

Supplement 1 Effects of glutamine supplementation on plasma and hepatic triglyceride levels in chronic ethanol-fed rats^{1,2}

Group	Plasma (mg/dL)	Liver (mg/g liver)
CC	54.0 ± 24.6	12.0 ± 1.9
CE	48.1 ± 16.4	15.3 ± 0.5
GG	36.4 ± 13.8	14.6 ± 0.7
GE	46.6 ± 30.1	14.0 ± 1.5
GEG	31.5 ± 16.2	13.0 ± 1.0

¹Values were expressed as the mean ± SD.

²The CC group was fed the control diet for 8 weeks; the GG group was fed a glutamine-containing diet for 8 weeks; the CE group was fed the control diet the first 2 weeks and then an ethanol-containing diet for the next 6 weeks; the GE group was fed a glutamine-containing diet the first 2 weeks and then an ethanol-containing control diet for the next 6 weeks; the GEG group was fed a glutamine-containing diet for the first 2 weeks, and then a glutamine-containing diet with ethanol for the next 6 weeks.

Supplement 2 Effects of glutamine supplementation on amino acid composition in rats chronically fed ethanol^{1,2}

	Blood (μM)					Liver (μM)					Muscle (μM)				
	CC	CE	GG	GE	GEG	CC	CE	GG	GE	GEG	CC	CE	GG	GE	GEG
Val	166.37 ± 18.43	165.09 ± 32.31	137.09 ± 13.83	370.88 ± 232.93	310.77 ± 231.09	683.10 ± 4.49 ^a	463.85 ± 57.48 ^b	643.03 ± 23.60 ^a	662.39 ± 12.56 ^a	623.46 ± 80.80 ^a	144.04 ± 18.56	117.75 ± 18.65	130.98 ± 120.27	111.25 ± 16.78	89.22 ± 24.06
Tyr	145.71 ± 13.85	154.80 ± 13.36	154.11 ± 68.90	150.67 ± 42.24	147.55 ± 6.10	400.49 ± 37.62	484.23 ± 26.76	395.50 ± 100.87	432.19 ± 69.50	502.28 ± 33.43	163.56 ± 23.11	174.87 ± 82.70	151.15 ± 128.32	182.98 ± 43.29	213.23 ± 76.24
Thr	0.35 ± 0.60	0.06 ± 0.11	0.17 ± 0.29	0.00 ± 0.00	0.21 ± 0.37	9.48 ± 3.22 ^b	33.98 ± 23.68 ^a	4.68 ± 2.40 ^b	4.82 ± 2.91 ^b	7.36 ± 2.96 ^b	0.00 ± 0.00	0.39 ± 0.57	1.26 ± 1.90	1.04 ± 1.35	0.29 ± 0.51
Ser	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	11.87 ± 20.55	0.04 ± 0.06	0.00 ± 0.00
Pro	24.04 ± 1.63 ^b	25.92 ± 4.91 ^{ab}	23.91 ± 0.47 ^b	24.67 ± 0.77 ^b	29.84 ± 1.47 ^a	158.11 ± 19.35 ^b	227.65 ± 48.30 ^{ab}	317.12 ± 6.66 ^a	297.63 ± 49.09 ^a	223.29 ± 91.17 ^{ab}	21.26 ± 1.37 ^b	19.26 ± 1.00 ^b	34.42 ± 13.23 ^a	17.28 ± 2.36 ^b	15.77 ± 2.99 ^b
Phe	159.75 ± 23.48 ^{ab}	153.97 ± 18.72 ^{ab}	136.89 ± 4.29 ^b	154.48 ± 16.65 ^{ab}	176.98 ± 5.32 ^a	598.32 ± 0.58 ^{ab}	592.16 ± 2.62 ^{bc}	596.40 ± 2.99 ^{abc}	590.87 ± 5.82 ^c	598.82 ± 3.60 ^a	279.25 ± 26.64	186.05 ± 60.65	255.66 ± 230.49	213.48 ± 73.23	137.81 ± 22.67
Lys	1.57 ± 0.39	3.34 ± 2.86	1.79 ± 0.60	2.69 ± 0.72	2.66 ± 0.90	12.90 ± 3.69 ^c	18.95 ± 5.50 ^{ab}	22.81 ± 0.53 ^{ab}	22.54 ± 3.39 ^{ab}	29.78 ± 14.38 ^a	6.39 ± 1.49	4.01 ± 0.27	7.97 ± 4.46	5.50 ± 1.92	6.19 ± 2.06
Leu	165.78 ± 53.98	294.45 ± 113.12	298.90 ± 72.42	169.77 ± 37.03	230.88 ± 74.04	558.39 ± 11.11	543.53 ± 201.17	622.77 ± 77.04	674.87 ± 58.40	614.07 ± 111.96	322.07 ± 17.74 ^a	254.93 ± 151.22 ^b	206.54 ± 143.45 ^b	522.34 ± 117.05 ^a	385.48 ± 215.84 ^a
Ile	227.68 ± 41.22	249.81 ± 77.59	293.00 ± 22.15	215.63 ± 33.52	286.91 ± 87.46	668.15 ± 45.00 ^b	613.80 ± 13.65 ^c	725.33 ± 3.15 ^a	701.76 ± 8.82 ^{ab}	731.92 ± 43.65 ^a	235.60 ± 22.26	237.08 ± 79.68	225.30 ± 171.59	257.01 ± 82.55	227.51 ± 55.77
Gly	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	5.79 ± 10.03	0.00 ± 0.00	0.00 ± 0.00
Gln	7.22 ± 0.58 ^a	6.41 ± 0.57 ^a	6.05 ± 0.94 ^a	3.74 ± 1.44 ^b	5.61 ± 0.85 ^b	22.29 ± 12.53 ^a	11.18 ± 2.52 ^b	16.63 ± 7.21 ^b	10.53 ± 5.38 ^b	32.36 ± 10.06 ^a	10.96 ± 4.08	5.55 ± 2.00	23.70 ± 27.99	5.39 ± 0.50	8.32 ± 1.73
Glu	1.44 ± 0.36	1.37 ± 0.32	1.02 ± 0.22	1.02 ± 0.25	1.13 ± 0.19	60.70 ± 5.08 ^a	38.50 ± 7.71 ^b	56.11 ± 10.58 ^a	47.84 ± 6.75 ^{ab}	52.23 ± 11.73 ^{ab}	7.43 ± 2.92 ^{ab}	5.24 ± 1.18 ^{ab}	10.77 ± 7.05 ^a	3.77 ± 0.99 ^b	4.33 ± 0.81 ^b
Asp	0.00 ± 0.00	0.03 ± 0.06	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	61.85 ± 8.72 ^{ab}	51.78 ± 20.04 ^a	68.96 ± 4.36 ^{ab}	72.95 ± 7.13 ^a	72.58 ± 5.59 ^a	1.60 ± 0.56 ^{ab}	1.53 ± 0.06 ^{ab}	4.73 ± 4.71 ^a	0.21 ± 0.08 ^b	1.41 ± 1.59 ^{ab}
Asn	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.01	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
Arg	2.67 ± 0.57 ^a	1.24 ± 1.11 ^b	2.25 ± 0.31 ^{ab}	1.48 ± 0.71 ^{ab}	2.32 ± 0.35 ^{ab}	0.25 ± 0.17	0.39 ± 0.04	0.27 ± 0.25	0.19 ± 0.04	0.17 ± 0.05	2.00 ± 0.44	1.97 ± 0.61	5.14 ± 5.81	1.22 ± 0.11	1.28 ± 0.62
Cys	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
His	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	28.00 ± 9.00	28.81 ± 2.83	36.26 ± 0.76	27.96 ± 17.23	29.57 ± 21.59	7.36 ± 5.05	5.67 ± 4.12	8.35 ± 1.27	7.83 ± 0.86	9.64 ± 1.20
Ala	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	3.66 ± 0.28	4.75 ± 2.69	3.79 ± 0.16	4.39 ± 1.17	4.51 ± 1.24	1.52 ± 0.16	1.87 ± 1.07	1.31 ± 0.28	1.21 ± 0.18	2.60 ± 2.04
Met	14.34 ± 12.12	9.95 ± 7.20	7.52 ± 4.11	7.86 ± 0.74	13.98 ± 2.74	200.79 ± 87.97	82.78 ± 38.89	181.73 ± 50.97	148.29 ± 32.43	183.06 ± 101.58	27.58 ± 0.57	29.72 ± 1.72	28.85 ± 22.65	24.16 ± 3.17	23.43 ± 5.09
Try	20.93 ± 4.17	17.62 ± 5.27	15.22 ± 1.69	17.87 ± 3.86	17.82 ± 0.04	20.47 ± 1.13 ^a	12.24 ± 1.20 ^c	17.33 ± 1.57 ^{ab}	16.36 ± 1.06 ^b	19.35 ± 3.09 ^{ab}	10.50 ± 0.42 ^{ab}	13.82 ± 7.18 ^{ab}	8.20 ± 4.66 ^b	9.34 ± 0.13 ^{ab}	19.12 ± 10.09 ^a

¹Values are expressed as the mean ± standard deviation. Means with different superscript letters in the same row significantly differ (*p*<0.05).
²The CC group was fed the control diet for 8 weeks; the GG group was fed a glutamine-containing diet for 8 weeks; the CE group was fed the control diet the first 2 weeks and an ethanol-containing diet the next 6 weeks; the GE group was fed a glutamine-containing diet the first 2 weeks and then an ethanol-containing diet the next 6 weeks; the GEG group was fed a glutamine-containing diet the first 2 weeks, and then a glutamine-containing diet with ethanol the next 6 weeks. Val, valine; Tyr, tyrosine; Thr, threonine; S, serine; Pro, proline; Phe, phenylalanine; Lys, lysine; Leu, leucine; Ile, isoleucine; Gly, glycine; Gln, glutamine; Glu, glutamic acid; Asp, aspartic acid; Asn, asparagine; Arg, arginine; Cys, cysteine; His, histidine; Ala, alanine; Met, methionine; Try, tryptophan.