

Arachidonic Acid, Linoleic Acid and the Corona Virus Infection Covid-19

1.0 Abstract

Milk contains arachidonic acid, which can increase interferon IFITM1[6] IFITM1 helps fight viral infections. Arachidonic acid is also in saturated fat in meat products. Goats milk contains about twice as much as cows milk. Linoleic acid in vegetable oils like sunflower, corn oil, and safflower oil contain a lot of linoleic acid, whereas olive oil, avocado oil, and macadamia nut oil contain very little linoleic acid.

Milk has some properties of an Angiotensin Converting Enzyme Inhibitor (ACE Inhibitor) [4] ACE inhibitor are a class of drugs that lower blood pressure. The Corona Virus acts on the ACE2 receptors in the lungs. SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and Is Blocked by a Clinically Proven Protease Inhibitor[2] It was proposed to examine the affect of how high milk consuming countries fared with low milk consuming countries when confronted with the Corona Virus Covid-19. The author previously did a study to see the effect of drinking beer and correlating beer consumption with death rates from the Corona Virus Covid-19. It was found that the highest beer drinking countries correlated with less Covid-19 cases and less Covid-19 deaths. For a country that drank less than 40 liters per year of beer, there did not seem to be a protective affect.[1] It was found, that the death rate from high milk drinking countries was much less than the low milk consuming countries.

It was also suggested that fermented soy products like soy sauce and miso, used in many far east nations also have ACE2 inhibitors. "Does Fermented Soy Affect the Incidence of Corona Virus Infection in Japan"[3] However there was not enough data to analyze, however Japan and Korea and other nations in the area did have diminished affects from the Corona Virus. The author wanted to also investigate how the corona virus Covid-19 was affected by per capita milk consumption by state in the United States, but no per capita data was available by state.

2.0 Data

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High Milk Drinking Countries

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Milk consumption per capita kg/yr	Country	Corona Virus Cases	Corona Virus Deaths	Death rate percentage	Population of Country in Millions	Corona Virus Cases per Million
431	Finland	792	1	0.1262626	5.5	144
341	Netherlands	5560	276	4.9640288	17.1	325.1462
341	Sweden	2299	40	1.7398869	10.1	227.6238
319	Switzerland	9877	122	1.2351929	8.7	1135.287
315	Greece	743	20	2.69179	10.7	69.43925
292	Ireland	1329	7	0.5267118	4.9	271.2245
285	Estonia	369	0	0	1.3	283.8462
277	Denmark	1591	32	2.0113136	5.8	274.3103
261	Norway	2866	12	0.418702	5.4	530.7407
259	Germany	32991	159	0.4819496	83.8	393.6874
258	Austria	5283	28	0.5300019	9	587
255	United States	54823	778	1.4191124	331	165.6284
238	Romania	794	12	1.511335	19.2	41.35417
236	Belgium	4269	122	2.8578121	11.6	368.0172
235	Slovenia	480	4	0.8333333	2.1	228.5714
232	United Kingdom	8077	422	5.2247121	67.9	118.9543
226	Iceland	648	2	0.308642	0.3	2160
205	Poland	901	10	1.1098779	37.8	23.83598
195	Czech Republic	1394	3	0.215208	10.7	130.2804
194	Turkey	1872	44	2.3504274	84.3	22.20641
		136958	2094		727.2	
		Average death rate			1.5289359	
		Average death rate per million people			2.879538	

Low Milk Drinking Countries

194	Israel	1930	3	0.1554404	8.7	221.8391
188	Canada	2792	26	0.9312321	37.7	74.05836
174	Latvia	197	0	0	1.9	103.6842
174	Bosnia	168	3	1.7857143	3.3	50.90909
164	Spain	42058	2991	7.1116078	46.8	898.6752
164	Russia	495	1	0.2020202	146	3.390411
159	Hungary	187	9	4.8128342	9.7	19.27835
156	Bulgaria	218	3	1.3761468	6.9	31.5942
143	Slovakia	204	0	0	5.5	37.09091
106	Hong Kong	387	4	1.0335917	7.5	51.6
47	Iraq	316	27	8.5443038	40.2	7.860697
41	Tawiwan	216	2	0.9259259	23.8	9.07563
72	Japan	1193	43	3.6043588	126	9.468254
22	Iran	24811	1934	7.7949297	84	295.369

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9	South Korea	9037	120	1.3278743	51.3	176.1598
	France	22304	1100	4.9318508	65.3	341.562
	Italy	69176	6820	9.8589106	60.5	1143.405
		325539	15661		725.1	448.9574
	Death Rate Percentage	4.810791				
	Average death rate per million people			21.5984		

3.0 Discussion

It was found that the high milk consuming countries per capita had a death rate 7 times lower than the low milk consuming countries per capita. These death rates are lower than what we have seen with other studies. So if there is an actual hrelationship to beer and milk affecting corona virus infections. The amount of milk needed would be about 0.5 liters(2 cups) per day of milk consumption. The amount of beer would be about 0.2 liters (6 oz) of beer per day. It has also been shown, that arachidonic acid, a saturated fat in milk and meat, increases IFITM1 interferon, which helps fighting the start of viral infections. [5] Also note, that linoleic acid, an omega 6 fatty acid in many vegetable oils, turns into arachidonic acid in the body[6]

Spain, Greece, and Italy use very much olive oil, which has very little linoleic acid, therefore it would reduce the amount of arachidonic acid produced in the body, and thus limit the starting of Interferon IFITM1, which fights the start of viral infections. This may partly explain the high death rates in Spain and Italy, compared to other nations.

During this time of the Corona virus infection it might be useful to substitute some of that olive oil for some corn oil or other oil with linoleic acid in it. Balance is always good anyways. If you are not a high fat milk drinker, it might be useful to start, or start eating some high fat Greek yogurt.

Italy and France were not marked down with an amount of milk, because French and Italian adults do not drink much milk at all. Many Spaniards are also lactose intolerant.

Russia eats a very high saturated fat diet and this may explain the low death rate, from the corona virus.[8] Although the low fruits and vegetables may contribute to the low death rate from the corona virus as well.

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4.0 References

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