

Theme: Dairy for Nutrition & Livelihood

Session : Impact of Dairy on Nutritional Security

Chairman:

Mr. Tiensin Thanawat

Director of the Animal Production and Health Division (NSA), FAO

Speakers:

- (1) Dr. Lawrence Haddad (Virtual Presentation)
- (2) Professor Connie M Weaver, Purdue University, USA
- (3) Professor Paul, Moughan, Riddet Institute, New Zealand (Virtual presentation)
- (4) Dr. M S Radhika, Scientist E, Head, Dietetics Department, National Institute of Nutrition, Hyderabad

Dr. Lawrence Haddad (Virtual Presentation)

Topic: Food security in the World, role of animal source foods

- The world faces a major challenge in food production and environmental sustainability over the next 30 years.
- It is estimated that the world needs to produce 70% more foods by 2050.
- The production of food is not important but nutritionally better food for the growing population produced in environmentally acceptable manner is extremely critical.
- Worldwide around 1 billion population is malnourished which is around 15% of World population.
- Protein and energy malnutrition is by far the most lethal form of malnourishment. Younger children is the most impacted group of population. Around 25% of children are affected by malnourishment.
- Apart from this, there is one more serious problem which is related to Hidden hunger. The hidden hunger indicates where protein and calories requirement are met but micro nutrients, minerals and Vitamins are undersupplied. Around 2 billion population of the world is suffering from Hidden Hunger.
- In India, Kids' meal includes Wheat, Eggplant, couple of vegetable including potato and sometime pulses. Such meal creates serious problems of micro and macro nutrients and vitamins and minerals. In India, around 62% of population under the age of 5 are

deficient of Vitamin A and around 72% children under the same age group is anaemic.

Professor Connie M Weaver, Purdue University, USA

Topic: The role of dairy in the life course

- Every individual is achieving peak skeletal mass by the age of 20 to 30 years (Peak skeletal mass means the amount of bony tissue present at the end of the skeletal maturation, is an important determinant of osteoporotic fracture risk)
- In most of the cases after 40 years, the individual slowly losing the bone mass.
- In most of the cases at every 10 years of interval Human bone mass remoulded and replaced.
- Milk is the most important source of Calcium.
- 3 cups (Around 450 ml) of low fat milk can fulfilled more than 100% calcium requirement of human, 99% of Phosphorus, 86% of Vitamin D, 54% of Protein, 32% of Riboflavin, 28% Potassium and 25% of Magnesium. Apart from this, milk is also a good source of Vitamin B, Vitamin A and Zinc.
- Milk is the best food in terms of macro, micro and mineral requirement per 100 Kcal. Comparison of milk and other food items are shown in **Table 1**.
- Calcium rich foods, dairy product, fruits and vegetables are important for peak bone mass, minimize bone loss and promote overall health. Milk has highest amount of calcium which is important for body mass.
- The term matrix protein is used to describe a protein

Table 1: Comparison of Milk and Other Food Items

	Protein (gms)	Fiber (gms)	Vitamin A (IU)	Calcium (mg)	Iron (mg)	Zinc (mg)
Cow'S Milk	5.2	0.0	25.90	181.0	0.1	0.6
Eggs	8.8	0.0	378.0	39.0	1.2	0.9
Beef	4.3	0.0	0.1	7.2	0.5	1.1
Soyabeans	8.2	2.1	0.2	62.0	3.5	1.1
Blackbeans	6.3	4.5	5.0	36.0	1.5	1.1
Wheat	3.3	3.6	2.6	9.0	1.3	1.0
Rice	2.1	2.6	0.0	6.0	0.9	1.5
Sorghum	3.2	2.0	0.0	4.0	1.0	0.5

Table 2: Age Group-wise and Year-wise Mean Intake of Total Dairy Per Day

Year	203-04	2015-16	% Change
2-5 years	2.4	1.9	-20.8
6-11 years	2.4	2	-16.7
12-19 years	2.2	1.9	-13.6
20+ years	1.6	1.5	-6.3
All age group below 20 years	1.8	1.6	-11.1

that forms layer on the inside of the viral envelope. Matrix proteins play important roles in virus assembly, as they form links or bridge between nucleocapsids/cores and the envelope.

- Young children of United States of America have significantly reduced the intake between the year 2003-04 Vs 2015-16. Age group wise and year wise mean intake of total dairy per day is shown in **Table 2**.
- Maximum deviation in percentage terms of milk intake is in the age group of 2 to 5 years of kids. During both the years, as age increases milk consumption is reducing. The mean milk consumption of all age group below 20 year was 1.8 cup equivalent which was reduced to 1.6 cup equivalent (%) of milk consumption is around 11%.

- Diet can have a big impact on skeleton growth, especially during childhood and milk avoidance is associated with increased risk of fracture.
- The children who avoid milk are at much higher risk for bone fracture. Milk avoider's kids has around 34.8% higher risk and 13% higher risk of birth cohort.
- Women may lose around 15% of bone mass in first 5 years after menopause with osteoporosis effecting 1 in 3 postmenopausal women.
- In USA, population having age more than 80 year is increasing very rapidly and projected to triple in next 30 years. The problem of osteoporosis may further aggravate if the milk consumption reduce.