

Supplemental Table S1 Changes in pain VAS and K-WOMAC before and after 12weeks of intake (PP analysis).

	GGE03 group (n=49)				Placebo group (n=45)				<i>p</i> -value ^b
	Baseline	12 week	Change value	<i>p</i> -value ^a	Baseline	12 week	Change value	<i>p</i> -value ^a	
Pain VAS (mm)	44.18 ± 5.53	28.98 ± 6.45	-15.20 ± 5.86	<.0001	42.39 ± 5.65	39.13 ± 6.52	-3.26 ± 5.60	0.0003	<.0001* **
K-WOMAC									
Total score	15.73 ± 5.96	5.73 ± 3.17	-10.00 ± 5.24	<.0001** *	13.78 ± 5.31	11.13 ± 4.06	-2.65 ± 5.51	0.002**	<.0001* **
Pain	3.84 ± 1.82	0.80 ± 0.82	-3.04 ± 1.81	<.0001** *	3.63 ± 1.78	2.52 ± 1.35	-1.11 ± 1.79	0.0001* **	<.0001* **
Stiffness	2.20 ± 0.61	0.84 ± 0.66	-1.37 ± 0.83	<.0001** *	1.98 ± 0.61	1.78 ± 0.66	-0.20 ± 0.65	0.048*	<.0001* **
Function	9.69 ± 4.42	4.10 ± 2.19	-5.59 ± 3.65	<.0001** *	8.17 ± 3.67	6.83 ± 2.61	-1.35 ± 3.52	0.013*	<.0001* **

Values are presented as mean ± SD. ^aAnalyzed by paired t-test between baseline and 12 weeks within each group. ^bAnalyzed by independent t-test for change value between the groups. **p*<0.05, ***p*<0.01, ****p*<0.001.

Supplemental Table S2 Changes in pain VAS and K-WOMAC before and after 12weeks of intake (ITT analysis)

	GGE03 group (n=50)				Placebo group (n=50)				<i>p</i> -value ^b
	Baseline	12 week	Change value	<i>p</i> -value ^a	Baseline	12 week	Change value	<i>p</i> -value ^a	
Pain VAS (mm)	44.10 ± 5.50	29.20 ± 6.57	-14.90 ± 6.19	<.0001	42.60 ± 5.55	39.60 ± 6.53	-3.00 ± 5.44	0.0003	<.0001* **
K-WOMAC									
Total score	15.74 ± 5.90	5.94 ± 3.46	-9.80 ± 5.37	<.0001** *	13.66 ± 5.12	11.16 ± 3.92	-2.50 ± 5.32	0.002**	<.0001* **
Pain	3.86 ± 1.81	0.88 ± 1.00	-2.98 ± 1.85	<.0001** *	3.56 ± 1.73	2.52 ± 1.30	-1.04 ± 1.74	0.0001* **	<.0001* **
Stiffness	2.20 ± 0.61	0.86 ± 0.67	-1.34 ± 0.85	<.0001** *	1.98 ± 0.59	1.80 ± 0.64	-0.18 ± 0.63	0.049*	<.0001* **
Function	9.68 ± 4.37	4.20 ± 2.28	-5.48 ± 3.70	<.0001** *	8.12 ± 3.53	6.84 ± 2.53	-1.28 ± 3.39	0.010*	<.0001* **

Values are presented as mean ± SD. ^aAnalyzed by paired t-test between baseline and 12 weeks within each group. ^bAnalyzed by independent t-test for change value between the groups. **p*<0.05, ***p*<0.01, ****p*<0.001.

Supplemental Table S3 Laboratory profiles before and after 12weeks of intake

	GGE03 group (n=50)				Placebo group (n=50)				<i>p</i> -value ^b
	Baseline	12 week	Change value	<i>p</i> -value ^a	Baseline	12 week	Change value	<i>p</i> -value ^a	
Complete Blood Count (CBC)									
Hemoglobin (g/dL)	13.77 ± 0.86	13.72 ± 0.88	-0.05 ± 0.48	0.486	13.97 ± 1.32	14.09 ± 1.47	0.11 ± 0.46	0.090	0.092
Hematocrit (%)	40.82 ± 2.66	41.18 ± 2.76	0.36 ± 1.97	0.203	41.45 ± 3.91	42.34 ± 4.64	0.89 ± 1.84	0.001**	0.168
WBC (K/UL)	5.34 ± 1.34	5.42 ± 1.50	0.08 ± 1.14	0.614	5.37 ± 1.07	5.68 ± 1.44	0.31 ± 1.29	0.100	0.358
RBC (M/UL)	4.39 ± 0.30	4.39 ± 0.31	0.00 ± 0.19	0.971	4.45 ± 0.38	4.50 ± 0.45	0.05 ± 0.18	0.072	0.217
Platelet (K/UL)	237.98 ± 62.75	241.10 ± 65.80	3.12 ± 36.74	0.551	238.00 ± 45.91	247.30 ± 56.10	9.30 ± 50.07	0.195	0.483
Biochemistry									
AST (U/L)	26.54 ± 7.35	27.62 ± 10.76	1.08 ± 9.13	0.407	25.10 ± 8.05	28.42 ± 15.11	3.32 ± 13.11	0.080	0.324
ALT (U/L)	23.84 ± 9.71	25.70 ± 15.72	1.86 ± 14.08	0.355	23.04 ± 10.76	23.48 ± 12.12	0.44 ± 9.70	0.750	0.559
gamma-GT (U/L)	21.44 ± 16.40	21.42 ± 14.55	-0.02 ± 7.42	0.985	25.04 ± 22.60	25.68 ± 22.13	0.64 ± 10.09	0.656	0.710
Total cholesterol (mg/dL)	206.58 ± 46.14	215.78 ± 44.77	9.20 ± 43.93	0.145	202.56 ± 36.59	205.32 ± 38.03	2.76 ± 25.65	0.450	0.373
LDL-C (mg/dL)	126.04 ± 37.93	127.20 ± 38.33	1.16 ± 30.06	0.786	124.24 ± 33.68	120.62 ± 30.49	-3.62 ± 23.74	0.286	0.380
HDL-C (mg/dL)	53.62 ± 11.58	57.60 ± 9.75	3.98 ± 9.76	0.006**	52.60 ± 12.25	56.70 ± 14.68	4.10 ± 8.44	0.001**	0.948
Albumin (g/dL)	4.31 ± 0.35	4.42 ± 0.29	0.11 ± 0.39	0.051	4.32 ± 0.28	4.39 ± 0.29	0.08 ± 0.34	0.123	0.643
Total protein (g/dL)	7.34 ± 0.49	7.53 ± 0.47	0.19 ± 0.66	0.042*	7.35 ± 0.39	7.50 ± 0.44	0.15 ± 0.46	0.023*	0.711
Total bilirubin (mg/dL)	0.98 ± 0.25	0.98 ± 0.25	0.00 ± 0.22	0.948	0.88 ± 0.24	0.96 ± 0.25	0.08 ± 0.21	0.012*	0.078
ALP (U/L)	62.52 ± 13.83	64.44 ± 17.69	1.92 ± 14.04	0.338	66.30 ± 20.42	70.04 ± 20.87	3.74 ± 12.81	0.044*	0.500
LD (U/L)	166.54 ± 30.58	174.06 ± 29.81	7.52 ± 32.20	0.105	160.36 ± 30.14	174.50 ± 35.44	14.14 ± 33.16	0.004**	0.314
Glucose (mg/dL)	103.98 ± 11.49	106.08 ± 12.31	2.10 ± 10.29	0.155	103.48 ± 9.40	106.28 ± 10.42	2.80 ± 9.96	0.053	0.730
BUN (mg/dL)	14.93 ± 4.25	15.04 ± 3.24	0.11 ± 3.59	0.829	15.08 ± 3.64	14.92 ± 3.05	-0.16 ± 3.67	0.756	0.709
Triglyceride (mg/dL)	118.52 ± 51.89	130.46 ± 56.83	11.94 ± 56.73	0.143	134.20 ± 74.94	124.64 ± 65.32	-9.56 ± 52.80	0.207	0.053
Creatinine (mg/dL)	0.85 ± 0.20	0.87 ± 0.19	0.01 ± 0.09	0.374	0.85 ± 0.17	0.86 ± 0.17	0.01 ± 0.13	0.576	0.971
CK (U/L)	113.12 ± 49.52	130.10 ± 96.26	16.98 ± 82.68	0.153	102.04 ± 45.03	151.68 ± 293.41	49.64 ± 289.24	0.231	0.446
Urinalysis									
pH	6.38 ± 1.00	6.36 ± 0.89	-0.02 ± 1.11	0.899	6.54 ± 0.96	6.51 ± 0.90	-0.03 ± 1.07	0.843	0.964
Specific gravity	1.02 ± 0.01	1.02 ± 0.01	0.00 ± 0.01	0.425	1.02 ± 0.01	1.02 ± 0.01	0.00 ± 0.01	0.390	0.240

Values are presented as mean ± SD. ^aAnalyzed by paired t-test between baseline and 12 weeks within each group. ^bAnalyzed by independent t-test for change value between the groups. **p*<0.05, ***p*<0.01