	0.8	0.7	4.4	4.1	6.3	6.6	9.4	9.1	3.6	3.6	0.8	0.8	168	160
28	84	84	7	6	1.0	1.0	4.4	4.2	6.7	6.2	8.4	8.0	7.8	7.7	0.7	0.7	130	124
29	96	98	13	13	0.8	0.8	4.4	4.2	7.0	6.4	9.0	8.5	4.4	4.4	0.2	0.2	132	128
30	71	73	10	11	0.7	0.7	4.3	4.2	6.7	6.2	8.7	8.4	3.2	3.1	1.1	1.0	134	130

Table 4.1 Data (cont.)

Pat. No.	CPK	CPK (L)	Alk Phos	Alk Phos (L)	SGPT	SGPT (L)	SGOT	SGOT (L)	GGPT	GGPT (L)	Amy	Amy (L)	Na	Na (L)	K	K (L)	CL	CL (L)
1	129	125	82	79	15	16	16	17	25	24	40	38	141	139	4.0	4.1	106	104
2	41	42	40	38	12	12	12	13	18	19	29	28	138	137	4.6	4.6	100	100
3	86	84	68	65	16	20	20	17	29	29	71	66	137	138	4.6	4.6	100	100
4	70	67	69	68	6	14	15	5	7	6	49	47	138	137	4.0	3.8	104	103
5	582	574	70	70	43	41	38	38	33	32	35	32	137	137	3.9	3.8	108	107
6	98	92	64	64	14	14	18	18	17	17	30	29	134	137	4.5	4.4	97	98
7	471	472	63	61	30	30	29	31	21	19	66	64	137	138	4.3	4.2	103	103
8	64	62	66	65	12	12	10	8.4	11	11	31	29	138	138	3.8	3.7	104	104
9	92	91	43	40	20	19	26	23	13	13	51	52	139	138	3.9	3.8	106	106
10	111	107	91	91	14	13	17	12	26	26	36	34	134	133	3.9	3.8	102	102
11	226	216	53	50	27	26	34	29	14	13	24	22	134	136	4.2	4.2	102	103
12	32	30	82	83	23	23	23	19	43	42	33	31	134	137	4.2	4.2	101	103
13	82	82	89	88	16	16	11	6	15	14	26	25	135	133	3.7	3.6	99	98
14	65	64	62	64	19	19	11	8.4	22	22	42	36	139	137	3.4	3.4	103	102
15	129	125	82	79	15	16	10	8.4	15	14	66	54	127	131	3.3	3.4	98	101
16	86	84	68	65	16	20	16	16	13	13	86	84	138	139	4.3	4.3	104	104
17	70	67	69	68	9	14	12	11	16	16	54	49	135	134	4.2	4.1	100	100
18	82	80	89	79	18	15	6	8.4	10	11	35	34	138	139	3.4	3.6	103	104
19	65	63	62	62	19	16	16	14	16	13	39	31	126	128	4.3	4.0	95	97
20	78	84	68	65	23	26	21	18	28	26	33	31	139	136	4.0	4.0	102	100
21	121	120	97	96	20	20	19	18	114	110	27	25	136	136	4.0	4.0	102	102
22	102	102	73	73	14	13	27	28	29	29	46	44	140	140	3.9	3.8	102	102
23	148	143	64	61	13	14	12	13	15	14	40	36	139	140	3.5	3.5	103	103
24	209	204	52	48	21	19	30	32	25	25	19	18	138	138	4.4	4.4	101	101
25	140	138	90	91	16	17	18	19	80	79	32	30	139	138	3.6	3.6	103	102
26	82	81	89	88	18	16	24	24	36	35	57	54	140	140	4.0	4.0	102	104
27	65	64	62	64	19	19	16	16	24	23	51	52	141	140	3.9	3.8	107	106
28	129	125	82	79	16	16	16	17	24	24	40	38	141	139	4.0	4.1	106	104
29	86	84	68	65	17	20	20	17	29	29	68	66	137	138	3.9	4.0	104	103
30	70	67	69	68	11	14	15	15	7	6	45	47	138	137	4.0	3.8	101	103

Table 5.1 Data (cont.)

Pat. No.	CO2	CO2 (L)	T4	T4 (L)	TSH	TSH (L)	Trop I	Trop I (L)	CKMB	CKMB
1	25	24	7.1	7.7	0.47	0.46	0.00	0.00	2.13	2.99
2	28	26	8.4	9.6	1.29	1.25	0.02	0.00	0.77	1.09
3	24	23	5.4	6.1	1.41	1.34	0.00	0.00	2.36	3.29
4	25	24	5.2	5.6	2.38	2.39	0.00	0.00	0.73	1.13
5	21	19	4.6	5.4	0.60	0.61	0.00	0.00	5.95	7.72
6	27	25	7.5	8.5	2.53	2.62	0.00	0.00	2.20	5.29
7	27	25	6.7	7.3	0.60	0.62	0.00	0.04	4.10	5.29
8	27	25	6.9	7.9	1.68	2.00	0.00	0.00	0.97	1.39
9	24	22	8.1	8.4	0.58	0.64	0.00	0.02	0.36	0.64
10	22	22	5.1	6.0	1.16	1.21	0.00	0.00	0.48	0.80
11	24	22	6.8	7.8	1.47	1.43	0.01	0.04	3.35	4.57
12	23	22	5.4	6.1	1.18	1.19	0.06	0.00	0.47	0.82
13	21	20	3.7	4.1	3.38	3.18	0.00	0.07	1.09	1.51
14	25	24	5.3	6.0	1.40	1.21	0.00	0.10	0.96	1.26
15	22	20	5.7	6.4	2.92	3.20	0.00	0.02	1.27	1.63
16	24	24	8.1	10.0	0.93	1.00	0.00	0.00	1.17	1.42
17	24	22	6.4	7.4	1.64	1.70	0.00	0.00	0.47	0.82
18	23	24	5.1	4.8	0.69	0.65	0.00	0.00	0.87	1.58
19	25	23	3.7	4.6	3.43	3.32	0.00	0.00	1.32	1.64
20	25	24	7.4	8.5	2.80	2.86	0.00	0.00	1.34	1.82
21	25	24	9.2	9.8	0.75	0.43	0.00	0.00	1.34	1.87
22	25	25	5.9	6.8	1.90	1.86	0.00	0.00	0.49	0.85
23	26	25	7.6	7.1	0.93	0.88	0.00	0.00	2.00	2.00
24	26	26	9.5	10.2	0.12	0.12	0.00	0.00	4.34	5.98
25	26	26	3.3	3.2	1.00	1.00	0.00	0.00	1.11	1.46
26	26	24	7.3	7.8	1.13	1.20	0.00	0.00	1.75	2.30
27	23	22	7.1	7.7	0.98	1.0	0.0	0.0	1.27	1.32
28	25	24	7.1	7.7	0.47	0.46	0.00	0.00	2.13	2.29
29	24	23	5.8	6.1	1.37	1.34	0.00	0.00	2.36	2.39
30	26	24	5.3	5.6	2.28	2.39	0.00	0.00	0.93	1.13

Glucose

Table 6.1

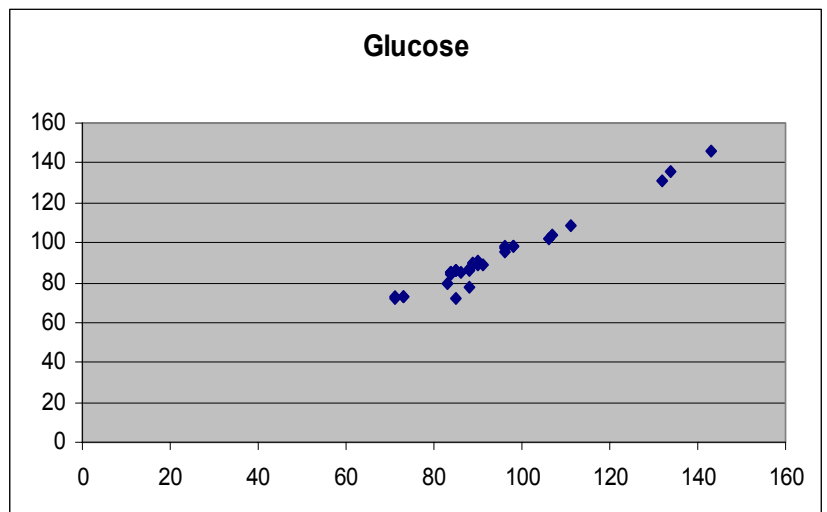
Patient#	Glu	Glu (L)
1	84	85
2	111	109
3	98	98
4	73	73
5	86	85
6	71	72
7	90	89
8	96	95
9	83	80
10	96	97
11	89	90
12	90	91
13	134	136
14	85	86
15	84	85
16	98	98
17	73	73
18	132	131
19	85	72
20	88	87
21	107	104
22	88	86
23	91	89
24	143	146
25	106	102
26	88	78
27	85	86
28	84	84
29	96	98
30	71	73

Table 6.2

t-Test: Paired Two Sample for Means

	<i>Gluc</i>	<i>Gluc (L)</i>
Mean	93.5	92.6
Variance	307.7759	331.9724
Observations	30	30
Pearson Correlation	0.983202	
Hypothesized Mean Difference	0	
df	29	
t Stat	1.473198	
P(T<=t) one-tail	0.075735	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.15147	
t Critical two-tail	2.045231	

Table 6.3



BUN

Table 7.1

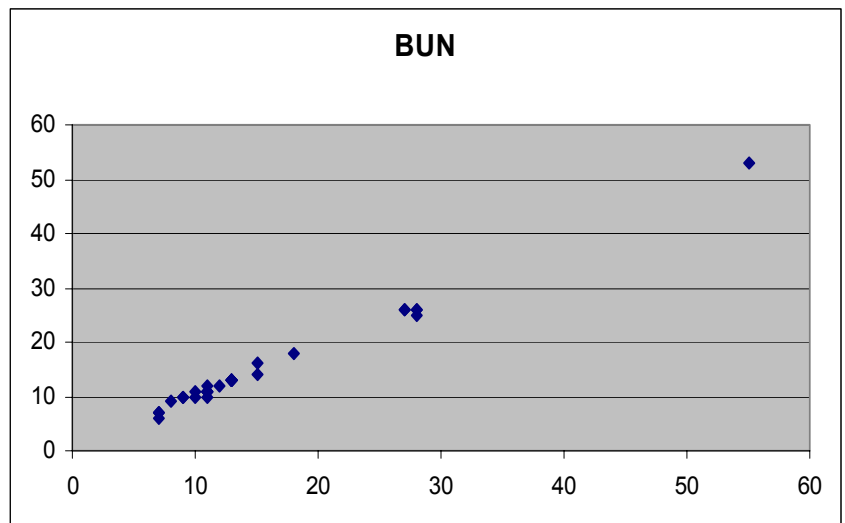
Patient#	BUN	BUN (L)
1	7	7
2	10	10
3	13	13
4	11	11
5	13	13
6	13	13
7	27	26
8	11	11
9	12	12
10	11	11
11	27	26
12	18	18
13	9	10
14	28	26
15	7	7
16	13	13
17	11	11
18	8	9
19	28	26
20	55	53
21	15	14
22	15	16
23	11	12
24	13	13
25	11	10
26	9	10
27	28	25
28	7	6
29	13	13
30	10	11

Table 7.2

t-Test: Paired Two Sample for Means

	<i>Bun</i>	<i>Bun (L)</i>
Mean	15.46667	15.2
Variance	99.63678	86.37241
Observations	30	30
Pearson Correlation	0.997001	
Hypothesized Mean Difference	0	
df	29	
t Stat	1.439246	
P(T<=t) one-tail	0.080394	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.160788	
t Critical two-tail	2.045231	

Table 7.3



Creatinine

Table 8.1

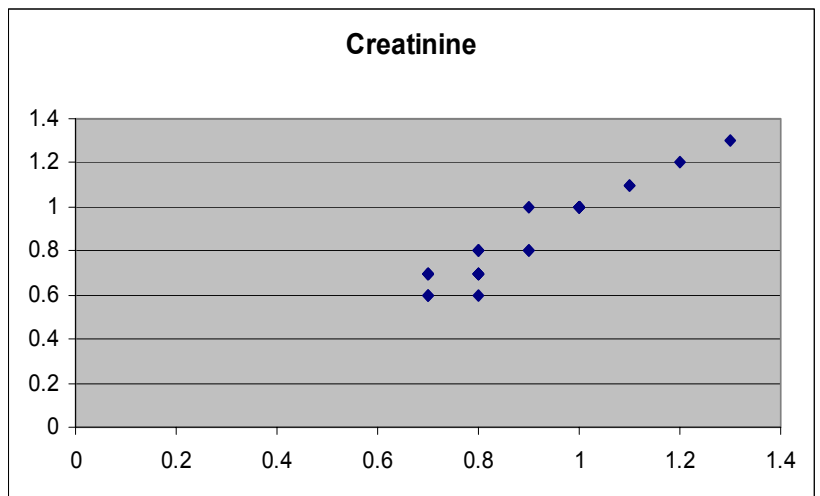
Patient#	Creat	Creat (L)
1	1	1
2	1	1
3	0.8	0.8
4	0.7	0.7
5	1	1
6	0.7	0.7
7	1.3	1.3
8	0.7	0.6
9	0.9	0.8
10	0.9	0.8
11	0.8	0.7
12	0.7	0.6
13	1.1	1.1
14	0.8	0.7
15	1	1
16	0.8	0.8
17	0.7	0.7
18	0.9	1
19	0.8	0.6
20	1.2	1.2
21	0.8	0.7
22	0.8	0.7
23	1	1
24	1	1
25	0.7	0.7
26	1.1	1.1
27	0.8	0.7
28	1	1
29	0.8	0.8
30	0.7	0.7

Table 8.2

t-Test: Paired Two Sample for Means

	<i>Creat</i>	<i>Creat (L)</i>
Mean	0.883333	0.85
Variance	0.026264	0.036379
Observations	30	30
Pearson Correlation	0.9538	
Hypothesized Mean Difference	0	
df	29	
t Stat	3.010399	
P(T<=t) one-tail	0.002679	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.005358	
t Critical two-tail	2.045231	

Table 8.3



Albumin

Table 9.1

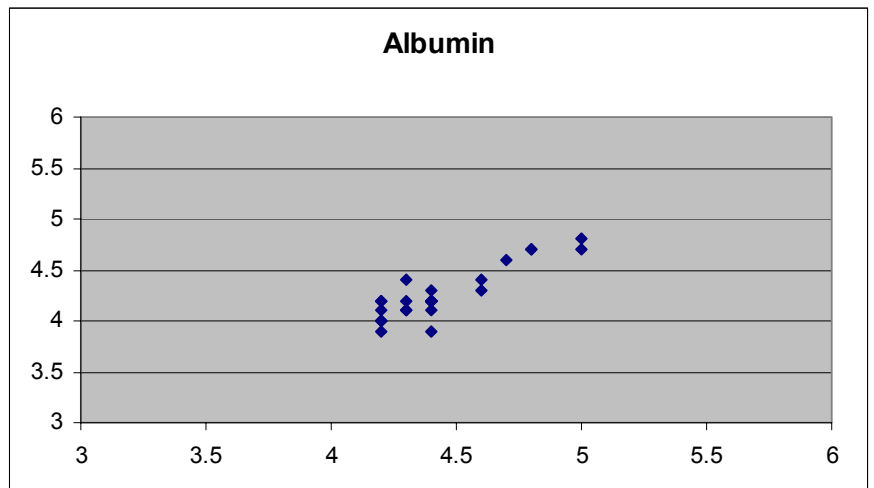
Patient#	Alb	Alb (L)
1	4.4	4.2
2	4.4	4.3
3	4.4	4.2
4	4.4	4.2
5	4.2	4
6	4.7	4.6
7	4.6	4.4
8	4.3	4.1
9	4.6	4.3
10	4.3	4.1
11	4.2	4
12	4.2	4.1
13	4.2	4.2
14	4.4	4.2
15	4.4	4.2
16	4.4	4.2
17	4.4	4.2
18	4.2	3.9
19	4.4	3.9
20	4.3	4.4
21	4.2	4
22	5	4.7
23	4.8	4.7
24	4.8	4.7
25	5	4.8
26	4.2	4.2
27	4.4	4.1
28	4.4	4.2
29	4.4	4.2
30	4.3	4.2

Table 9.2

t-Test: Paired Two Sample for Means

	<i>Alb</i>	<i>Alb (L)</i>
Mean	4.43	4.25
Variance	0.051828	0.056379
Observations	30	30
Pearson Correlation	0.889889	
Hypothesized Mean Difference	0	
df	29	
t Stat	9	
P(T<=t) one-tail	0	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0	
t Critical two-tail	2.045231	

Table 9.3



Total Protein

Table 10.1

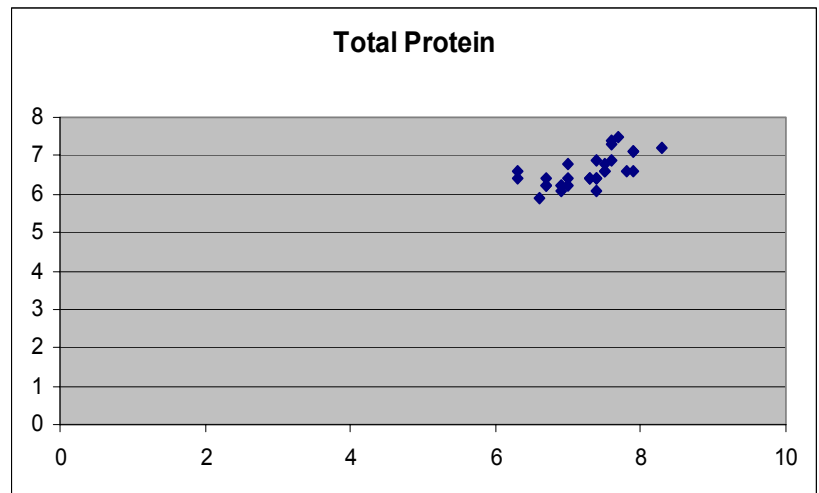
Patient#	T. Prot	T. Prot (L)
1	6.9	6.2
2	7.5	6.8
3	7.4	6.4
4	7	6.2
5	7.3	6.4
6	7.5	6.6
7	7.4	6.4
8	6.6	5.9
9	7.8	6.6
10	7.9	6.6
11	7.4	6.1
12	6.9	6.1
13	7.6	6.9
14	6.7	6.4
15	6.9	6.2
16	7.4	6.9
17	7	6.8
18	7.6	7.4
19	6.3	6.4
20	7.7	7.5
21	7.3	6.4
22	8.3	7.2
23	7.9	7.1
24	7.9	7.1
25	7.5	6.6
26	7.6	7.3
27	6.3	6.6
28	6.7	6.2
29	7	6.4
30	6.7	6.2

Table 10.2

t-Test: Paired Two Sample for Means

	<i>T. Prot</i>	<i>T. Prot (L)</i>
Mean	7.266667	6.596667
Variance	0.248506	0.176885
Observations	30	30
Pearson Correlation	0.658979	
Hypothesized Mean Difference	0	
df	29	
t Stat	9.504774	
P(T<=t) one-tail	0	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0	
t Critical two-tail	2.045231	

Table 10.3



Calcium

Table 11.1

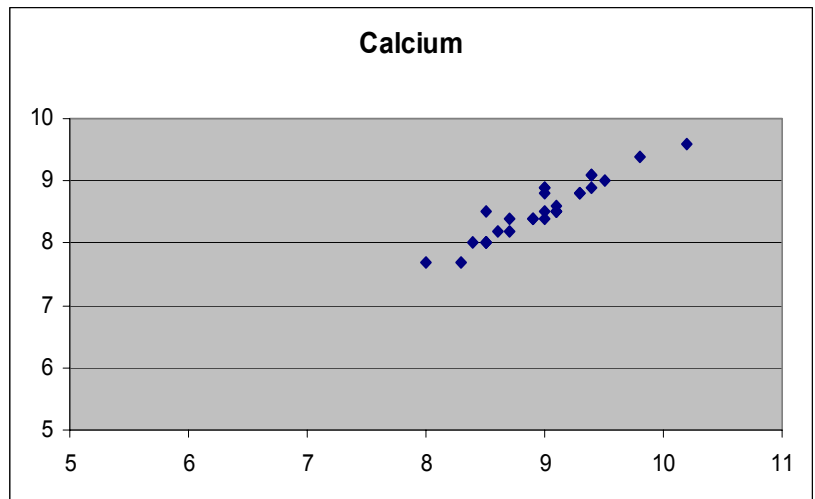
Patient#	Ca++	Ca++ (L)
1	8.5	8
2	9.5	9
3	9.1	8.5
4	8.9	8.4
5	10.2	9.6
6	9.8	9.4
7	9	8.4
8	8.5	8
9	9.1	8.5
10	8.3	7.7
11	8	7.7
12	8.6	8.2
13	9	8.9
14	9.4	8.9
15	8.5	8
16	9.1	8.5
17	8.9	8.4
18	9	8.8
19	9.4	9.1
20	8.5	8.5
21	8.7	8.2
22	9.1	8.5
23	9.3	8.8
24	9.3	8.8
25	9.1	8.6
26	9	8.9
27	9.4	9.1
28	8.4	8
29	9	8.5
30	8.7	8.4

Table 11.2

t-Test: Paired Two Sample for Means

	Ca++	Ca++ (L)
Mean	8.976667	8.543333
Variance	0.214954	0.213575
Observations	30	30
Pearson Correlation	0.936704	
Hypothesized Mean Difference	0	
df	29	
t Stat	14.41074	
P(T<=t) one-tail	0	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0	
t Critical two-tail	2.045231	

Table 11.3



Uric Acid

Table 12.1

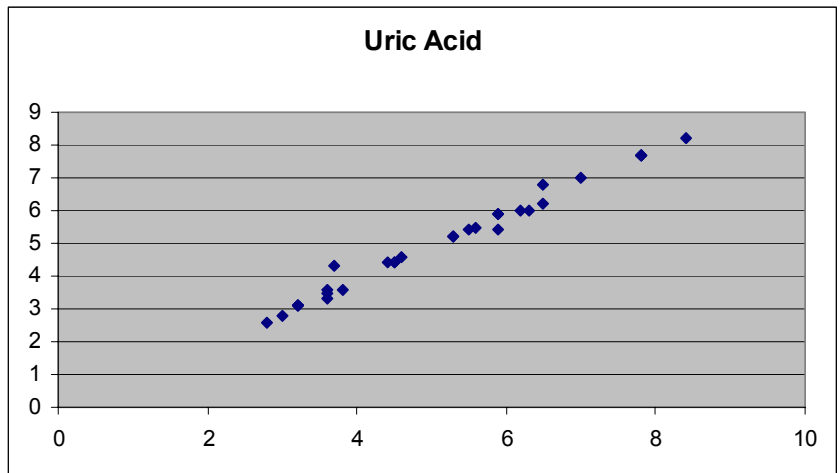
Patient#	UrAc	UrAc (L)
1	7.8	7.7
2	8.4	8.2
3	4.5	4.4
4	3.2	3.1
5	3.7	4.3
6	6.5	6.2
7	6.3	6
8	3.8	3.6
9	3	2.8
10	5.5	5.4
11	6.2	6
12	7	7
13	5.9	5.9
14	3.6	3.5
15	7.8	7.7
16	4.5	4.4
17	3.2	3.1
18	5.9	5.4
19	3.6	3.3
20	6.5	6.8
21	4.6	4.6
22	5.6	5.5
23	5.3	5.2
24	5.3	5.2
25	2.8	2.6
26	5.9	5.9
27	3.6	3.6
28	7.8	7.7
29	4.4	4.4
30	3.2	3.1

Table 12.2

t-Test: Paired Two Sample for Means

	<i>Uric Acid</i>	<i>Uric Acid (L)</i>
Mean	5.18	5.086667
Variance	2.674069	2.657057
Observations	30	30
Pearson Correlation	0.993287	
Hypothesized Mean Difference	0	
df	29	
t Stat	2.70121	
P(T<=t) one-tail	0.005708	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.011417	
t Critical two-tail	2.045231	

Table 12.3



Total Bilirubin

Table 13.1

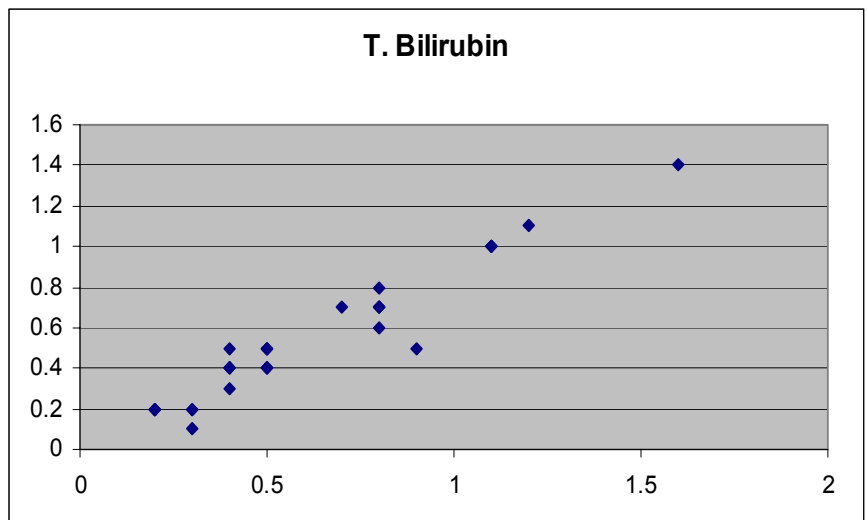
Patient#	T. Bili	T. Bili (L)
1	0.8	0.7
2	0.9	0.5
3	0.2	0.2
4	1.1	1
5	1.6	1.4
6	0.3	0.2
7	1.2	1.1
8	0.4	0.5
9	0.3	0.2
10	0.3	0.1
11	0.5	0.5
12	0.4	0.4
13	0.5	0.5
14	0.8	0.7
15	0.8	0.7
16	0.2	0.2
17	1.1	1
18	0.5	0.4
19	0.8	0.6
20	0.4	0.3
21	0.2	0.2
22	0.4	0.4
23	0.5	0.4
24	0.5	0.4
25	0.4	0.4
26	0.5	0.5
27	0.8	0.8
28	0.7	0.7
29	0.2	0.2
30	1.1	1

Table 13.2

t-Test: Paired Two Sample for Means

	<i>T Bili</i>	<i>T Bili (L)</i>
Mean	0.613333	0.54
Variance	0.123264	0.101103
Observations	30	30
Pearson Correlation	0.964964	
Hypothesized Mean Difference	0	
Df	29	
t Stat	4.252955	
P(T<=t) one-tail	0.0001	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.000201	
t Critical two-tail	2.045231	

Table 13.3



LDH

Table 14.1

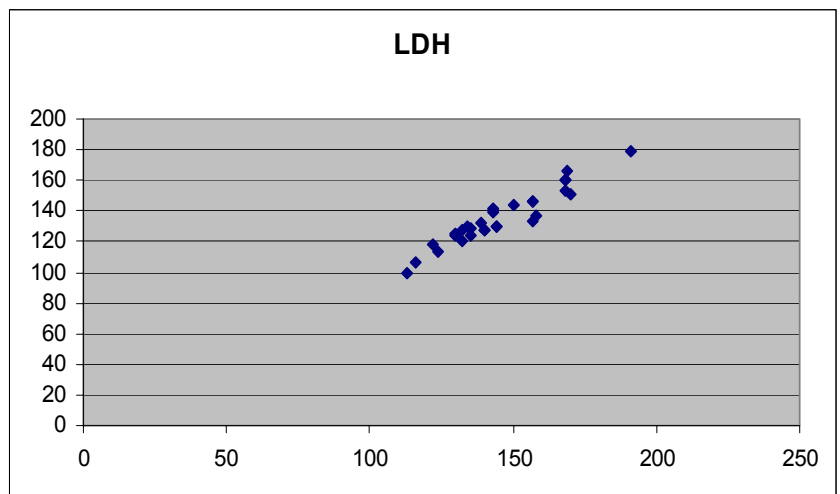
Patient#	LDH	LDH (L)
1	135	124
2	132	121
3	140	128
4	144	130
5	139	132
6	130	125
7	170	151
8	124	114
9	191	179
10	158	137
11	157	133
12	150	144
13	143	139
14	168	160
15	135	129
16	140	128
17	144	130
18	143	141
19	168	153
20	169	166
21	122	118
22	113	100
23	157	146
24	157	146
25	116	106
26	143	140
27	168	160
28	130	124
29	132	128
30	134	130

Table 14.2

t-Test: Paired Two Sample for Means

	<i>LDH</i>	<i>LDH (L)</i>
Mean	145.0667	135.4
Variance	330.1333	301.0759
Observations	30	30
Pearson Correlation	0.953337	
Hypothesized Mean Difference	0	
df	29	
t Stat	9.651886	
P(T<=t) one-tail	0	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0	
t Critical two-tail	2.045231	

Table 14.3



CPK

Table 15.1

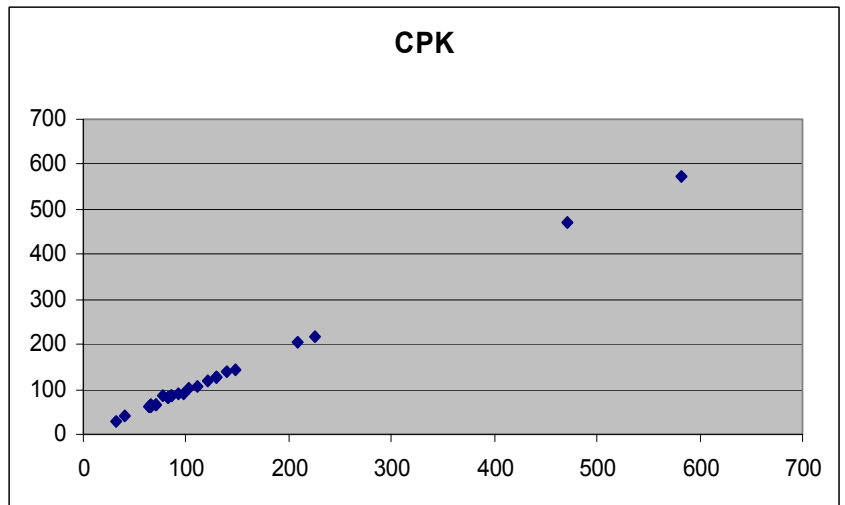
Patient#	CPK	CPK (L)
1	129	125
2	41	42
3	86	84
4	70	67
5	582	574
6	98	92
7	471	472
8	64	62
9	92	91
10	111	107
11	226	216
12	32	30
13	82	82
14	65	64
15	129	125
16	86	84
17	70	67
18	82	80
19	65	63
20	78	84
21	121	120
22	102	102
23	148	143
24	209	204
25	140	138
26	82	81
27	65	64
28	129	125
29	86	84
30	70	67

Table 15.2

t-Test: Paired Two Sample for Means

	CPK	CPK (L)
Mean	127.0333	124.6333
Variance	13816.52	13584.1
Observations	30	30
Pearson Correlation	0.99973	
Hypothesized Mean Difference	0	
df	29	
t Stat	4.539302	
P(T<=t) one-tail	0	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0	
t Critical two-tail	2.045231	

Table 15.3



Alkaline Phosphatase

Table 16.1

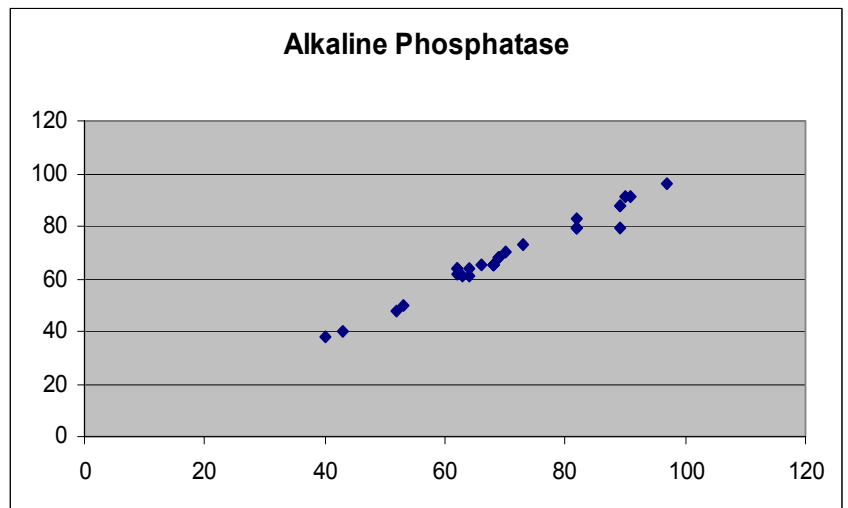
Patient#	Alk Phos	Alk Phos (L)
1	82	79
2	40	38
3	68	65
4	69	68
5	70	70
6	64	64
7	63	61
8	66	65
9	43	40
10	91	91
11	53	50
12	82	83
13	89	88
14	62	64
15	82	79
16	68	65
17	69	68
18	89	79
19	62	62
20	68	65
21	97	96
22	73	73
23	64	61
24	52	48
25	90	91
26	89	88
27	62	64
28	82	79
29	68	65
30	69	68

Table 16.2

t-Test: Paired Two Sample for Means

	<i>Alk Phos</i>	<i>Alk Phos (L)</i>
Mean	70.86667	69.23333
Variance	200.1885	205.8402
Observations	30	30
Pearson Correlation	0.987275	
Hypothesized Mean Difference	0	
df	29	
t Stat	3.920974	
P(T<=t) one-tail	0.000248	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.000496	
t Critical two-tail	2.045231	

Table 16.3



SGPT

Table 17.1

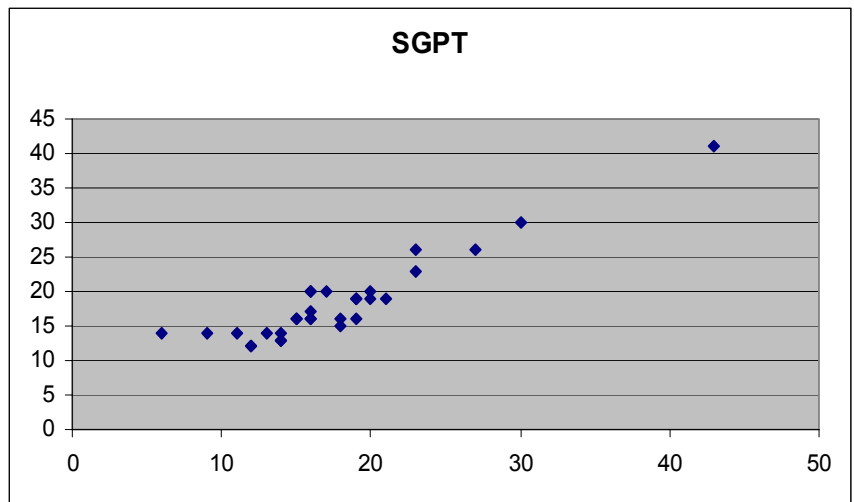
Patient#	SGPT	SGPT (L)
1	15	16
2	12	12
3	16	20
4	6	14
5	43	41
6	14	14
7	30	30
8	12	12
9	20	19
10	14	13
11	27	26
12	23	23
13	16	16
14	19	19
15	15	16
16	16	20
17	9	14
18	18	15
19	19	16
20	23	26
21	20	20
22	14	13
23	13	14
24	21	19
25	16	17
26	18	16
27	19	19
28	16	16
29	17	20
30	11	14

Table 17.2

t-Test: Paired Two Sample for Means

	SGPT	SGPT (L)
Mean	17.73333	18.33333
Variance	47.44368	37.1954
Observations	30	30
Pearson Correlation	0.935505	
Hypothesized Mean Difference	0	
df	29	
t Stat	-1.33704	
P(T<=t) one-tail	0.095802	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.191604	
t Critical two-tail	2.045231	

Table 17.3



SGOT

Table 18.1

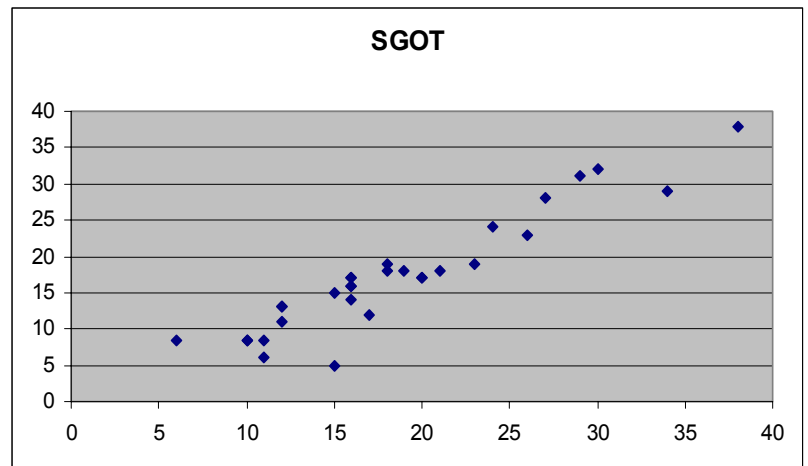
Patient#	SGOT	SGOT (L)
1	16	17
2	12	13
3	20	17
4	15	5
5	38	38
6	18	18
7	29	31
8	10	8.4
9	26	23
10	17	12
11	34	29
12	23	19
13	11	6
14	11	8.4
15	10	8.4
16	16	16
17	12	11
18	6	8.4
19	16	14
20	21	18
21	19	18
22	27	28
23	12	13
24	30	32
25	18	19
26	24	24
27	16	16
28	16	17
29	20	17
30	15	15

Table 18.2

t-Test: Paired Two Sample for Means

	SGOT	SGOT (L)
Mean	18.6	17.32
Variance	56.93793	65.12993
Observations	30	30
Pearson Correlation	0.941249	
Hypothesized Mean Difference	0	
df	29	
t Stat	2.571924	
P(T<=t) one-tail	0.007751	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.015503	
t Critical two-tail	2.045231	

Table 18.3



GGPT

Table 19.1

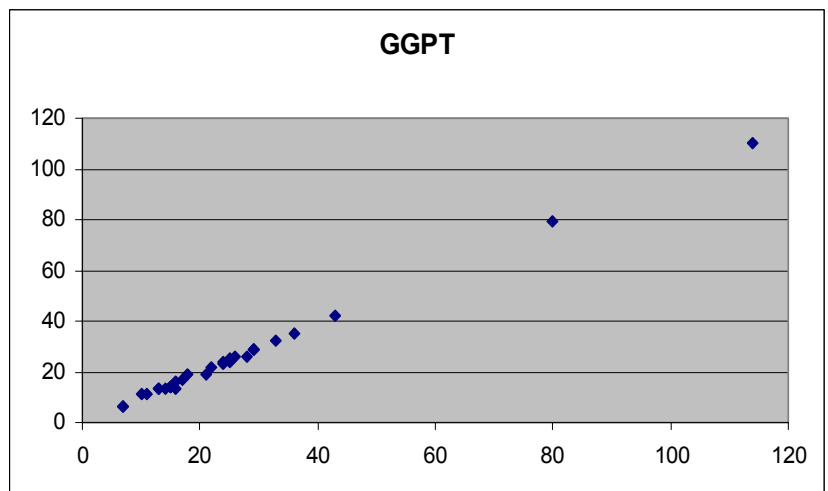
Patient#	GGPT	GGPT (L)
1	25	24
2	18	19
3	29	29
4	7	6
5	33	32
6	17	17
7	21	19
8	11	11
9	13	13
10	26	26
11	14	13
12	43	42
13	15	14
14	22	22
15	15	14
16	13	13
17	16	16
18	10	11
19	16	13
20	28	26
21	114	110
22	29	29
23	15	14
24	25	25
25	80	79
26	36	35
27	24	23
28	24	24
29	29	29
30	7	6

Table 19.2

t-Test: Paired Two Sample for Means

	GGPT	GGPT (L)
Mean	25.83333	25.13333
Variance	468.0057	445.292
Observations	30	30
Pearson Correlation	0.999089	
Hypothesized Mean Difference	0	
df	29	
t Stat	3.632925	
P(T<=t) one-tail	0.000536	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.001073	
t Critical two-tail	2.045231	

Table 19.3



Amylase

Table 20.1

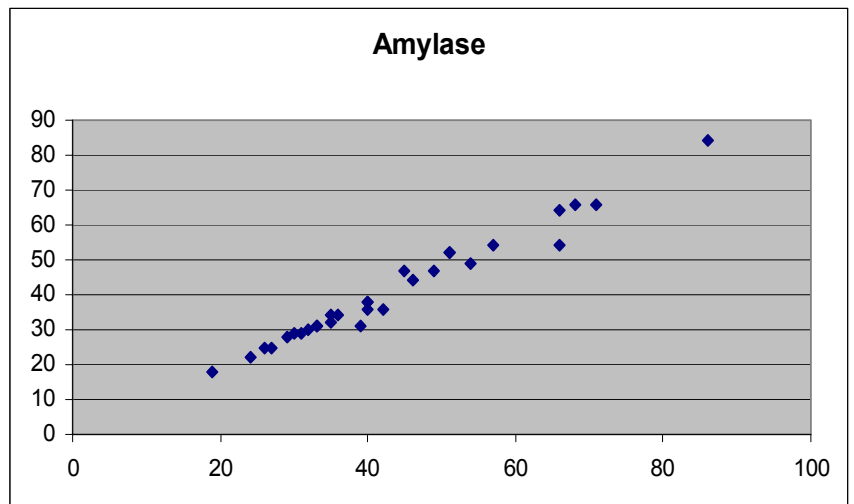
Patient#	Amy	Amy (L)
1	40	38
2	29	28
3	71	66
4	49	47
5	35	32
6	30	29
7	66	64
8	31	29
9	51	52
10	36	34
11	24	22
12	33	31
13	26	25
14	42	36
15	66	54
16	86	84
17	54	49
18	35	34
19	39	31
20	33	31
21	27	25
22	46	44
23	40	36
24	19	18
25	32	30
26	57	54
27	51	52
28	40	38
29	68	66
30	45	47

Table 20.2

t-Test: Paired Two Sample for Means

	Amy	Amy (L)
Mean	43.36667	40.86667
Variance	253.0678	237.223
Observations	30	30
Pearson Correlation	0.985921	
Hypothesized Mean Difference	0	
df	29	
t Stat	5.119064	
P(T<=t) one-tail	0	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0	
t Critical two-tail	2.045231	

Table 20.3



Sodium

Table 21.1

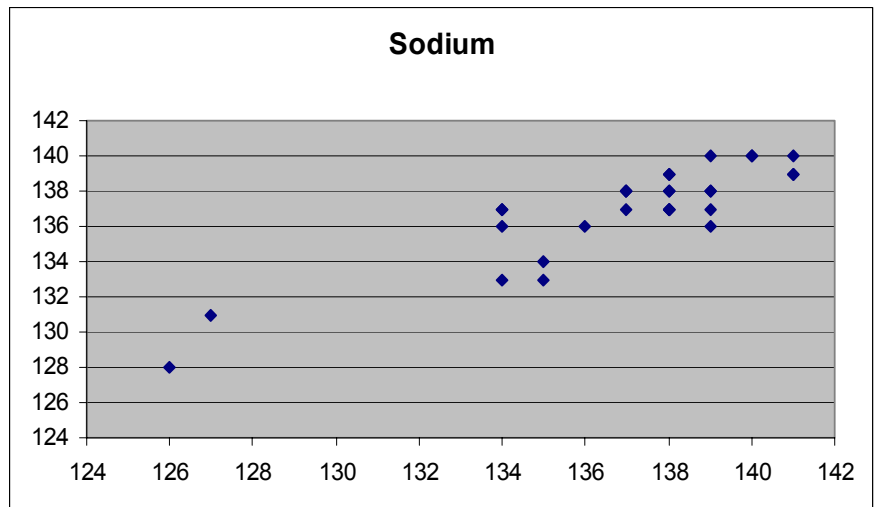
Patient#	Na+	Na+ (L)
1	141	139
2	138	137
3	137	138
4	138	137
5	137	137
6	134	137
7	137	138
8	138	138
9	139	138
10	134	133
11	134	136
12	134	137
13	135	133
14	139	137
15	127	131
16	138	139
17	135	134
18	138	139
19	126	128
20	139	136
21	136	136
22	140	140
23	139	140
24	138	138
25	139	138
26	140	140
27	141	140
28	141	139
29	137	138
30	138	137

Table 21.2

t-Test: Paired Two Sample for Means

	Na+	Na+ (L)
Mean	136.9	136.9333
Variance	12.36897	7.581609
Observations	30	30
Pearson Correlation	0.885941	
Hypothesized Mean Difference	0	
Df	29	
t Stat	-0.10927	
P(T<=t) one-tail	0.456872	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.913744	
t Critical two-tail	2.045231	

Table 21.3



Potassium

Table 22.1

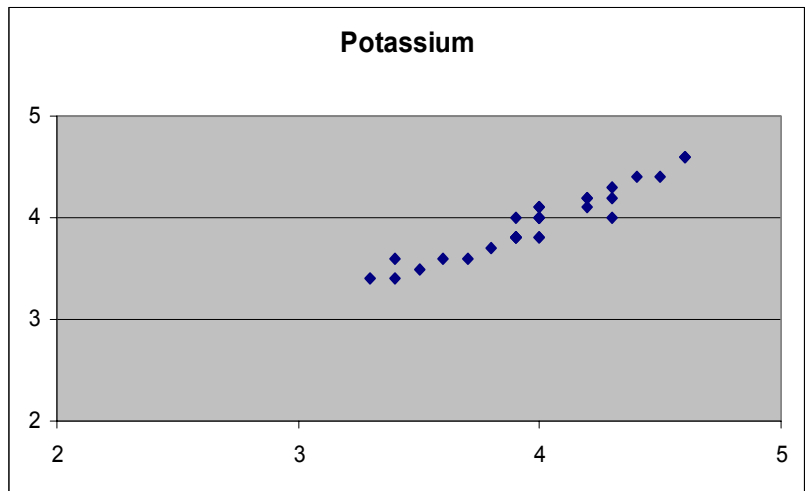
Patient#	K+	K+ (L)
1	4	4.1
2	4.6	4.6
3	4.6	4.6
4	4	3.8
5	3.9	3.8
6	4.5	4.4
7	4.3	4.2
8	3.8	3.7
9	3.9	3.8
10	3.9	3.8
11	4.2	4.2
12	4.2	4.2
13	3.7	3.6
14	3.4	3.4
15	3.3	3.4
16	4.3	4.3
17	4.2	4.1
18	3.4	3.6
19	4.3	4
20	4	4
21	4	4
22	3.9	3.8
23	3.5	3.5
24	4.4	4.4
25	3.6	3.6
26	4	4
27	3.9	3.8
28	4	4.1
29	3.9	4
30	4	3.8

Table 22.2

t-Test: Paired Two Sample for Means

	K+	K+ (L)
Mean	3.99	3.953333
Variance	0.114724	0.104644
Observations	30	30
Pearson Correlation	0.952329	
Hypothesized Mean Difference	0	
df	29	
t Stat	1.943497	
P(T<=t) one-tail	0.030859	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.061718	
t Critical two-tail	2.045231	

Table 22.3



Chloride

Table 23.1

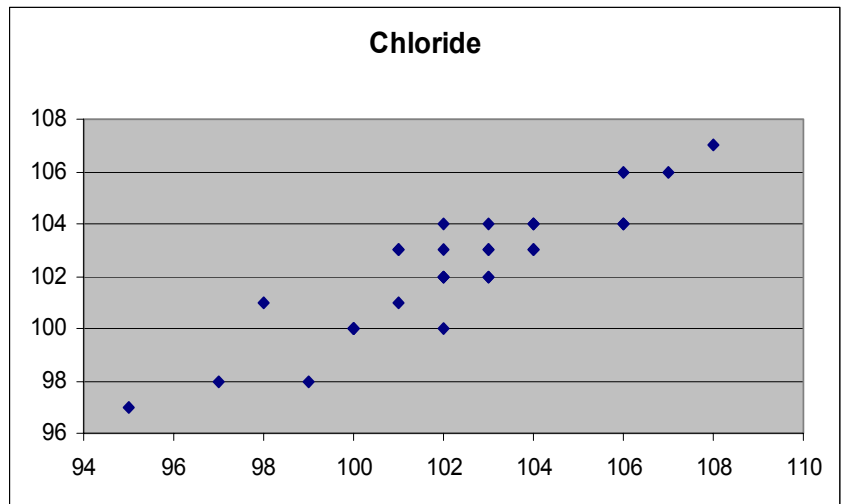
Patient#	CI	CI (L)
1	106	104
2	100	100
3	100	100
4	104	103
5	108	107
6	97	98
7	103	103
8	104	104
9	106	106
10	102	102
11	102	103
12	101	103
13	99	98
14	103	102
15	98	101
16	104	104
17	100	100
18	103	104
19	95	97
20	102	100
21	102	102
22	102	102
23	103	103
24	101	101
25	103	102
26	102	104
27	107	106
28	106	104
29	104	103
30	101	103

Table 23.2

t-Test: Paired Two Sample for Means

	CI	CI (L)
Mean	102.2667	102.3
Variance	8.34023	5.527586
Observations	30	30
Pearson Correlation	0.901962	
Hypothesized Mean Difference	0	
df	29	
t Stat	-0.14346	
P(T<=t) one-tail	0.443458	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.886916	
t Critical two-tail	2.045231	

Table 23.3



CO2

Table 24.1

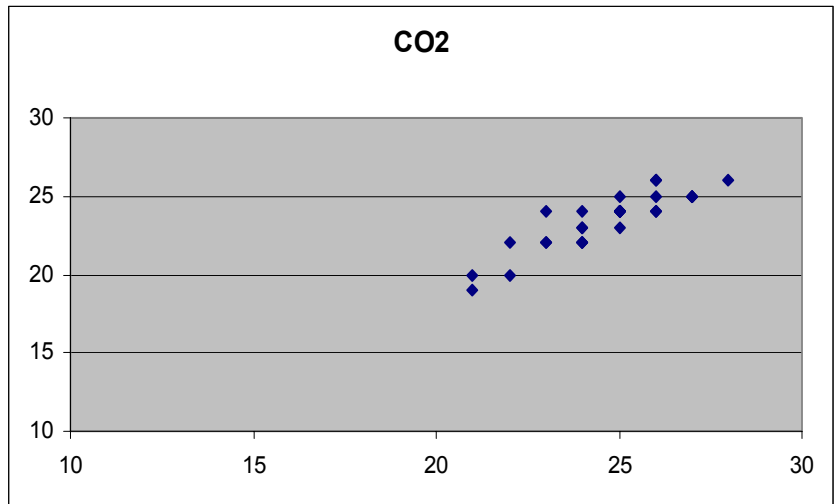
Patient#	CO2	CO2 (L)
1	25	24
2	28	26
3	24	23
4	25	24
5	21	19
6	27	25
7	27	25
8	27	25
9	24	22
10	22	22
11	24	22
12	23	22
13	21	20
14	25	24
15	22	20
16	24	24
17	24	22
18	23	24
19	25	23
20	25	24
21	25	24
22	25	25
23	26	25
24	26	26
25	26	26
26	26	24
27	23	22
28	25	24
29	24	23
30	26	24

Table 24.2

t-Test: Paired Two Sample for Means

	CO2	CO2 (L)
Mean	24.6	23.43333
Variance	3.075862	3.150575
Observations	30	30
Pearson Correlation	0.888379	
Hypothesized Mean Difference	0	
df	29	
t Stat	7.662833	
P(T<=t) one-tail	0	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0	
t Critical two-tail	2.045231	

Table 24.3



Thyroid Stimulating Hormone

Table 25.1

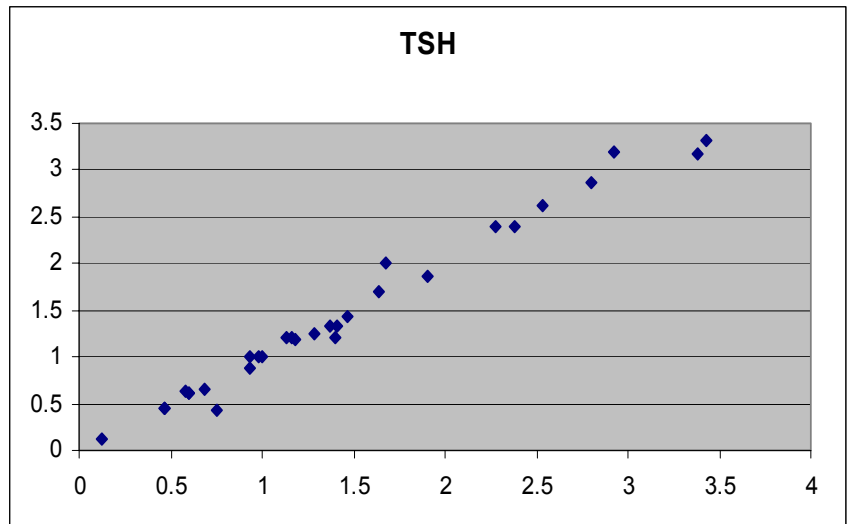
Patient#	TSH	TSH (L)
1	0.47	0.46
2	1.29	1.25
3	1.41	1.34
4	2.38	2.39
5	0.6	0.61
6	2.53	2.62
7	0.6	0.62
8	1.68	2
9	0.58	0.64
10	1.16	1.21
11	1.47	1.43
12	1.18	1.19
13	3.38	3.18
14	1.4	1.21
15	2.92	3.2
16	0.93	1
17	1.64	1.7
18	0.69	0.65
19	3.43	3.32
20	2.8	2.86
21	0.75	0.43
22	1.9	1.86
23	0.93	0.88
24	0.12	0.12
25	1	1
26	1.13	1.2
27	0.98	1
28	0.47	0.46
29	1.37	1.34
30	2.28	2.39

Table 25.2

t-Test: Paired Two Sample for Means

	TSH	TSH (L)
Mean	1.449	1.452
Variance	0.788264	0.824548
Observations	30	30
Pearson Correlation	0.991048	
Hypothesized Mean Difference	0	
df	29	
t Stat	-0.13487	
P(T<=t) one-tail	0.446821	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.893643	
t Critical two-tail	2.045231	

Table 25.3



T4

Table 26.1

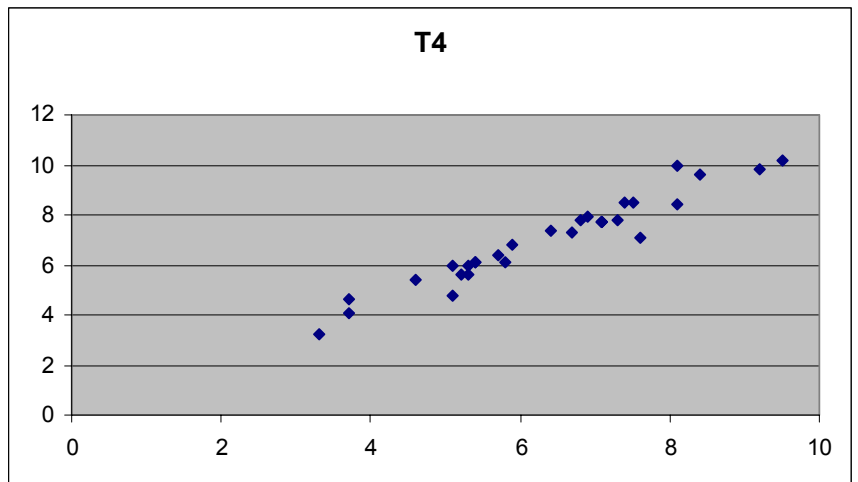
Patient#	T4	T4 (L)
1	7.1	7.7
2	8.4	9.6
3	5.4	6.1
4	5.2	5.6
5	4.6	5.4
6	7.5	8.5
7	6.7	7.3
8	6.9	7.9
9	8.1	8.4
10	5.1	6
11	6.8	7.8
12	5.4	6.1
13	3.7	4.1
14	5.3	6
15	5.7	6.4
16	8.1	10
17	6.4	7.4
18	5.1	4.8
19	3.7	4.6
20	7.4	8.5
21	9.2	9.8
22	5.9	6.8
23	7.6	7.1
24	9.5	10.2
25	3.3	3.2
26	7.3	7.8
27	7.1	7.7
28	7.1	7.7
29	5.8	6.1
30	5.3	5.6

Table 26.2

t-Test: Paired Two Sample for Means

	T4	T4 (L)
Mean	6.356667	7.006667
Variance	2.461161	3.064782
Observations	30	30
Pearson Correlation	0.967757	
Hypothesized Mean Difference		0
df		29
t Stat		-7.7658
P(T<=t) one-tail		0
t Critical one-tail		1.699127
P(T<=t) two-tail		0
t Critical two-tail		2.045231

Table 26.3



CKMB

Table 27.1

Patient#	CKMB	CKMB
1	2.13	2.99
2	0.77	1.09
3	2.36	3.29
4	0.73	1.13
5	5.95	7.72
6	2.2	5.29
7	4.1	5.29
8	0.97	1.39
9	0.36	0.64
10	0.48	0.8
11	3.35	4.57
12	0.47	0.82
13	1.09	1.51
14	0.96	1.26
15	1.27	1.63
16	1.17	1.42
17	0.47	0.82
18	0.87	1.58
19	1.32	1.64
20	1.34	1.82
21	1.34	1.87
22	0.49	0.85
23	2	2
24	4.34	5.98
25	1.11	1.46
26	1.75	2.3
27	1.27	1.32
28	2.13	2.29
29	2.36	2.39
30	0.93	1.13

Table 27.2

t-Test: Paired Two Sample for Means

	CKMB	CKMB (L)
Mean	1.669333	2.276333
Variance	1.682289	3.102507
Observations	30	30
Pearson Correlation	0.957456	
Hypothesized Mean Difference	0	
df	29	
t Stat	-5.19213	
P(T<=t) one-tail	0	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0	
t Critical two-tail	2.045231	

Table 27.3

