

Supplement 2.

Best fit distributions for all determinations.

The table reports D-statistics and p-values of the KS goodness of fit test for each of the 84 data sets. The KS test for goodness of fit performs a test of the distribution of an observed random variable against a given distribution under the null hypothesis that the two distributions are identical. The table also reports the MLEs for shape, location and scale parameters obtained from the maximum likelihood estimation needed to perform the KS tests. We fitted the data to the following distributions: beta, exponential, exponential-Weibull, exponential-power law, Gilbrat, logistic, lognormal, normal, Pareto, power law, Weibull minimum, and Weibull maximum.

M: MALE
F:FEMALE

Goodness of fit test results									
			Best fit distribution	KS test		Best fits MLEs (shape, c, location, and scale)			
		Gender		D-statistic	p-value	S	C	LOC	SCALE
Arginine									
Control	RBC	M	lognormal	0.16428	0.20659	0.376438		1.308643	5.47568
		F	lognormal	0.1665159	0.194354	1.29766		3.436246	0.67795
	Serum	M	logistic	0.1058	0.76317			0.18254	0.037755
		F	Power law	0.149034	0.306546	1.45524		0.0614427	0.207557
Diabetics	RBC	M	logistic	0.123167	0.548778			5.46838	0.747606
		F	logistic	0.185849	0.110702			7.314805	1.144642
	Serum	M	lognormal	0.131201	0.4633701	0.501445		0.01789	0.114442
		F	Exponential weibull	0.1779749	0.1402727	264.953	0.348029	0.056437	0.00075

Nitrites									
Control	RBC	M	logistic	0.172549	0.164134			117.5069	23.61217
		F	Exponential power law	0.17374357	0.15862432	0.606062		71.99	61.42386
	Serum	M	Gilbrat	0.16669	0.19339			4.0619	11.44269
		F	Exponential weibull	0.244136	0.01386	188.6350	0.7192228	1.756299	1.16123
Diabetics	RBC	M	Normal	0.13516759	0.424589			63.72999	14.67089
		F	logistic	0.140824	0.373169			72.97857	16.18652
	Serum	M	Exponential weibull	0.1201168	0.58358	7.625178	0.7439537	2.57963	13.2755
		F	logistic	0.21327	0.0447518			53.33497	10.4515
Citrulline									
Control	RBC	M	normal	0.105069	0.77309			141.40	47.50778
		F	logistic	0.2543139	0.009089			181.1275	9.6051
	Serum	M	logistic	0.13439	0.4319			243.0979	21.0271
		F	logistic	0.20107	0.068019			225.874	33.9907
Diabetics	RBC	M	logistic	0.14268	0.357215			294.8807	40.30802
		F	logistic	0.3039	0.00089			350.9909	43.272149
	Serum	M	logistic	0.1356	0.420248			569.447	138.6046
		F	logistic	0.19474	0.08367			663.5169	126.9296
Ornithine									
Control	RBC	M	normal	0.15339	0.2749			181.375	33.34268
		F	logistic	0.2162146	0.04031			121.2159	22.90108
	Serum	M	beta	0.13549	0.421465	0.779	0.80878	40.999	53.0000
		F	logistic	0.2164117	0.040027			58.57125	5.34658

Diabetics	RBC	M	beta	0.1592246	0.2364787	0.926456	0.876421	111.78034	147.219
		F	beta	0.180789	0.129046	5.033445	5.316408	37.070529	361.411
	Serum	M	beta	0.11707	0.619573	33.18864	118.1394 3	-14.5890	396.721
		F	lognormal	0.10228639	0.7967729	0.155339		-50.3064	110.7159
Ammonia									
Control	RBC	M	normal	0.11059	0.70025			283.69	96.0086
		F	Weibull min	0.1875639	0.1049	8.09089		-448.231	817.935
	Serum	M	logistic	0.11757	0.61361			50.217	11.7051
		F	logistic	0.13425178	0.4333437			47.37623	11.17336
Diabetics	RBC	M	exponential	0.1260418	0.51717			421.9	110.3324
		F	beta	0.20026	0.069869	0.546337	0.7173	151.3328	635.667
	Serum	M	Exponential weibull	0.115537	0.6382	172.4512	0.31065	17.6645	0.25214
		F	Exponential weibull	0.16989	0.1769	0.7432	4.3299	26.99329	133.655
Glucose									
Control	Serum	M	logistic	0.081408944 596202959	0.9536255 919196701 1			93.725473 513127511	6.238150 7297077 894
		F	beta	0.063350994 697624063	0.9971241 849744263 4	1.3749395 301794118	1.606979 8014712 964	72.619931 937412161	33.22637 3503722 144
Diabetics	Serum	M	logistic	0.090438340 854283983	0.8990682 324914032 2			138.91353 881897874	13.27482 9228028 919

		F	logistic	0.090438729 689889474	0.8990653 936500915 3			145.91351 68365886	13.27482 8567766 228
Triglycerides									
Control	Serum	M	beta	0.066488671 353012174	0.9944366 138051757 8	1.3080556 507522143	2.228276 3963225 34	117.46346 521215393	88.21505 3015371 51
		F	lognormal	0.050725721 131268608	0.9999513 424877253 3	0.2800856 283210819 7		82.668758 514730399	58.26927 4000802 035
Diabetics	Serum	M	Power law	0.072821242 806068831	0.9837859 443169908 5	1.0503315 544364957		110.83600 096980945	117.1639 9904116 679
		F	logistic	0.125378227 85665176	0.5243675 007596269			180.32412 08668489	18.77145 4092377 226
AST									
Control	Serum	M	logistic	0.08826	0.91433			16.88085	2.46169
		F	Exponential weibull	0.1074	0.741336	62.25524	0.371341	16.064	0.14432
Diabetics	Serum	M	lognorm	0.08239	0.9488389	0.048275		-115.279	135.1256
		F	logistic	0.09083	0.896173			22.86877	5.9587

ALT									
Control	Serum	M	beta	0.0911538	0.8937	0.82809	0.834268	10.82046	23.1795
		F	lognormal	0.108019	0.733746	0.53737		4.58654	18.59916
Diabetics	Serum	M	lognormal	0.078179	0.96738	0.4835		3.714734	13.6584
		F	exponencial	0.0798559	0.96062			13.99999	11.00000
Urea									
Control	RBC	M	logistic	0.055941	0.999628			1.090576	0.138671
		F	Weibull max	0.0831389	0.944997	4.696647		2.359825	1.369000 1
	Serum	M	Exponential weibull	0.1365117	0.411958	241.607	0.31885	0.09082	0.00098
		F	Pareto	0.125705	0.520812	1.722121		-0.07716	0.30716
Diabetics	RBC	M	Exponential power law	0.0893481	0.9068708	0.801215		1.429999	1.135783 2
		F	Power law	0.120292	0.5815448	0.513628		1.399999	3.986721
	Serum	M	Weibull max	0.1346946	0.429095	1.273849		2.853879	1.220335
		F	Lognormal	0.178396	0.1385406	1.777346		0.20823	0.178658

Uric Acid									
Control	RBC	M	Beta	0.0727379	0.98398	1.180507	1.204808	89.513640	91.0476
		F	Power law	0.0740678	0.980643	1.027318		75.86255	77.13744 3
	Serum	M	Normal	0.052033	0.999914			179.0	28.64698
		F	Beta	0.0531758	0.99986	1.47233	1.472038	93.82706	122.342
Diabetics	RBC	M	Power Law	0.065469	0.99546	1.054462		106.8278	112.1721 2
		F	Logistic	0.0780	0.9680579			124.7667	14.00563
	Serum	M	Normal	0.096925	0.846604			115.0	19.77498
		F	Logistic	0.05525487	0.9997059			99.08868	7.923599
Insulin									
Control	Serum	M	Gilbrat	0.10527929 81056267	0.7702725 379791903 7			0.8046671 667729976	3.964270 34267
		F	Exponential weibull	0.10652752 873175297	0.7535267 607471305 4	0.5491192 69432	1.608146 1296582	0.8999999 9999	11.17150 86177
Diabetics	Serum	M	Exponential power law	0.10763362 428626033	0.7388371 380017337 8	0.8653579 226691445 7		0.8999999 999999999	15.99069 6373731 73
		F	Exponential power law	0.11440802 219086182	0.6520991 336286459 1	0.9045662 010909651 9		0.5999999 999999998 7	15.93732 9905210 767

Cholesterol									
Control	Serum	M	Logistic	0.090658 97243857	0.8974510 9483425			138.2493 10229853	7.87133112 541001
		F	Logistic	0.073120 66557571	0.9830662 1579965			148.6439 49735496	9.11033657 567190
Diabetics	Serum	M	Logistic	0.095026 13675456	0.8629584 7141137			175.2736 25810287	13.7527295 581938
		F	Beta	0.067709 5554162	0.9929899 7054454	1.9485887 4571129	1.568515 16583062	143.5902 89590161	74.9250143 789352
Arginase									
Control	RBC	M	Beta	0.104498 7074427 9033	0.780833 4645011 0724	2.0302516 91567783 7	1.874457 95623585 52	1.507798 31894966 82	2.1297500 482998735
		F	Exponential power law	0.065453 1580446 34585	0.995475 9705880 5426		1.333711 76387156 08	0.869440 75558670 197	2.0096885 672227129
Diabetics	RBC	M	Exponential weibull	0.088015 3621434 86819	0.915974 0610537 5323	0.1618060 07842946 74	6.128180 21597617 25	1.258926 72047072 55	9.2735610 116041869
		F	Exponential Weibull	0.097539 4288817 31505	0.841154 9359983 1437	42.691247 75675327	0.501408 53138826 524	1.265211 50194846 93	0.1266454 523447220 5
MLEs: Maximum likelihood estimators for shape, location and scale parameters for data of each determination according to gender.									