

**Males**

Tank	Metformin (µg/L)	Fish #	WEIGHT (g)	Total length (cm)	Standard length (cm)	Tail length (cm)	Condition factor	Sex external (M, F, I)	Fin dot (0-1)	Fatpad score (0-3)	Tubercles (total #)	Large tubercles (#)
1 Ctrl		1	3.18	6.00	5.6 fork		1.47	M	1	2	12	10
1 Ctrl		3	4.25	6.60	5.50	1.10	1.48	M	1	3	12	8
1 Ctrl		5	3.18	6.00	5.00	1.00	1.47	M	1	2	8	2
3 Ctrl		14	4.75	7.00	5.90	1.10	1.38	M	1	1	7	5
3 Ctrl		15	3.16	5.80	5.00	0.80	1.62	M	1	3	9	7
3 Ctrl		17	2.78	5.85	4.70	1.15	1.39	M	1	2	1	0
3 Ctrl		19	3.70	6.30	5.40	0.90	1.48	M	1	3	13	6
7 Ctrl		43	2.91	6.20	5.40	0.80	1.22	M	1	2	2	0
7 Ctrl		45	3.30	6.20	5.15	1.05	1.38	M	1	3.5	1	0
7 Ctrl		47	3.36	5.65	4.70	0.95	1.86	M	1	3	1	1
10 Ctrl		65	3.75	5.90	5.00	0.90	1.83	M	1	3	4	2
10 Ctrl		67	3.55	6.10	5.10	1.00	1.56	M	1	2	0	0
10 Ctrl		68	3.49	6.35	5.30	1.05	1.36	M	1	1	12	6
10 Ctrl		69	3.15	6.00	5.00	1.00	1.46	M	1	2	7	1
11 Ctrl		72	3.06	6.00	5.10	0.90	1.42	M	1	2	1	0
11 Ctrl		74	3.42	6.10	5.20	0.90	1.51	M	1	3	15	8
11 Ctrl		76	2.74	5.50	4.50	1.00	1.65	M	1	2	7	4
13 Ctrl		88	3.17	5.80	4.90	0.90	1.62	M	1	3	8	4
13 Ctrl		90	2.57	5.50	4.50	1.00	1.54	M	1	3	6	4
13 Ctrl		92	2.44	5.50	4.50	1.00	1.47	M	1	1	11	7
16 Ctrl		111	2.75	5.70	4.60	1.10	1.48	M	1	2	3	1
16 Ctrl		112	3.63	6.25	5.30	0.95	1.49	M	1	2	1	1
16 Ctrl		114	3.32	6.60	5.50	1.10	1.15	M	1	0	0	0
16 Ctrl		116	3.78	6.20	5.30	0.90	1.59	M	1	3	3	1
19 Ctrl		132	2.87	6.00	5.10	0.90	1.33	M	1	1	0	0
19 Ctrl		134	2.65	5.85	4.80	1.05	1.32	M	1	3	3	3
19 Ctrl		136	2.42	5.70	4.75	0.95	1.31	M	1	1	9	3
4	3	20	3.03	6.20	5.10	1.10	1.27	M	1	1	2	1
4	3	22	3.26	5.90	4.25	1.65	1.59	M	1	3	1	1
4	3	24	2.75	5.60	4.55	1.05	1.57	M	1	3	4	0
9	3	58	3.51	6.10	5.05	1.05	1.55	M	1	3	15	10
9	3	60	2.98	5.85	4.80	1.05	1.49	M	1	3	12	4
9	3	62	3.01	6.25	5.20	1.05	1.23	M	1	1	8	3
9	3	64					I					
15	3	102	2.75	5.70	4.70	1.00	1.48	M	1	3	0	0
15	3	104	3.52	6.30	5.25	1.05	1.41	M	1	3	2	0
15	3	107	2.20	5.50	4.50	1.00	1.32	M	1	3	3	0
17	3	117	3.36	6.10	5.25	0.85	1.48	M	1	1	2	0
17	3	119	3.38	5.80	4.80	1.00	1.73	M	1	3	9	9
17	3	121	2.44	6.10	5.10	1.00	1.07	M	1	2	4	1
5	30	28	2.36	5.50	4.50	1.00	1.42	M	1	1	6	3
5	30	30	3.57	6.30	5.30	1.00	1.43	M	1	3	6	3
5	30	32	3.94	6.50	5.40	1.10	1.43	M	1	3	6	6

8	30	50	3.32	5.90	4.90	1.00	1.62 M	1	3	15	8
8	30	52	2.16	5.50	4.50	1.00	1.30 M	1	2	11	7
8	30	54	2.65	5.65	4.55	1.10	1.47 M	1	3	19	14
12	30	80	3.73	6.20	5.20	1.00	1.57 M	1	3	20	15
12	30	82	4.30	6.60	5.40	1.20	1.50 M	1	2	7	5
12	30	84	3.82	6.10	5.20	0.90	1.68 M	1	3	12	6
20	30	140	3.59	6.10	5.10	1.00	1.58 M	1	3	13	6
20	30	142	3.91	6.00	4.95	1.05	1.81 M	1	3.5	10	5
20	30	144	4.00	6.65	5.35	1.30	1.36 M	1	1	6	2
2	300	7	2.88	6.00	5.10	0.90	1.33 M	1	2	1	0
2	300	9	3.37	6.00	5.30	0.70	1.56 M	1	3	15	12
2	300	11	3.59	6.00	4.90	1.10	1.66 M	1	3	5	5
2	300	12					I				
6	300	36	3.55	6.40	5.30	1.10	1.35 M	1	2	10	4
6	300	38	3.02	6.10	5.50	0.60	1.33 M	1	2	2	1
6	300	40	2.51	5.40	4.50	0.90	1.59 M	1	3	4	0
14	300	95	4.26	6.40	5.40	1.00	1.63 M	1	3	15	11
14	300	96					I				
14	300	97	3.39	6.10	5.00	1.10	1.49 M	1	3	11	5
14	300	98					I				
14	300	100	3.57	6.30	5.20	1.10	1.43 M	1	3	10	5
18	300	124	3.16	5.90	4.90	1.00	1.54 M	1	3	5	4
18	300	126	1.88	5.30	4.30	1.00	1.26 M	1	2	1	0
18	300	128	2.12	5.25	4.30	0.95	1.47 M	1	2	6	6

#### Males (cont)

Tank	Metformin (µg/L)	Fish #	Banding score (0-3)	Male index	Tubercle index	Liver weight (mg)	Liver- somatic index	Gonad weight (mg)	Gonado- somatic index	Carcass weight (g)
1 Ctrl		1	1	7.2	3.2	41.94	1.32	48.27	1.52	2.69
1 Ctrl		3	2	8.8	2.8	55.54	1.31	41.56	0.98	3.68
1 Ctrl		5	1	5.2	1.2	90.23	2.84	54.92	1.73	2.72
3 Ctrl		14	2	5.7	1.7	135.52	2.85	72.50	1.53	3.84
3 Ctrl		15	2	8.3	2.3	71.73	2.27	58.09	1.84	2.50
3 Ctrl		17	3	6.1	0.1	57.73	2.08	41.23	1.48	2.41
3 Ctrl		19	3	9.5	2.5	85.13	2.30	38.20	1.03	3.21
7 Ctrl		43	3	6.2	0.2	64.01	2.20	32.92	1.13	2.43
7 Ctrl		45	3	7.6	0.1	57.13	1.73	28.93	0.88	2.81
7 Ctrl		47	3	7.3	0.3	59.12	1.76	38.01	1.13	2.86
10 Ctrl		65	3	7.8	0.8	121.67	3.24	37.71	1.01	3.21
10 Ctrl		67	3	6	0	127.30	3.59	42.10	1.19	2.92
10 Ctrl		68	0	4.4	2.4	111.34	3.19	72.02	2.06	2.89
10 Ctrl		69	2	5.9	0.9	83.52	2.65	39.25	1.25	2.69
11 Ctrl		72	2	5.1	0.1	73.20	2.39	45.30	1.48	2.53
11 Ctrl		74	1	8.1	3.1	55.17	1.61	34.98	1.02	2.95
11 Ctrl		76	2	6.5	1.5	60.20	2.20	28.36	1.04	2.24

13 Ctrl		88	2	7.6	1.6	88.57	2.79	29.13		0.92	2.62
13 Ctrl		90	2	7.4	1.4	71.00	2.76	44.98		1.75	2.17
13 Ctrl		92	1	5.5	2.5	60.93	2.50	16.72		0.69	2.07
16 Ctrl		111	2	5.5	0.5	72.04	2.62	41.56		1.51	2.36
16 Ctrl		112	3	6.3	0.3	118.20	3.26	30.66		0.84	2.91
16 Ctrl		114	1	2	0	88.66	2.67	61.30		1.85	2.74
16 Ctrl		116	3	7.5	0.5	113.71	3.01	39.62		1.05	3.23
19 Ctrl		132	2	4	0	96.13	3.35	49.56		1.73	2.29
19 Ctrl		134	1	5.9	0.9	66.56	2.51	38.60		1.46	2.21
19 Ctrl		136	1	4.5	1.5	70.80	2.93	27.81		1.15	2.04
4	3	20	0	2.4	0.4	60.28	1.99	37.92		1.25	2.52
4	3	22	2	6.3	0.3	80.45	2.47	30.44		0.93	2.80
4	3	24	3	7.4	0.4	99.00	3.60	52.57		1.91	2.33
9	3	58	2	9.5	3.5	91.07	2.59	24.27		0.69	2.95
9	3	60	3	9	2	54.19	1.82	22.17		0.74	2.50
9	3	62	2	5.4	1.4	65.96	2.19	52.01		1.73	2.54
9	3	64				84.20		63.95			
15	3	102	2	6	0	68.65	2.50	18.04		0.66	2.31
15	3	104	3	7.2	0.2	118.79	3.37	43.08		1.22	2.96
15	3	107	3	7.3	0.3	44.73	2.03	25.88		1.18	1.92
17	3	117	3	5.2	0.2	90.17	2.68	35.44		1.05	2.86
17	3	119	3	9.7	2.7	76.65	2.27	46.05		1.36	2.95
17	3	121	2	5.6	0.6	27.85	1.14	13.36		0.55	2.05
5	30	28	2	5.2	1.2	56.96	2.41	34.76		1.47	1.99
5	30	30	2	7.2	1.2	109.82	3.08	55.16		1.55	3.00
5	30	32	2	7.8	1.8	127.24	3.23	72.02		1.83	3.26
8	30	50	2	9.1	3.1	57.59	1.73	66.22		1.99	2.81
8	30	52	3	8.5	2.5	27.98	1.30	18.22		0.84	1.89
8	30	54	2	10.7	4.7	72.21	2.72	30.93		1.17	2.24
12	30	80	2	11	5	97.88	2.62	33.75		0.90	3.15
12	30	82	2	6.7	1.7	184.46	4.29	55.73		1.30	3.65
12	30	84	3	9.4	2.4	109.77	2.87	49.43		1.29	3.20
20	30	140	3	9.5	2.5	148.86	4.15	52.48		1.46	3.03
20	30	142	2	8.5	2	107.12	2.74	30.80		0.79	3.43
20	30	144	2	5	1	133.40	3.34	78.55		1.96	3.33
2	300	7	2	5.1	0.1	65.34	2.27	50.36		1.75	2.38
2	300	9	2	9.9	3.9	101.18	3.00	34.56		1.03	2.79
2	300	11	2	7.5	1.5	76.99	2.14	50.31		1.40	3.00
2	300	12				112.65		63.17			
6	300	36	1	5.8	1.8	90.81	2.56	31.95		0.90	3.00
6	300	38	1	4.4	0.4	86.30	2.86	37.75		1.25	2.41
6	300	40	2	6.4	0.4	51.45	2.05	25.65		1.02	2.12
14	300	95	3	10.7	3.7	124.28	2.92	58.02		1.36	3.64
14	300	96				65.41		17.90			
14	300	97	3	9.1	2.1	28.53	0.84	24.57		0.72	2.87
14	300	98				124.78		53.39			
14	300	100	2	8	2	40.04	1.12	25.99		0.73	3.06

18	300	124	2	7.3	1.3	86.75	2.75	37.31	1.18	2.68
18	300	126	1	4.1	0.1	28.53	1.52	14.57	0.78	1.64
18	300	128	2	6.8	1.8	49.32	2.33	24.95	1.18	1.77

## Females

Tank	Metformin (µg/L)	Fish #	WEIGHT (g)	Total length (cm)	Standard length (cm)	Tail length (cm)	Condition factor	Sex external (M, F, I)	Oviposito r length (optical units)	Ovipositor width (optical units)	Ovipositor area (mm <sup>2</sup> )
1 Ctrl		2	2.20	5.60				1.25 F	12	7	1.06
1 Ctrl		4	1.47	5.30				0.99 F	14	10	1.76
1 Ctrl		6	1.52	5.05	4.00	1.05		1.18 F	14	9	1.59
3 Ctrl		13	1.59	5.20	4.30	0.90		1.13 F	13	9	1.47
3 Ctrl		16						I			
3 Ctrl		18						I			
7 Ctrl		44	2.10	5.50	4.50	1.00		1.26 F	11	9	1.25
7 Ctrl		46						F with edema			
7 Ctrl		48	1.71	5.30	4.30	1.00		1.15 F	15.5	6	1.17
7 Ctrl		49	1.88	5.25	4.30	0.95		1.30 F	11	9	1.25
10 Ctrl		66	1.66	5.10	4.15	0.95		1.25 F	10	9	1.13
10 Ctrl		70	1.82	5.30	4.40	0.90		1.22 F	8	8	0.81
10 Ctrl		71	1.60	5.15	4.10	1.05		1.17 F	12	9	1.36
11 Ctrl		73	1.89	5.30	4.40	0.90		1.27 F	12	7	1.06
11 Ctrl		75	1.87	5.20	4.30	0.90		1.33 F	15	6	1.13
11 Ctrl		77	1.47	5.00	4.10	0.90		1.18 F	13	8	1.31
11 Ctrl		78	2.38	5.60	4.70	0.90		1.36 F	9	6	0.68
11 Ctrl		79						F			
13 Ctrl		89	1.66	5.10	4.10	1.00		1.25 F	13	8	1.31
13 Ctrl		91	1.40	4.90	3.95	0.95		1.19 F	12	8	1.21
13 Ctrl		93	1.46	5.20	4.15	1.05		1.04 F	11	7	0.97
13 Ctrl		94	1.44	4.90	4.00	0.90		1.22 F	11	11	1.52
16 Ctrl		110	2.15	5.60	4.60	1.00		1.22 F	11	7	0.97
16 Ctrl		113	1.46	4.90	4.10	0.80		1.24 F	14	7	1.23
16 Ctrl		115	2.32	5.60	4.60	1.00		1.32 F	14	10	1.76
19 Ctrl		133	2.64	5.80	4.80	1.00		1.35 F	11	7	0.97
19 Ctrl		135	2.01	5.15	4.10	1.05		1.47 F	11	6	0.83
19 Ctrl		137	1.71	5.25	4.25	1.00		1.18 F	15	8	1.51
19 Ctrl		138	2.80	5.90	4.80	1.10		1.36 F	11	12.5	1.73
19 Ctrl		139	2.02	5.10	4.15	0.95		1.52 F	11	12	1.66
4		3	21	1.88	5.30	4.30	1.00	1.26 F	15	9	1.70
4		3	23	1.86	5.00	4.10	0.90	1.49 F	12	7	1.06
4		3	25	1.68	5.20	4.30	0.90	1.19 F	11	7	0.97
4		3	26	1.59	5.20	4.30	0.90	1.13 F	10	7	0.88
4		3	27	1.51	4.10	3.10	1.00	2.19 F	12	7	1.06

9	3	59	1.86	5.30	4.20	1.10	1.25 F	13	7	1.15
9	3	61	1.41	5.00	4.10	0.90	1.13 F	17	9	1.93
9	3	63	1.84	5.25	4.35	0.90	1.27 F	13	8	1.31
15	3	103	1.66	5.10	4.15	0.95	1.25 F	13	8	1.31
15	3	105	1.87	5.15	4.20	0.95	1.37 F	12	9	1.36
15	3	106	1.60	5.50	4.50	1.00	0.96 F	16	11	2.22
15	3	108	1.27	4.80	3.95	0.85	1.15 F	15	6	1.13
15	3	109					F			
17	3	118					F with edema			
17	3	120	1.64	5.30	4.30	1.00	1.10 F	14	8	1.41
17	3	122	1.99	5.40	4.40	1.00	1.26 F	14	10	1.76
17	3	123	2.17	5.60	4.70	0.90	1.24 F	15	10	1.89
5	30	29	1.63	4.90	4.05	0.85	1.39 F	12	8	1.21
5	30	31	2.03	5.55	4.00	1.55	1.19 F	12	8	1.21
5	30	33	1.24	4.70	3.70	1.00	1.19 F	10	9	1.13
5	30	34	1.55	5.30	4.30	1.00	1.04 F	11	7	0.97
5	30	35	1.66	5.20	4.15	1.05	1.18 F	15	7	1.32
8	30	51	1.91	5.30	4.20	1.10	1.28 F	12	5	0.76
8	30	53	1.61	5.00	4.10	0.90	1.29 F	10	10	1.26
8	30	55	1.67	5.10	4.10	1.00	1.26 F	11	8	1.11
8	30	56	1.33	5.00	4.10	0.90	1.06 F	14	5	0.88
8	30	57	1.56	5.95	5.10	0.85	0.74 F	12	11	1.66
12	30	81	1.83	5.20	4.40	0.80	1.30 F	11	6	0.83
12	30	83	1.58	4.95	4.10	0.85	1.30 F	14	9	1.59
12	30	85	2.01	5.50	4.50	1.00	1.21 F	17	8	1.71
12	30	86	1.51	5.00	4.10	0.90	1.21 F	8	7	0.71
12	30	87	1.40	4.85	3.90	0.95	1.23 F	14	7	1.23
20	30	141	2.21	5.60	4.60	1.00	1.26 I	10	6	0.76
20	30	143	1.91	5.50	4.40	1.10	1.15 F	12	7	1.06
20	30	145					I			
20	30	146	1.72	5.15	4.20	0.95	1.26 F	12	8	1.21
2	300	8	1.65	5.10	4.15	0.95	1.24 F	19	10	2.39
2	300	10	1.43	4.80	3.85	0.95	1.29 F	9	6	0.68
6	300	37	1.67	5.40	4.50	0.90	1.06 F	15	8	1.51
6	300	39	1.81	5.40	4.40	1.00	1.15 F	14	9	1.59
6	300	41	1.73	5.10	4.20	0.90	1.30 F	15	9	1.70
6	300	42	1.65	5.00	4.20	0.80	1.32 F	13	9	1.47
14	300	99	1.37	4.90	4.00	0.90	1.16 F	15	7	1.32
14	300	101	2.08	5.50	4.50	1.00	1.25 F	13	10	1.64
18	300	125	1.95	5.15	4.15	1.00	1.43 F	16	10	2.02
18	300	127	1.51	5.05	4.05	1.00	1.17 F	11	8	1.11
18	300	129	1.84	5.25	4.25	1.00	1.27 F	11	7	0.97
18	300	130	1.37	5.00	4.00	1.00	1.10 F	8	11	1.11
18	300	131	1.72	5.50	4.50	1.00	1.03 F	15	8	1.51

Females (cont)

Tank	Metformin (µg/L)	Fish #	Liver weight (mg)	Liver- somatic index	Gonad weight (mg)	Gonado- somatic index	Carcass weight (g)
1 Ctrl		2	63.62	2.89	252.22	11.46	1.53
1 Ctrl		4	54.52	3.71	182.19	12.39	1.00
1 Ctrl		6	81.92	5.39	182.94	12.04	1.04
3 Ctrl		13	74.89	4.71	167.70	10.55	1.07
3 Ctrl		16					
3 Ctrl		18					
7 Ctrl		44	108.90	5.19	263.80	12.56	1.39
7 Ctrl		46					
7 Ctrl		48	35.60	2.08	129.44	7.57	1.25
7 Ctrl		49	73.25	3.90	350.64	18.65	1.22
10 Ctrl		66	54.46	3.28	219.48	13.22	1.13
10 Ctrl		70	71.92	3.95	173.18	9.52	1.29
10 Ctrl		71	66.73	4.17	199.10	12.44	1.07
11 Ctrl		73	47.04	2.49	268.94	14.23	1.31
11 Ctrl		75	72.84	3.90	379.15	20.28	1.16
11 Ctrl		77	51.78	3.52	201.27	13.69	0.99
11 Ctrl		78	98.85	4.15	256.42	10.77	1.57
11 Ctrl		79					Lost to water bath
13 Ctrl		89	67.14	4.04	172.64	10.40	1.19
13 Ctrl		91	67.04	4.79	135.70	9.69	0.98
13 Ctrl		93	60.82	4.17	134.33	9.20	1.07
13 Ctrl		94	67.63	4.70	141.62	9.83	1.01
16 Ctrl		110	63.95	2.97	319.01	14.84	1.43
16 Ctrl		113	43.42	2.97	200.60	13.74	1.02
16 Ctrl		115	86.86	3.74	411.81	17.75	1.54
19 Ctrl		133	69.22	2.62	537.56	20.36	1.62
19 Ctrl		135	48.95	2.44	470.69	23.42	1.20
19 Ctrl		137	55.00	3.22	368.70	21.56	1.11
19 Ctrl		138	106.26	3.80	264.82	9.46	1.85
19 Ctrl		139	72.41	3.58	488.30	24.17	1.20
4		3	21	28.18	1.50	282.30	15.02
4		3	23	68.90	3.70	294.60	15.84
4		3	25	58.20	3.46	235.20	14.00
4		3	26	59.27	3.73	240.69	15.14
4		3	27	77.51	5.13	297.70	19.72
9		3	59	54.22	2.92	380.68	20.47
9		3	61	43.37	3.08	264.10	18.73
9		3	63	48.65	2.64	207.95	11.30
15		3	103	68.17	4.11	273.97	16.50
15		3	105	54.51	2.91	304.50	16.28
15		3	106	64.70	4.04	261.20	16.33
15		3	108	48.62	3.83	122.33	9.63
15		3	109				Lost to water bath

17	3	118					
17	3	120	61.78	3.77	184.88	11.27	1.19
17	3	122	96.53	4.85	313.70	15.76	1.29
17	3	123	65.21	3.01	299.96	13.82	1.47
5	30	29	54.50	3.34	230.17	14.12	1.09
5	30	31	36.84	1.81	300.18	14.79	1.41
5	30	33	31.15	2.51	172.31	13.90	0.86
5	30	34	65.67	4.24	184.82	11.92	1.05
5	30	35	33.72	2.03	168.20	10.13	1.61
8	30	51	49.41	2.59	232.75	12.19	1.32
8	30	53	64.61	4.01	287.31	17.85	1.05
8	30	55	89.12	5.34	223.65	13.39	1.10
8	30	56	53.40	4.02	196.12	14.75	0.86
8	30	57	69.35	4.45	153.99	9.87	1.01
12	30	81	55.96	3.06	382.90	20.92	1.08
12	30	83	42.89	2.71	152.05	9.62	1.07
12	30	85	81.06	4.03	226.75	11.28	1.39
12	30	86	41.56	2.75	147.25	9.75	1.11
12	30	87	46.50	3.32	248.91	17.78	0.91
20	30	141	55.00	2.49	104.77	4.74	1.70
20	30	143	85.54	4.48	311.65	16.32	1.24
20	30	145					underdeveloped ovaries
20	30	146	66.64	3.87	314.34	18.28	1.08
2	300	8	49.90	3.02	241.55	14.64	1.10
2	300	10	59.30	4.15	311.20	21.76	0.88
6	300	37	37.85	2.27	251.90	15.08	1.16
6	300	39	81.52	4.50	309.06	17.08	1.21
6	300	41	74.20	4.29	278.08	16.07	1.12
6	300	42	88.35	5.35	280.15	16.98	1.04
14	300	99	37.38	2.73	259.60	18.95	0.88
14	300	101	103.72	4.99	311.63	14.98	1.36
18	300	125	65.36	3.35	431.26	22.12	1.18
18	300	127	52.69	3.49	242.05	16.03	0.98
18	300	129	79.03	4.30	222.00	12.07	1.22
18	300	130	55.54	4.05	150.57	10.99	0.96
18	300	131	64.65	3.76	211.17	12.28	1.22