

تاجتنم يف صاصل ا دجاوت
ةي حاصل ا اهتال دو نابل ال ا
”طوي سا ةظف احمب

**“Lead in milk and milk and its
health significance in Assiut
Governorate”**

Lead is a cumulative poison that produces a continuous effect, primarily on the haematopoietic system, the nervous system, and the kidneys. Exposure of the general population occurs by inhalation, by ingestion of food and water.

Lead causes both acute and chronic intoxication, although acute poisoning is rare, chronic poisoning is more common and serious (Gossel and Bricker, 1990).

The critical toxic effects of Lead are neurobehavioural in children (decreased intelligence and decreased learning ability as well as damage to the peripheral nervous system) and probable carcinogenic effects.

Total samples of Fresh, Ultraheat Treated, and Powdered milk, Damietta and Kariesh cheese, and some infant formulae .

	Type of samples	Site of collection	Number of samples
1	Fresh milk	Assiut city	20
		Riefa village	20
		Hawatica village	30
2	Ultra heated	Group (1)	15
		Group (2)	15
		Group (3)	10
		Group (4)	10
		Group (5)	10
3	Powdered milk		30
4	Infant formula		10
5	Cheese (damietta)	Assiut city	50
		Manfallout city	15
6	Cheese (Kariesh)	Assiut city	30
		Manfallout city	15
		Riefa village	20
Total			(300)

**PROVISIONAL TOLERABLE WEEKLY INTAKE (PTWI) AND
ACCEPTABLE DAILY INTAKE (ADI)**

ELEMENT	ADI	PTWI	REFERENCE
LEAD	3.57 ug/kgbw/day (I)	25 ug/kgbw/week (I)	FAO/WHO (1989)
	7.14 ug/kgbw/day (a)	50 ug/kgbw/week (a)	

Table 1- Lead levels (ppm) in different types of milk in different localities.

Origin	Assiut Fresh milk	Rifa fresh milk	Hawatica fresh milk	Powdered milk	Baby forms
Average±S.E	0.193±0.015	0.247±0.003	0.343±0.032	0.008±0.001	0.008±0.001
Range	0.024-.53	0.003-2.4	0.001-4.0	0.001-0.074	0.002-0.019
No. more than Mls	12	2	6	1	00
Percentage	60	10	20	3.33	00
Median	0.13	0.004	0.001	0.005	0.0065
EWI (ug/kg b.w./week)	162(I) 2.702(a)	207(I) 3.458(a)	288(I) 4.802(a)	6.7(I) 0.0186(a)	6.7(I) 0.0186(a)
PTWI (ug/kg b.w./week) (GEMS/Food, 1990)	25(I) 50(a)	25(I) 50(a)	25(I) 50(a)	25(I) 50(a)	25(I) 50(a)

Table 2-Lead levels (ppm) in some UHT milk milk .

Origin	Group(1)	Group (2)	Group (3)	Group (4)	Group (5)
Average±S.E	0.289±0.020	0.18±0.017	0.636±0.038	0.095±0.005	0.009±0.001
Range	0.0025-1.1	0.001-0.96	0.02-1.1	0.0017-0.019	0.004-0.019
No. > Mls	8	8	9	00	00
Percentage	53.3	53.3	90	00	00
Median	0.23	0.12	0.51	0.012	0.008
EWI (ug/kg b.w./week)	242.7(I) 4.044(a)	151.2(I) 2.52(a)	534.2(I) 8.904(a)	79.8(I) 1.33(a)	7.5(I) 0.126(a)
PTWI (ug/kg b.w./week) (GEMS/Food, 1990)	25(I) 50(a)	25(I) 50(a)	25(I) 50(a)	25(I) 50(a)	25(I) 50(a)

Table 3- Lead levels (ppm) in different types of cheese in different localities

Origin	Assiut damietta cheese	Manfalute damietta cheese	Manfalute kariesh cheese	Rifah kariesh cheese	Assiut kariesh cheese
Average±S.E	0.212±0.007	0.115±0.008	0.036±0.002	0.293±0.027	0.29±0.023
Range	0.005-2.1	0.002-0.52	0.011-0.13	0.005-1.8	0.001-6.0
No > Mls (0.1ppm)	21	7	1	7	7
Percentage	42	46.6	6.6	35	23.3
Median	0.0655	0.081	0.025	0.05	0.014
EWI (ug/kg b.w./week)	4.94(a)	2.681(a)	0.84(a)	6.836(a)	6.766(a)
PTWI (ug/kg b.w./week) (GEMS/Food, 1990)	50	50	50	50	50

Conclusion

lead. consumption of *all raw milk products* is serious to infants. Risk could be also expected from the consumption of *UHT milk*.

So measures must be put in mind

1-Coordination between pediatric Health-care providers and public agencies.

2-Strategic plan for the elimination of childhood lead, which call for concentrated, coordinated society wide effort to eliminate this disease.

3-Evaluation of blood and environmental Pb levels and screening to reach the most nonhazardous levels of elements in blood i.e (10 ug lead/dl).

4- Construction of a center for environmental health and injury control

5-Epidemiological studies to identify harmful effects of Pb in children at the minimum hazardous levels by screening tests.

6-Reduction of lead in gasoline must be forced.

7-Stopping of the use of leaded solders in cans.and prevent lead based paints

8-Ensure that the reused waters and sewage sludge is free from heavy metals.

9-Avoidance of contaminated fertilizers as considered a main source of heavy metal contamination to soil.

10-Stopping the activities of the lead smelters in Assiut Province in near lands and villages.

Thank you

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