

COMPARISON OF THE CHEMICAL COMPOSITION OF MILK

	Volume per 100 ml whole milk									
	HUMAN						COW		GOAT	
	Colostrum ¹		Transitional Milk ²		Mature Milk		Mature milk			
	Value	Range	Value	Range	Value	Range	Value	Range	Value	Range
Water, g.	87	83-90	86	84-90	88	82-90	87	80-92	87	81-90
Calories, utilizable ³	57		63		65		65		68	
Total solids, g	12.8	10-17	13.6	10-16	12.4	10-17	12.7	8-20	13.4	10-19
Ash, g	.33	.2-.7	.24	.1-.4	.21	.1-.5	.72	.3-1.2	.77	.4-1.1
Protein, g	2.7	1-21	1.6	1-3	1.2	1-6	3.3	2-6	3.3	2-5
Amino Acids, total ⁴ g	1.20	.7-4.0	.94	.6-1.0	1.28	.9-1.6	3.3	2.7-4.1		
Casein, g	1.2	.3-5.2	.7	.4-1.8	.4	.04-.7	2.8	1.4-6.3	2.5	1.7-3.9
Lactalbumin, g			.8		.3	.1-.6	.4	.2-.6	.4	.4-.6
Lactoglobulin, g	3.5	.4-13	.5	.2-1.4	.2		.2	.1-.4	.3	
Whey protein, g	1.7				.6	.3-1.1	.6	.2-1.4	1.1	.8-2.0
Carbohydrate, g	5.3	1.1-7.9	6.6	4.8-8.4	7.0	4.2-9.2	4.8	2.1-6.1	4.7	3.3-6.4
Fat, g	2.9	.7-12.7	3.6	.4-9.6	3.8	.5-9.0	3.7	.9-9.8	4.1	1.2-8.4
Essential fatty acids, mg ⁵	246				346		99		168	
Vitamin A, estimated total ⁶ mg	.1	.02-.47	.1	.06-.2	.06	.01-.25	.04	.015-.95		
Ascorbic Acid, g	4.4	.4-10.4	5.4	2.7-9.0	4.3	0-11.2	1.8	.2-3.1	1.4	trace-3.2
Biotin, µg	.1	trace-.3	.4	trace-1.8	.4	trace-4.2	3.5	.2-11.0	6.3	4.7-8.3
Choline, µg					9	5-14	13	4-28		
Cobalamin ⁷ , µg	.04	.01-.015	.04	0-.07	trace		.56	.07-1.15	.02	0-.014
Vitamin D, calc. as calciferol ⁸ µg					.01	0-.25	.06	.01-.1		
Vitamin E, mg	1.3	.1-4	1.3	.5-3	.6	.1-1	.1			
Folic Acid Group ⁹ , µg	.05	.01-.15	.02	.015-.025	.2	.1-50	.2	.1-5	.03	0-.14
Inositol, mg					39	19-56	13	3-39	14	14-26
Vitamin K, calc. as K ₁ ¹⁰ , µg					2	0-17	8	0-33		
Niacin ¹¹ , µg	75	<10-143	175	60-360	172	66-690	85	19-150	273	200-320
Pantothenic Acid, µg	183	29-302	88	135-412	196	80-584	350	155-568	289	130-338
Pyridoxine Group ¹² , µg					11	2-22	48	3-95	7	4-13
Riboflavine, µg	29.6	12-50	33.2	27-49	42.6	13-100	157	20-342	114	76-650
Thiamine, µg	15	.5-82	6	0-26	16	<1-43	42	31-90	48	32-68
Calcium, mg	31	13-66	34	18-63	33	15-61	125	56-381	130	103-260
Chlorine, mg	91	20-233	54	17-116	43	9-355	103	70-290	159	56-260
Cobalt, µg							.06			
Copper, mg	.05	.02-.6	.05	.04-.07	.04	.01-.07	.03	.003-4	.04	.02-.05
Fluorine, µg							16	7-28		
Iodine, µg	12	4.5-45	2		7	4-9	21	.4-187		
Iron, mg	.09	.02-.13	.04	.02-.05	.15	.02-.45	.1	.01-1.0	.05	.01-.07
Magnesium, mg	4	1-8	4	2-5	4	2-6	13	7-22	16	24-Oct
Manganese, µg	trace				.7		2	<1-4	8	9-Jul
Phosphorus, mg	14	6-25	17	10-32	15	7-35	99	56-129	106	84-161
Potassium, mg	74	66-87	64	53-77	55	27-81	138	38-287	181	106-242
Silicon							trace			
Sodium, mg	48	26-136	29	19-54	15	2-44	58	31-214	41	19-60
Sulfur, mg	22	20-26	20	15-23	14	5-30	30	24-44	16	Feb-29
Zinc	.62	.07-.98	.77	.04-1.15	.53	.02-1.38	.38	.17-.66	trace	

