

**Supplemental Figure S1: Curcumin improves locomotor function in HD flies.** Vertical locomotor performance of 1, 3, 7 and 9 day old Q20 and Q93 flies fed with 0 (DMSO), 10, 15 and 20µM dose of curcumin since larval stage. (A) All the doses of curcumin fed to Q20 flies did not show any change in their locomotor activity. (B) Administration of 10µM concentration of curcumin significantly suppressed locomotor dysfunction in Q93 flies at day 7 and 9, as compared to the age-matched control. Data for locomotor activity was analyzed using multi-factor analysis of variance (ANOVA) followed by Tukey HSD post hoc test. Values are represented as mean  $\pm$  S.E.M. Tukey HSD  $\alpha$ 0.05, \*\*\*  $p < 0.001$ ; \*  $p < 0.05$ . For each condition,  $n = 20$ .

**Supplemental Table 1: Percent climbing activity of different days old Httex1pQ93 flies fed with 0, 10, 15 & 20 $\mu$ M doses of curcumin.**

Age (in days)	Condition	Percent Climbed Mean	<i>n</i>
<b>Day 1</b>	Httex1pQ93	98.33333333	20
	Httex1pQ93 (10 $\mu$ M)	98.33333333	20
	Httex1pQ93 (15 $\mu$ M)	96.66666667	20
	Httex1pQ93 (20 $\mu$ M)	96.66666667	20
<b>Day 3</b>	Httex1pQ93	76.66666667	20
	Httex1pQ93 (10 $\mu$ M)	83.33333333	20
	Httex1pQ93 (15 $\mu$ M)	76.66666667	20
	Httex1pQ93 (20 $\mu$ M)	73.33333333	20
<b>Day 7</b>	Httex1pQ93	43.33333333	20
	Httex1pQ93 (10 $\mu$ M)	58.33333333	20
	Httex1pQ93 (15 $\mu$ M)	43.33333333	20
	Httex1pQ93 (20 $\mu$ M)	40	20
<b>Day 9</b>	Httex1pQ93	25	20
	Httex1pQ93 (10 $\mu$ M)	33.33333333	20
	Httex1pQ93 (15 $\mu$ M)	30	20
	Httex1pQ93 (20 $\mu$ M)	18.33333333	20

**Supplemental Table 2: Significance levels in percent climbing activity of 1, 3, 7 and 9 day old Httex1pQ93 flies fed with different concentrations of curcumin.**

Age (in days)	(I) (0, 10 $\mu$ M, 15 $\mu$ M, 20 $\mu$ M)	(J) (0, 10 $\mu$ M, 15 $\mu$ M, 20 $\mu$ M)	Mean Difference (I- J)	Sig. <sup>b</sup>
<b>Day 1</b>	0	10 $\mu$ M	-1.776E-15	1.000
		15 $\mu$ M	1.667	.643
		20 $\mu$ M	1.667	.643
	10 $\mu$ M	0	1.776E-15	1.000
		15 $\mu$ M	1.667	.643
		20 $\mu$ M	1.667	.643

	15μM	0	-1.667	.643
		10μM	-1.667	.643
		20μM	.000	1.000
	20μM	0	-1.66	.643
		10μM	-1.66	.643
		15μM	.00	1.000
<b>Day 3</b>	0	10μM	-6.66	.067
		15μM	8.882E-16	1.000
		20μM	3.333	.355
	10μM	0	6.667	.067
		15μM	6.667	.067
		20μM	10.000*	<b>.007</b>
	15μM	0	-8.882E-1	1.000
		10μM	-6.667	.067
		20μM	3.333	.355
	20μM	0	-3.333	.355
		10μM	-10.000*	<b>.007</b>
		15μM	-3.333	.355
<b>Day 7</b>	0	10μM	-15.000*	<b>&lt;0.0001</b>
		15μM	.000	1.000
		20μM	3.333	.355
	10μM	0	15.000*	<b>&lt;0.0001</b>
		15μM	15.000*	<b>&lt;0.0001</b>
		20μM	18.333*	<b>&lt;0.0001</b>
	15μM	0	.000	1.000
		10μM	-15.000*	<b>&lt;0.0001</b>
		20μM	3.333	.355
	20μM	0	-3.333	.355
		10μM	-18.333*	<b>&lt;0.0001</b>
		15μM	-3.333	.355
<b>Day 9</b>	0	10μM	-8.333*	<b>.023</b>
		15μM	-5.000	.167

	20 $\mu$ M	6.667	.067
10 $\mu$ M	0	8.333*	<b>.023</b>
	15 $\mu$ M	3.333	.355
15 $\mu$ M	20 $\mu$ M	15.000*	<b>&lt;0.0001</b>
	0	5.000	.167
	10 $\mu$ M	-3.333	.355
20 $\mu$ M	20 $\mu$ M	11.667*	<b>.002</b>
	0	-6.667	.067
	10 $\mu$ M	-15.000*	<b>&lt;0.0001</b>
	15 $\mu$ M	-11.667*	<b>.002</b>

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The significance values were calculated by ANOVA and pairwise comparisons.

**Supplemental Table 3: Survival time of untreated and 10 $\mu$ M curcumin supplemented Httex1pQ93 flies.**

Condition	Median	Maximum	P-value	<i>n</i>
Httex1pQ93	5 days	15 days	0.3049	100
Httex1pQ93 (10 $\mu$ M)	7 days	15 days	0.3049	100

The median survival time is calculated as the smallest survival time for which the survivor function or survival probability is less than or equal to 0.5.

Median and maximum survival times were calculated using Kaplan-Meier analysis.

**Supplemental Table 4: Survival probability of normal, diseased and 10 $\mu$ M curcumin treated diseased flies.**

Condition	Estimated Probability					
	Time of event (t) (in days)	No. of flies died (Dt)	Flies alive at the start of the day (Nt)	Death (Dt/Nt)	Survival (1-Dt/Nt)	Survival Probability (St)
Httex1pQ20	0	0	100	0	1	1

	3	0	100	0	1	1
	5	0	100	0	1	1
	7	0	100	0	1	1
	9	0	100	0	1	1
	11	0	100	0	1	1
	13	0	100	0	1	1
	15	0	100	0	1	1
<b>Httex1pQ93</b>	0	0	100	0	1	1
	3	21	79	0.2658227 85	0.734177215	0.734177215
	<b>5</b>	21	58	0.3620689 66	0.637931034	<b>0.46835443</b>
	7	4	54	0.0740740 74	0.925925926	0.43366151
	9	12	42	0.2857142 86	0.714285714	0.309758221
	11	10	32	0.3125	0.6875	0.212958777
	13	12	20	0.6	0.4	0.085183511
	<b>15</b>	16	4	4	-3	<b>-0.255550532</b>
<b>Httex1pQ93 (10µM)</b>	0	0	100	0	1	1
	3	18	82	0.2195121 95	0.780487805	0.780487805
	5	17	65	0.2615384 62	0.738461538	0.576360225
	<b>7</b>	11	54	0.2037037 04	0.796296296	<b>0.458953513</b>
	9	11	43	0.2558139 53	0.744186047	0.3415468
	11	6	37	0.1621621 62	0.837837838	0.286160833
	13	12	25	0.48	0.52	0.148803633
	<b>15</b>	20	5	4	-3	<b>-0.446410899</b>

**Supplemental Table 5: Fresh weight in different days old unfed and 10µM curcumin fed Httex1pQ93 and Httex1pQ20 flies.**

<b>Age (in days)</b>	<b>Condition</b>	<b>Mean (µg/fly)</b>	<b><i>n</i></b>
<b>Day 0</b>	Httex1pQ20	1184.62	50
	Httex1pQ20 (10µM)	1201.84	50
	Httex1pQ93	1138.64	50
	Httex1pQ93 (10µM)	1144.6	50
<b>Day 3</b>	Httex1pQ20	1261.06	50
	Httex1pQ20 (10µM)	1281.52	50
	Httex1pQ93	1473.684	50
	Httex1pQ93 (10µM)	1348.06	50
<b>Day 5</b>	Httex1pQ20	1241.62	50
	Httex1pQ20 (10µM)	1299.82	50
	Httex1pQ93	1666.16	50
	Httex1pQ93 (10µM)	1593.7	50
<b>Day 7</b>	Httex1pQ20	1237.64	50
	Httex1pQ20 (10µM)	1258.46	50
	Httex1pQ93	1543.56	50
	Httex1pQ93 (10µM)	1385.44	50
<b>Day 9</b>	Httex1pQ20	1171.28	50
	Httex1pQ20 (10µM)	1197.016	50
	Httex1pQ93	1268.77	50
	Httex1pQ93 (10µM)	1248.5	50
<b>Day 11</b>	Httex1pQ20	1218.56	50
	Httex1pQ20 (10µM)	1161.06	50
	Httex1pQ93	1057	50
	Httex1pQ93 (10µM)	1201.6	50
<b>Day 13</b>	Httex1pQ20	1208.9	50
	Httex1pQ20 (10µM)	1258.58	50
	Httex1pQ93	1039.72	50
	Httex1pQ93 (10µM)	1090.713	50

**Supplemental Table 6: Significance levels in fresh body weight of different days old (0 to 13) Httex1pQ20 and Httex1pQ93 flies reared without and with 10 $\mu$ M concentration of curcumin.**

Age (in days)	(Httex1pQ20, Httex1pQ93)	(I) (0 and 10 $\mu$ M)	(J) (0 and 10 $\mu$ M)	Mean Difference (I-J)	Sig. <sup>b</sup>
<b>Day 0</b>	Httex1pQ20	0	10 $\mu$ M	-17.220	.643
		10 $\mu$ M	0	17.220	.643
	Httex1pQ93	0	10 $\mu$ M	-5.960	.872
		10 $\mu$ M	0	5.960	.872
<b>Day 3</b>	Httex1pQ20	0	10 $\mu$ M	-20.460	.582
		10 $\mu$ M	0	20.460	.582
	Httex1pQ93	0	10 $\mu$ M	125.624*	<b>.001</b>
		10 $\mu$ M	0	-125.624*	<b>.001</b>
<b>Day 5</b>	Httex1pQ20	0	10 $\mu$ M	-58.200	.119
		10 $\mu$ M	0	58.200	.119
	Httex1pQ93	0	10 $\mu$ M	72.460	<b>.053</b>
		10 $\mu$ M	0	-72.460	<b>.053</b>
<b>Day 7</b>	Httex1pQ20	0	10 $\mu$ M	-20.820	.575
		10 $\mu$ M	0	20.820	.575
	Httex1pQ93	0	10 $\mu$ M	158.120*	<b>&lt;0.0001</b>
		10 $\mu$ M	0	-158.120*	<b>&lt;0.0001</b>
<b>Day 9</b>	Httex1pQ20	0	10 $\mu$ M	-25.736	.489
		10 $\mu$ M	0	25.736	.489
	Httex1pQ93	0	10 $\mu$ M	20.278	.585
		10 $\mu$ M	0	-20.278	.585
<b>Day 11</b>	Httex1pQ20	0	10 $\mu$ M	57.500	.123
		10 $\mu$ M	0	-57.500	.123
	Httex1pQ93	0	10 $\mu$ M	-141.980*	<b>&lt;0.0001</b>
		10 $\mu$ M	0	141.980*	<b>&lt;0.0001</b>
<b>Day 13</b>	Httex1pQ20	0	10 $\mu$ M	-49.680	.182

	10 $\mu$ M	0	49.680	.182
Httex1pQ93	0	10 $\mu$ M	-50.993	.171
	10 $\mu$ M	0	50.993	.171

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments)

The significance values were calculated by ANOVA and pairwise comparisons.

**Supplemental Table 7: Dry weight of different days old untreated and 10 $\mu$ M curcumin supplemented Httex1pQ20 and Httex1pQ93 flies.**

Age (in days)	Condition	Mean ( $\mu$ g/fly)	<i>n</i>
<b>Day 0</b>	Httex1pQ20	348.04	50
	Httex1pQ20 (10 $\mu$ M)	357.24	50
	Httex1pQ93	355.74	50
	Httex1pQ93 (10 $\mu$ M)	351.38	50
<b>Day 3</b>	Httex1pQ20	448.767	50
	Httex1pQ20 (10 $\mu$ M)	457.92	50
	Httex1pQ93	474.8	50
	Httex1pQ93 (10 $\mu$ M)	430.34	50
<b>Day 5</b>	Httex1pQ20	424.28	50
	Httex1pQ20 (10 $\mu$ M)	457	50
	Httex1pQ93	556.1	50
	Httex1pQ93 (10 $\mu$ M)	533.52	50
<b>Day 7</b>	Httex1pQ20	432.52	50
	Httex1pQ20 (10 $\mu$ M)	438.42	50
	Httex1pQ93	520.92	50
	Httex1pQ93 (10 $\mu$ M)	454.54	50
<b>Day 9</b>	Httex1pQ20	394.44	50
	Httex1pQ20 (10 $\mu$ M)	397.78	50
	Httex1pQ93	389.94	50
	Httex1pQ93 (10 $\mu$ M)	399.24	50
<b>Day 11</b>	Httex1pQ20	416.96	50



	Httex1pQ20 (10 $\mu$ M)	392.36	50
	Httex1pQ93	324.42	50
	Httex1pQ93 (10 $\mu$ M)	374.8	50
<b>Day 13</b>	Httex1pQ20	411.42	50
	Httex1pQ20 (10 $\mu$ M)	434.2	50
	Httex1pQ93	330.12	50
	Httex1pQ93 (10 $\mu$ M)	341.833	50

**Supplemental Table 8: Significance levels in dry weight of different days old Httex1pQ20 and Httex1pQ93 flies reared without and with 10 $\mu$ M dose of curcumin.**

<b>Age (in days)</b>	<b>(Httex1pQ20, Httex1pQ93)</b>	<b>(I) (0 and 10<math>\mu</math>M)</b>	<b>(J) (0 and 10<math>\mu</math>M)</b>	<b>Mean Difference (I-J)</b>	<b>Sig.<sup>b</sup></b>
<b>Day 0</b>	Httex1pQ20	0	10 $\mu$ M	-9.200	.371
		10 $\mu$ M	0	9.200	.371
	Httex1pQ93	0	10 $\mu$ M	4.360	.671
		10 $\mu$ M	0	-4.360	.671
<b>Day 3</b>	Httex1pQ20	0	10 $\mu$ M	-9.153	.374
		10 $\mu$ M	0	9.153	.374
	Httex1pQ93	0	10 $\mu$ M	44.469*	<b>&lt;0.0001</b>
		10 $\mu$ M	0	-44.469*	<b>&lt;0.0001</b>
<b>Day 5</b>	Httex1pQ20	0	10 $\mu$ M	-32.720*	<b>.002</b>
		10 $\mu$ M	0	32.720*	<b>.002</b>
	Httex1pQ93	0	10 $\mu$ M	22.580*	<b>.030</b>
		10 $\mu$ M	0	-22.580*	<b>.030</b>
<b>Day 7</b>	Httex1pQ20	0	10 $\mu$ M	-5.900	.566
		10 $\mu$ M	0	5.900	.566
	Httex1pQ93	0	10 $\mu$ M	66.380*	<b>&lt;0.0001</b>
		10 $\mu$ M	0	-66.380*	<b>&lt;0.0001</b>
<b>Day 9</b>	Httex1pQ20	0	10 $\mu$ M	-3.340	.745
		10 $\mu$ M	0	3.340	.745

	Httex1pQ93	0	10 $\mu$ M	-9.300	.366
		10 $\mu$ M	0	9.300	.366
<b>Day 11</b>	Httex1pQ20	0	10 $\mu$ M	24.600*	<b>.018</b>
		10 $\mu$ M	0	-24.600*	<b>.018</b>
	Httex1pQ93	0	10 $\mu$ M	-50.260*	<b>&lt;0.0001</b>
		10 $\mu$ M	0	50.260*	<b>&lt;0.0001</b>
<b>Day 13</b>	Httex1pQ20	0	10 $\mu$ M	-22.780*	<b>.028</b>
		10 $\mu$ M	0	22.780*	<b>.028</b>
	Httex1pQ93	0	10 $\mu$ M	-11.713	.256
		10 $\mu$ M	0	11.713	.256

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The significance values were obtained after performing ANOVA and pairwise comparisons.

**Supplemental Table 9: Water content in different days old untreated and 10 $\mu$ M curcumin treated Httex1pQ20 and Httex1pQ93 flies.**

<b>Age (in days)</b>	<b>Condition</b>	<b>Mean (<math>\mu</math>g/fly)</b>	<b>n</b>
<b>Day 0</b>	Httex1pQ20	836.58	50
	Httex1pQ20 (10 $\mu$ M)	844.6	50
	Httex1pQ93	782.9	50
	Httex1pQ93 (10 $\mu$ M)	793.22	50
<b>Day 3</b>	Httex1pQ20	812.293	50
	Httex1pQ20 (10 $\mu$ M)	823.6	50
	Httex1pQ93	998.876	50
	Httex1pQ93 (10 $\mu$ M)	917.72	50
<b>Day 5</b>	Httex1pQ20	817.34	50
	Httex1pQ20 (10 $\mu$ M)	842.82	50
	Httex1pQ93	1110.06	50
	Httex1pQ93 (10 $\mu$ M)	1060.18	50
<b>Day 7</b>	Httex1pQ20	805.12	50
	Httex1pQ20 (10 $\mu$ M)	820.04	50

	Httex1pQ93	1022.64	50
	Httex1pQ93 (10 $\mu$ M)	930.9	50
<b>Day 9</b>	Httex1pQ20	776.84	50
	Httex1pQ20 (10 $\mu$ M)	799.236	50
	Httex1pQ93	878.838	50
	Httex1pQ93 (10 $\mu$ M)	849.26	50
<b>Day 11</b>	Httex1pQ20	801.6	50
	Httex1pQ20 (10 $\mu$ M)	768.7	50
	Httex1pQ93	735.2	50
	Httex1pQ93 (10 $\mu$ M)	826.92	50
<b>Day 13</b>	Httex1pQ20	797.48	50
	Httex1pQ20 (10 $\mu$ M)	824.38	50
	Httex1pQ93	709.6	50
	Httex1pQ93 (10 $\mu$ M)	748.88	50

**Supplemental Table 10: Significance levels in water content of 0 to 13 days old Httex1pQ20 and Httex1pQ93 flies supplemented without and with 10 $\mu$ M dose of curcumin.**

<b>Days</b>	<b>(Httex1pQ20, Httex1pQ93)</b>	<b>(I) (0 and 10<math>\mu</math>M)</b>	<b>(J) (0 and 10<math>\mu</math>M)</b>	<b>Mean Difference (I-J)</b>	<b>Sig.<sup>b</sup></b>
<b>Day 0</b>	Httex1pQ20	0	10 $\mu$ M	-8.020	.794
		10 $\mu$ M	0	8.020	.794
	Httex1pQ93	0	10 $\mu$ M	-10.320	.737
		10 $\mu$ M	0	10.320	.737
<b>Day 3</b>	Httex1pQ20	0	10 $\mu$ M	-11.307	.713
		10 $\mu$ M	0	11.307	.713
	Httex1pQ93	0	10 $\mu$ M	81.156*	<b>.009</b>
		10 $\mu$ M	0	-81.156*	<b>.009</b>
<b>Day 5</b>	Httex1pQ20	0	10 $\mu$ M	-25.480	.407

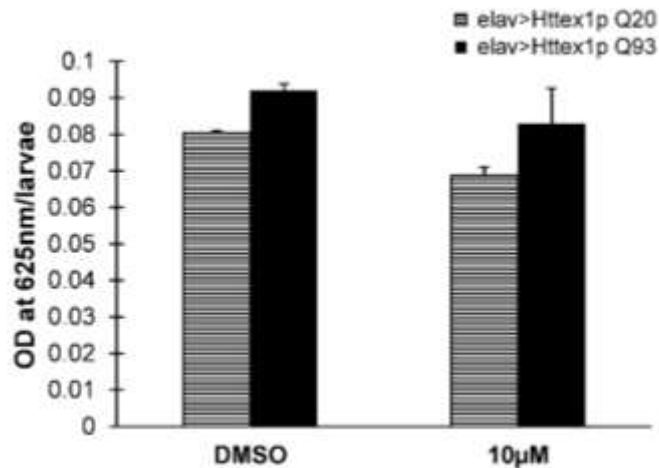
		10μM	0	25.480	.407
	Httex1pQ93	0	10μM	49.880	.106
		10μM	0	-49.880	.106
<b>Day 7</b>	Httex1pQ20	0	10μM	-14.920	.627
		10μM	0	14.920	.627
	Httex1pQ93	0	10μM	91.740*	<b>.003</b>
		10μM	0	-91.740*	<b>.003</b>
<b>Day 9</b>	Httex1pQ20	0	10μM	-22.396	.466
		10μM	0	22.396	.466
	Httex1pQ93	0	10μM	29.578	.337
		10μM	0	-29.578	.337
<b>Day 11</b>	Httex1pQ20	0	10μM	32.900	.285
		10μM	0	-32.900	.285
	Httex1pQ93	0	10μM	-91.720*	<b>.003</b>
		10μM	0	91.720*	<b>.003</b>
<b>Day 13</b>	Httex1pQ20	0	10μM	-26.900	.382
		10μM	0	26.900	.382
	Httex1pQ93	0	10μM	-39.280	.203
		10μM	0	39.280	.203

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The significance values were calculated by ANOVA and pairwise comparisons.



**Supplemental Figure S2: Feeding behavior remain unchanged at larval stage upon curcumin supplementation.** Feeding of normal (elav>Httex1p Q20) and diseased (elav>Httex1p Q93) female larvae reared on control or 10µM curcumin supplemented diet was measured using colorimetric dye intake assay. No difference was observed in the food intake of control and diseased larvae supplemented without or with effective concentration of curcumin. Data was analyzed using two-way ANOVA and values are represented as mean  $\pm$  S.E.M. For each group,  $n = 20$  larvae.

**Supplemental Table 11: Dye OD upon larval feeding of untreated and 10µM curcumin treated Httex1pQ20 and Httex1pQ93 genotypes.**

Condition	Mean	<i>n</i>
Httex1pQ20	0.080565	20
Httex1pQ20 (10µM)	0.068615	20
Httex1pQ93	0.09203	20
Httex1pQ93 (10µM)	0.082965	20

**Supplemental Table 12: Dye OD upon adult feeding of 6, 8 and 12 days old Httex1pQ20 and Httex1pQ93 flies reared without and with 10µM curcumin supplementation.**

Age (in days)	Condition	Mean	<i>n</i>
Day 6	Httex1pQ20	0.01331	20
	Httex1pQ20 (10µM)	0.01581	20
	Httex1pQ93	0.01201	20

	Httex1pQ93 (10 $\mu$ M)	0.01595	20
<b>Day 8</b>	Httex1pQ20	0.01105	20
	Httex1pQ20 (10 $\mu$ M)	0.01173	20
	Httex1pQ93	0.01041	20
	Httex1pQ93 (10 $\mu$ M)	0.010016	20
<b>Day 12</b>	Httex1pQ20	0.0114	20
	Httex1pQ20 (10 $\mu$ M)	0.01095	20
	Httex1pQ93	0.01005	20
	Httex1pQ93 (10 $\mu$ M)	0.01081	20

**Supplemental Table 13: Significance levels in dye OD after adult food intake of 6, 8 and 12 days old Httex1pQ20 and Httex1pQ93 flies reared without and with 10 $\mu$ M dose of curcumin.**

Age (in days)	(Httex1pQ20, Httex1pQ93)	(I) (0 and 10 $\mu$ M)	(J) (0 and 10 $\mu$ M)	Mean Difference (I-J)	Sig. <sup>b</sup>
<b>Day 6</b>	Httex1pQ20	0	10 $\mu$ M	-.003	.404
		10 $\mu$ M	0	.003	.404
	Httex1pQ93	0	10 $\mu$ M	-.004	.193
		10 $\mu$ M	0	.004	.193
<b>Day 8</b>	Httex1pQ20	0	10 $\mu$ M	-.001	.820
		10 $\mu$ M	0	.001	.820
	Httex1pQ93	0	10 $\mu$ M	.000	.895
		10 $\mu$ M	0	.000	.895
<b>Day 12</b>	Httex1pQ20	0	10 $\mu$ M	.000	.881
		10 $\mu$ M	0	.000	.881
	Httex1pQ93	0	10 $\mu$ M	-.001	.797
		10 $\mu$ M	0	.001	.797

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The statistical values were obtained after performing ANOVA and pairwise comparisons.

**Supplemental Table 14: Protein content in different days old untreated and 10µM curcumin treated Httex1pQ20 and Httex1pQ93 flies.**

<b>Age (in days)</b>	<b>Condition</b>	<b>Mean (µg/fly)</b>	<b><i>n</i></b>
<b>Day 0</b>	Httex1pQ20	246.222	20
	Httex1pQ20 (10µM)	231.958	20
	Httex1pQ93	255.03	20
	Httex1pQ93 (10µM)	253.24	20
<b>Day 3</b>	Httex1pQ20	309	20
	Httex1pQ20 (10µM)	302.93	20
	Httex1pQ93	319.18	20
	Httex1pQ93 (10µM)	326.99	20
<b>Day 5</b>	Httex1pQ20	339.819	20
	Httex1pQ20 (10µM)	350.388	20
	Httex1pQ93	343.17	20
	Httex1pQ93 (10µM)	355.08	20
<b>Day 7</b>	Httex1pQ20	315.625	20
	Httex1pQ20 (10µM)	318.736	20
	Httex1pQ93	342.9	20
	Httex1pQ93 (10µM)	335.04	20
<b>Day 9</b>	Httex1pQ20	282.583	20
	Httex1pQ20 (10µM)	321.444	20
	Httex1pQ93	319.36	20
	Httex1pQ93 (10µM)	313.33	20
<b>Day 11</b>	Httex1pQ20	301.083	20
	Httex1pQ20 (10µM)	278.93	20
	Httex1pQ93	279.57	20
	Httex1pQ93 (10µM)	269.5	20
<b>Day 13</b>	Httex1pQ20	285.375	20
	Httex1pQ20 (10µM)	277.972	20
	Httex1pQ93	268.92	20
	Httex1pQ93 (10µM)	261.71	20

**Supplemental Table 15: Significance levels in protein content of 0 to 13 days old Httex1pQ20 and Httex1pQ93 flies reared on food supplemented without and with 10 $\mu$ M concentration of curcumin.**

<b>Age (in days)</b>	<b>(Httex1pQ20, Httex1pQ93)</b>	<b>(I) (0 and 10<math>\mu</math>M)</b>	<b>(J) (0 and 10<math>\mu</math>M)</b>	<b>Mean Difference (I-J)</b>	<b>Sig.<sup>b</sup></b>
<b>Day 0</b>	Httex1pQ20	0	10 $\mu$ M	14.264	.457
		10 $\mu$ M	0	-14.264	.457
	Httex1pQ93	0	10 $\mu$ M	1.792	.925
		10 $\mu$ M	0	-1.792	.925
<b>Day 3</b>	Httex1pQ20	0	10 $\mu$ M	6.069	.751
		10 $\mu$ M	0	-6.069	.751
	Httex1pQ93	0	10 $\mu$ M	-7.806	.683
		10 $\mu$ M	0	7.806	.683
<b>Day 5</b>	Httex1pQ20	0	10 $\mu$ M	-10.569	.581
		10 $\mu$ M	0	10.569	.581
	Httex1pQ93	0	10 $\mu$ M	-11.917	.534
		10 $\mu$ M	0	11.917	.534
<b>Day 7</b>	Httex1pQ20	0	10 $\mu$ M	-3.111	.871
		10 $\mu$ M	0	3.111	.871
	Httex1pQ93	0	10 $\mu$ M	9.875	.606
		10 $\mu$ M	0	-9.875	.606
<b>Day 9</b>	Httex1pQ20	0	10 $\mu$ M	-38.861 <sup>*</sup>	.044
		10 $\mu$ M	0	38.861 <sup>*</sup>	.044
	Httex1pQ93	0	10 $\mu$ M	6.028	.753
		10 $\mu$ M	0	-6.028	.753
<b>Day 11</b>	Httex1pQ20	0	10 $\mu$ M	22.153	.248
		10 $\mu$ M	0	-22.153	.248
	Httex1pQ93	0	10 $\mu$ M	10.069	.599
		10 $\mu$ M	0	-10.069	.599
<b>Day 13</b>	Httex1pQ20	0	10 $\mu$ M	7.403	.699



	10μM	0	-7.403	.699
Httex1pQ93	0	10μM	7.208	.706
	10μM	0	-7.208	.706

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

P-values were calculated by ANOVA and pairwise comparisons.

**Supplemental Table 16: Glycogen content in different days old untreated and 10μM curcumin treated Httex1pQ20 and Httex1pQ93 flies.**

Age (in days)	Condition	Mean (μg/fly)	<i>n</i>
<b>Day 0</b>	Httex1pQ20	24.547	20
	Httex1pQ20 (10μM)	22.833	20
	Httex1pQ93	24.82	20
	Httex1pQ93 (10μM)	24.793	20
<b>Day 3</b>	Httex1pQ20	49.01	20
	Httex1pQ20 (10μM)	53.398	20
	Httex1pQ93	66.85	20
	Httex1pQ93 (10μM)	65.75	20
<b>Day 5</b>	Httex1pQ20	61.23	20
	Httex1pQ20 (10μM)	63.768	20
	Httex1pQ93	76.11	20
	Httex1pQ93 (10μM)	73.817	20
<b>Day 7</b>	Httex1pQ20	53.14	20
	Httex1pQ20 (10μM)	53.933	20
	Httex1pQ93	66.58	20
	Httex1pQ93 (10μM)	67.022	20
<b>Day 9</b>	Httex1pQ20	49.057	20
	Httex1pQ20 (10μM)	51.577	20
	Httex1pQ93	46.12	20
	Httex1pQ93 (10μM)	44.877	20
<b>Day 11</b>	Httex1pQ20	42.28	20

	Httex1pQ20 (10μM)	40.422	20
	Httex1pQ93	25.77	20
	Httex1pQ93 (10μM)	27.84	20
<b>Day 13</b>	Httex1pQ20	32.51	20
	Httex1pQ20 (10μM)	36.57	20
	Httex1pQ93	27.94	20
	Httex1pQ93 (10μM)	26.572	20

**Supplemental Table 17: Significance levels in glycogen content of different days old Httex1pQ20 and Httex1pQ93 flies reared on food supplemented without and with 10μM dose of curcumin.**

<b>Age (in days)</b>	<b>(Httex1pQ20, Httex1pQ93)</b>	<b>(I) (0 and 10μM)</b>	<b>(J) (0 and 10μM)</b>	<b>Mean Difference (I-J)</b>	<b>Sig.<sup>b</sup></b>
<b>Day 0</b>	Httex1pQ20	0	10μM	1.715	.745
		10μM	0	-1.715	.745
	Httex1pQ93	0	10μM	.021	.997
		10μM	0	-.021	.997
<b>Day 3</b>	Httex1pQ20	0	10μM	-4.387	.405
		10μM	0	4.387	.405
	Httex1pQ93	0	10μM	1.098	.835
		10μM	0	-1.098	.835
<b>Day 5</b>	Httex1pQ20	0	10μM	-2.530	.631
		10μM	0	2.530	.631
	Httex1pQ93	0	10μM	2.295	.663
		10μM	0	-2.295	.663
<b>Day 7</b>	Httex1pQ20	0	10μM	-.788	.881
		10μM	0	.788	.881
	Httex1pQ93	0	10μM	-.440	.933
		10μM	0	.440	.933
<b>Day 9</b>	Httex1pQ20	0	10μM	-1.775	.736

		10 $\mu$ M	0	1.775	.736
	Httex1pQ93	0	10 $\mu$ M	1.238	.814
		10 $\mu$ M	0	-1.238	.814
<b>Day 11</b>	Httex1pQ20	0	10 $\mu$ M	1.923	.715
		10 $\mu$ M	0	-1.923	.715
	Httex1pQ93	0	10 $\mu$ M	-2.067	.695
		10 $\mu$ M	0	2.067	.695
<b>Day 13</b>	Httex1pQ20	0	10 $\mu$ M	-4.068	.440
		10 $\mu$ M	0	4.068	.440
	Httex1pQ93	0	10 $\mu$ M	1.368	.795
		10 $\mu$ M	0	-1.368	.795

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The p-values were calculated by ANOVA and pairwise comparisons.

**Supplemental Table 18: Trehalose content in different days old untreated and 10 $\mu$ M curcumin treated Httex1pQ20 and Httex1pQ93 flies.**

Age (in days)	Condition	Mean ( $\mu$ g/fly)	<i>n</i>
<b>Day 0</b>	Httex1pQ20	5.5055	20
	Httex1pQ20 (10 $\mu$ M)	5.563	20
	Httex1pQ93	4.947	20
	Httex1pQ93 (10 $\mu$ M)	4.713	20
<b>Day 3</b>	Httex1pQ20	12.233	20
	Httex1pQ20 (10 $\mu$ M)	10.261	20
	Httex1pQ93	15.322	20
	Httex1pQ93 (10 $\mu$ M)	14.452	20
<b>Day 5</b>	Httex1pQ20	12.394	20
	Httex1pQ20 (10 $\mu$ M)	11.161	20
	Httex1pQ93	13.005	20
	Httex1pQ93 (10 $\mu$ M)	11.816	20
<b>Day 7</b>	Httex1pQ20	11.247	20
	Httex1pQ20 (10 $\mu$ M)	10.297	20

	Httex1pQ93	12.594	20
	Httex1pQ93 (10µM)	8.0027	20
<b>Day 9</b>	Httex1pQ20	8.611	20
	Httex1pQ20 (10µM)	7.672	20
	Httex1pQ93	8.177	20
	Httex1pQ93 (10µM)	7.363	20
<b>Day 11</b>	Httex1pQ20	8.672	20
	Httex1pQ20 (10µM)	8.688	20
	Httex1pQ93	8.455	20
	Httex1pQ93 (10µM)	7.452	20
<b>Day 13</b>	Httex1pQ20	9.308	20
	Httex1pQ20 (10µM)	9.308	20
	Httex1pQ93	8.427	20
	Httex1pQ93 (10µM)	7.419	20

**Supplemental Table 19: Significance levels in trehalose content of different days old Httex1pQ20 and Httex1pQ93 flies reared on food supplemented without and with 10µM dose of curcumin.**

Age (in days)	(Httex1pQ20, Httex1pQ93)	(I) (0 and 10µM)	(J) (0 and 10µM)	Mean Difference (I-J)	Sig. <sup>b</sup>
<b>Day 0</b>	Httex1pQ20	0	10µM	-.164	.857
		10µM	0	.164	.857
	Httex1pQ93	0	10µM	.233	.798
		10µM	0	-.233	.798
<b>Day 3</b>	Httex1pQ20	0	10µM	1.972*	<b>.034</b>
		10µM	0	-1.972*	<b>.034</b>
	Httex1pQ93	0	10µM	.869	.343
		10µM	0	-.869	.343
<b>Day 5</b>	Httex1pQ20	0	10µM	1.233	.180
		10µM	0	-1.233	.180

	Httex1pQ93	0	10 $\mu$ M	1.189	.196
		10 $\mu$ M	0	-1.189	.196
<b>Day 7</b>	Httex1pQ20	0	10 $\mu$ M	.950	.300
		10 $\mu$ M	0	-.950	.300
	Httex1pQ93	0	10 $\mu$ M	4.592*	<b>&lt;0.0001</b>
		10 $\mu$ M	0	-4.592*	<b>&lt;0.0001</b>
<b>Day 9</b>	Httex1pQ20	0	10 $\mu$ M	.939	.306
		10 $\mu$ M	0	-.939	.306
	Httex1pQ93	0	10 $\mu$ M	.814	.374
		10 $\mu$ M	0	-.814	.374
<b>Day 11</b>	Httex1pQ20	0	10 $\mu$ M	-.017	.985
		10 $\mu$ M	0	.017	.985
	Httex1pQ93	0	10 $\mu$ M	1.003	.274
		10 $\mu$ M	0	-1.003	.274
<b>Day 13</b>	Httex1pQ20	0	10 $\mu$ M	-2.220E-15	1.000
		10 $\mu$ M	0	2.220E-15	1.000
	Httex1pQ93	0	10 $\mu$ M	1.008	.272
		10 $\mu$ M	0	-1.008	.272

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The significance values were calculated by ANOVA and pairwise comparisons.

**Supplemental Table 20: Lipid content in different days old untreated and 10 $\mu$ M curcumin treated Httex1pQ20 and Httex1pQ93 flies.**

Age (in days)	Condition	Mean ( $\mu$ g/fly)	<i>n</i>
<b>Day 0</b>	Httex1pQ20	99.8	50
	Httex1pQ20 (10 $\mu$ M)	103.62	50
	Httex1pQ93	107.64	50
	Httex1pQ93 (10 $\mu$ M)	106.98	50
<b>Day 3</b>	Httex1pQ20	100.767	50

	Httex1pQ20 (10µM)	101.62	50
	Httex1pQ93	110	50
	Httex1pQ93 (10µM)	96.76	50
<b>Day 5</b>	Httex1pQ20	84.26	50
	Httex1pQ20 (10µM)	95.58	50
	Httex1pQ93	124.26	50
	Httex1pQ93 (10µM)	125.58	50
<b>Day 7</b>	Httex1pQ20	87.8	50
	Httex1pQ20 (10µM)	90.2	50
	Httex1pQ93	110.58	50
	Httex1pQ93 (10µM)	81.28	50
<b>Day 9</b>	Httex1pQ20	84.58	50
	Httex1pQ20 (10µM)	86.06	50
	Httex1pQ93	63.78	50
	Httex1pQ93 (10µM)	52.12	50
<b>Day 11</b>	Httex1pQ20	75.64	50
	Httex1pQ20 (10µM)	81.48	50
	Httex1pQ93	53.3	50
	Httex1pQ93 (10µM)	44.204	50
<b>Day 13</b>	Httex1pQ20	90.1	50
	Httex1pQ20 (10µM)	94.04	50
	Httex1pQ93	27.65	50
	Httex1pQ93 (10µM)	26.17	50

**Supplemental Table 21: Significance levels in lipid content of 0 to 13 days old Httex1pQ20 and Httex1pQ93 flies reared on food supplemented without and with 10µM dose of curcumin.**

Age (in days)	(Httex1pQ20, Httex1pQ93)	(I) (0 and 10µM)	(J) (0 and 10µM)	Mean Difference (I-J)	Sig. <sup>b</sup>
<b>Day 0</b>	Httex1pQ20	0	10µM	-3.820	.486
		10µM	0	3.820	.486

	Httex1pQ93	0	10μM	.660	.904
		10μM	0	-.660	.904
<b>Day 3</b>	Httex1pQ20	0	10μM	-.853	.876
		10μM	0	.853	.876
	Httex1pQ93	0	10μM	13.253*	<b>.017</b>
		10μM	0	-13.253*	<b>.017</b>
<b>Day 5</b>	Httex1pQ20	0	10μM	-11.320*	<b>.040</b>
		10μM	0	11.320*	<b>.040</b>
	Httex1pQ93	0	10μM	-1.320	.809
		10μM	0	1.320	.809
<b>Day 7</b>	Httex1pQ20	0	10μM	-2.400	.661
		10μM	0	2.400	.661
	Httex1pQ93	0	10μM	29.300*	<b>&lt;0.0001</b>
		10μM	0	-29.300*	<b>&lt;0.0001</b>
<b>Day 9</b>	Httex1pQ20	0	10μM	-1.480	.787
		10μM	0	1.480	.787
	Httex1pQ93	0	10μM	11.660*	<b>.035</b>
		10μM	0	-11.660*	<b>.035</b>
<b>Day 11</b>	Httex1pQ20	0	10μM	-5.840	.287
		10μM	0	5.840	.287
	Httex1pQ93	0	10μM	9.096	.099
		10μM	0	-9.096	.099
<b>Day 13</b>	Httex1pQ20	0	10μM	-3.940	.472
		10μM	0	3.940	.472
	Httex1pQ93	0	10μM	1.480	.787
		10μM	0	-1.480	.787

Based on estimated marginal means

\*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The statistical values were calculated by ANOVA and pairwise comparisons.

**Supplemental Table 22: Surface area occupied by lipid droplets in the abdominal fat body in different days old (3, 7, 9, 11 and 13) normal and diseased flies supplemented without and with 10 $\mu$ M curcumin.**

<b>Age (in days)</b>	<b>Condition</b>	<b>Mean</b> <b>[Surface area</b> <b>occupied by</b> <b>LDs (<math>\mu\text{m}^2</math>)]</b>	<b><i>n</i></b>
<b>Day 3</b>	Httex1pQ20 (10 $\mu$ M)	6722.019881	5
	Httex1pQ93	7003.291834	5
	Httex1pQ93 (10 $\mu$ M)	6729.87681	5
<b>Day 7</b>	Httex1pQ20 (10 $\mu$ M)	6480.937236	5
	Httex1pQ93	7274.12294	5
	Httex1pQ93 (10 $\mu$ M)	6052.012224	5
<b>Day 9</b>	Httex1pQ20 (10 $\mu$ M)	7926.329486	5
	Httex1pQ93	6506.184474	5
	Httex1pQ93 (10 $\mu$ M)	5429.623724	5
<b>Day 11</b>	Httex1pQ20 (10 $\mu$ M)	7947.126892	5
	Httex1pQ93	2409.823964	5
	Httex1pQ93 (10 $\mu$ M)	3358.245552	5
<b>Day 13</b>	Httex1pQ20 (10 $\mu$ M)	8687.697628	5
	Httex1pQ93	2481.977753	5
	Httex1pQ93 (10 $\mu$ M)	1733.565922	5

**Supplemental Table 23: Mean ROS intensity in 7 and 13 day old control, untreated and 10 $\mu$ M curcumin treated diseased flies.**

<b>Age (in days)</b>	<b>Condition</b>	<b>Mean</b> <b>ROS intensity</b>	<b><i>n</i></b>
<b>Day 7</b>	Httex1pQ20	403.85	7
	Httex1pQ93	420.556	7
	Httex1pQ93 (10 $\mu$ M)	343.682	7
<b>Day 13</b>	Httex1pQ20	443.206	7
	Httex1pQ93	576.25	7
	Httex1pQ93 (10 $\mu$ M)	427.488	7



**Supplemental Table 24: Relative dSREBP, *bmm*, *lipin* mRNA level in 7 and 13 day old Httex1pQ20 and Httex1pQ93 flies reared without and with 10 $\mu$ M curcumin supplementation.**

<b>Gene</b>	<b>Age (in days)</b>	<b>Condition</b>	<b>Mean</b>	<b><i>n</i></b>
<b>dSREBP</b>	Day 7	Httex1pQ20	1.160602066	36
		Httex1pQ20 (10 $\mu$ M)	0.502577221	36
		Httex1pQ93	1.066739216	36
		Httex1pQ93 (10 $\mu$ M)	0.90073574	36
	Day 13	Httex1pQ20	0.433167521	36
		Httex1pQ20 (10 $\mu$ M)	1.159997058	36
		Httex1pQ93	0.650322113	36
		Httex1pQ93 (10 $\mu$ M)	1.691164267	36
<b><i>bmm</i></b>	Day 7	Httex1pQ20	0.878094	36
		Httex1pQ20 (10 $\mu$ M)	0.780336	36
		Httex1pQ93	1.173514	36
		Httex1pQ93 (10 $\mu$ M)	1.203002	36
	Day 13	Httex1pQ20	0.716144	36
		Httex1pQ20 (10 $\mu$ M)	0.912006	36
		Httex1pQ93	1.354708	36
		Httex1pQ93 (10 $\mu$ M)	1.949996	36
<b><i>lipin</i></b>	Day 7	Httex1pQ20	0.704809	36
		Httex1pQ20 (10 $\mu$ M)	0.660259	36
		Httex1pQ93	1.14853	36
		Httex1pQ93 (10 $\mu$ M)	1.437892	36
	Day 13	Httex1pQ20	1.170937	36
		Httex1pQ20 (10 $\mu$ M)	0.854101	36
		Httex1pQ93	1.561263	36
		Httex1pQ93 (10 $\mu$ M)	2.411679	36