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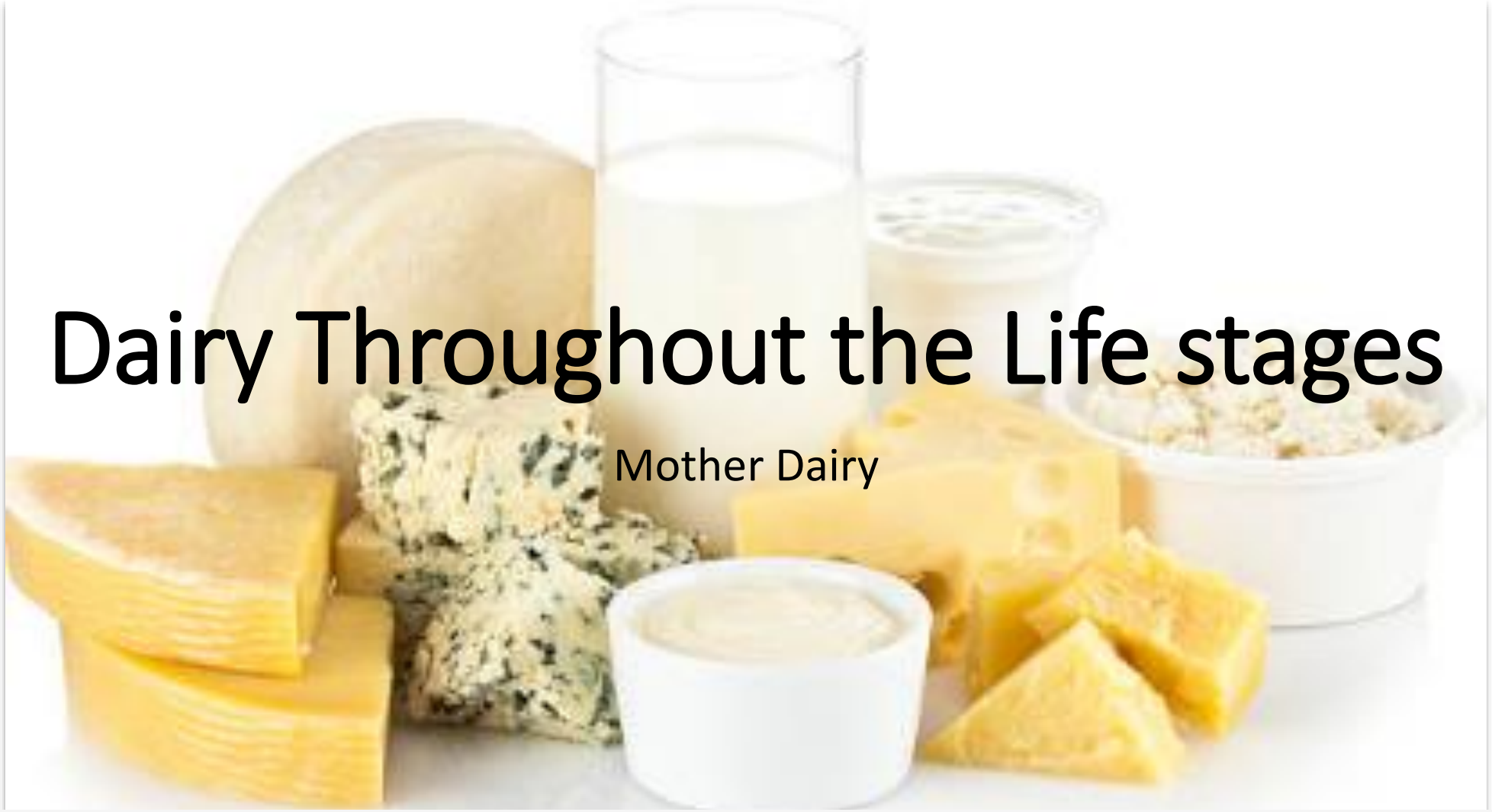
MOTHER DAIRY



Dairy Throughout the Life stages

Mother Dairy

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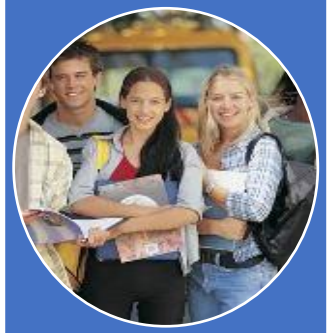
Dairy Throughout the Life stages

Infants

Childhoods



Teenage

Adults

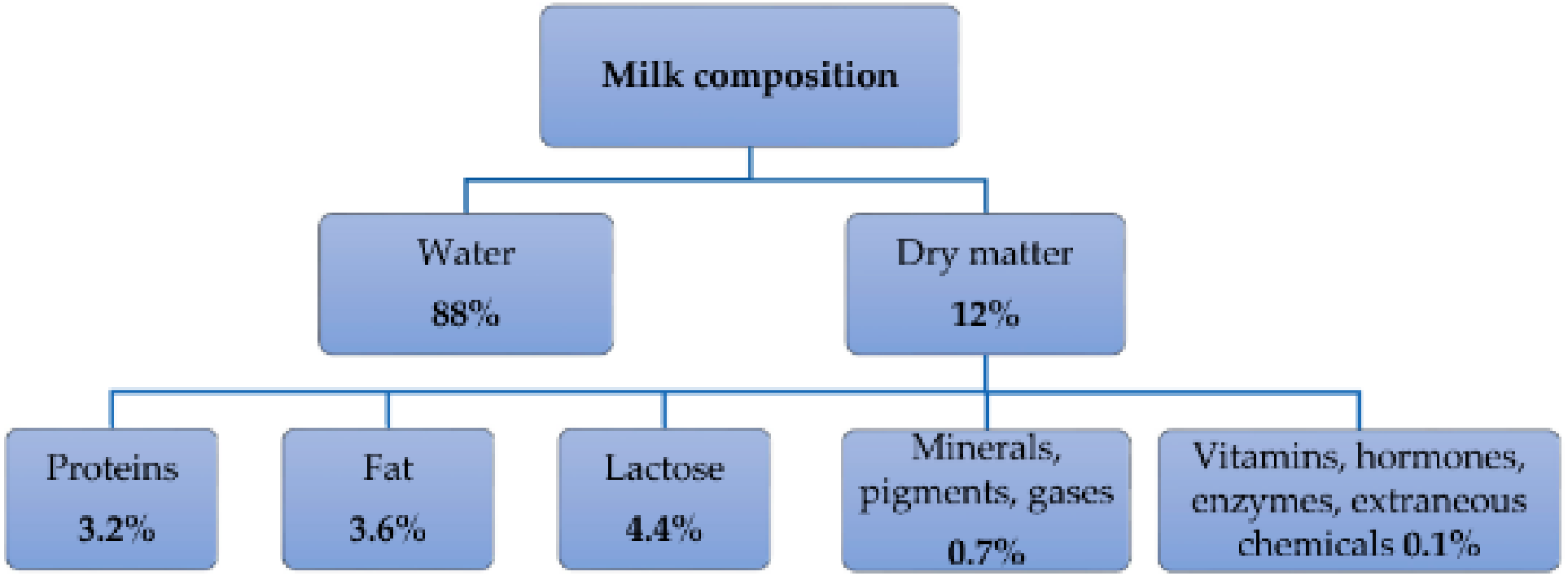
Elders

Pregnant

Lactation

Milk Composition

Milk is a complex product, it contains rich nutrients like Fat, Proteins, Carbohydrates, Minerals, Vitamins etc in different forms like in solution, suspension or emulsion with water.



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Composition of Various Milks (%)

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Constituents	Cow Milk	Buffalo Milk	Goat Milk	Sheep Milk	Human Milk
Moisture	87.6	81	85.2	80.7	87.4
Protein	3.3/3.4	4.3/3.9	3.7/3.5	4.8	1.6
Fat	3.6/4.9	8.8/6.6	5.6/4.5	6	3.75
Carbohydrate	4.5/4.1	5.0/5.2	4.7/4.6	4.9	6.98
Mineral Matters (Ash)	0.7	.8/.7	0.8	0.8	0.21
Calcium	0.12	0.21	0.17	-	-
Phosphorus	0.09	0.13	0.12	-	-
Iron (mg/100g)	0.2	0.2	0.3	-	-
Vitamin A (IU/100g)	180	162	182	189.7	189.9
Vitamin B12 (mg/100g)	0.05	0.04	0.04	-	-
Riboflavin (mg/100g)	0.2	0.19	0.15	-	-
Vitamin C (mg/100g)	1.6	1.5	1.5	5.5	4
Nicotinic acid (mg/100g)	0.1	0.1	0.1	-	-
Calories	67	117	72	-	-
Total solids	13.7	17.02	13.5	16.3	12.57
Solids-not-fat	8.8	9.2	9	10.3	8.8

Essential Nutrients in Milk

Protein: Muscle repair and growth, enzyme and hormone production.

Dairy Sources: Milk, cheese, yogurt etc..

Protein requirements vary with age, physiological status and stress. More proteins are required by growing infants and children, pregnant women and individuals during infections and illness or stress.

To meet the functional needs such as promoting skeletal-muscle protein accretion and physical strength, dietary intake of 1.0, 1.3, and 1.6 g protein per kg BW per day is recommended for individuals with minimal, moderate, and intense physical activity, respectively.

Calcium: Bone and teeth health, muscle function, nerve transmission.

Dairy Sources: Milk, cheese, yogurt.

Essential Nutrients in Milk

Vitamin A: Fat soluble, helps Maintaining healthy vision, immune function, and skin health..

Dairy Sources: Fortified milk, dairy products.

- **1** serving (250 ml) of whole milk usually provides about 10% of the Daily Value (DV) for vitamin A.
- Low-fat and skim milk can be fortified with vitamin A to compensate for the loss during fat removal.

Vitamin D: Fat soluble, enhances calcium absorption, bone health, immune function.

Dairy Sources: Fortified milk, dairy products.

Vitamin B12: Red blood cell formation, neurological function.

Dairy Sources: Milk, cheese, yogurt.

Essential Nutrients in Milk

Riboflavin (Vitamin B2): Energy production, cell growth and repair.

- **Dairy Sources:** Milk, yogurt, cheese.

Phosphorus

- **Role:** Bone health, energy storage and utilization.
- **Sources:** Milk, cheese, yogurt.

Other Nutrients

- **Milk Fat:** Role in energy and absorption of fat-soluble vitamins.
- **Potassium:** Role in fluid balance, muscle function.
- **Magnesium:** Role in muscle and nerve function, bone health.
- **Iodine:** Trace element, essential for thyroid function and overall health.

Dairy in Indian Diet

Culturally Dairy is an essential part of Indian Diet

- **Milk**: The staple dairy product, used for drinking and for making dairy products.
- **Curd (Dahi)**: A fresh fermented dairy product, commonly consumed in various forms like plain curd, raita, shrikhand etc
- **Paneer**: Homemade cottage cheese used in many dishes
- **Lassi / Chaach**: Used as a digestive aid and in recipes
- **Butter (Makkhan) & Ghee:** are Milk Fat based products, very common for food preparation & desserts
- **Khoya & Channa:** Key ingredient for Indian desserts & Sweets like Rasgulla, Gulab Jamun, Milk Cake, Burfi, Kheer, Rabdi,

Other Dairy Products

- **Flavoured Milk**
- **Yoghurt**
- **Cheese**
- **Milk Powders**
- **Ice creams**
- **Milk Shakes / Smoothies**

Regional Variations

- **North India**: Preference for paneer, lassi, and milk-based sweets
- **South India**: Use of curd in meals, buttermilk, and traditional desserts like curd rice
- **West India**: Varied use of milk and dairy in both sweet and savory dishes
- **East India**: Popularity of sweets made from milk, like rasgulla and sandesh

Paneer and Cheese

- Bothe Cheese and Paneer, are quite nutritious and offers several health benefits.
- They are excellent source of protein, **Rich** in calcium, contains phosphorus, contains fat, provides a good amount of Vitamin B12, relatively low in carbohydrates.
- Both are easier to digest compared to some other dairy products, making it suitable for those with mild lactose intolerance.

Cheese contains salt, so it can be high in sodium so it's best enjoyed in moderation as part of a balanced diet.

Unlike Cheese, Paneer doesn't contain any salt.

Fermented Dairy Products

Fresh Fermented dairy products, such as Dahi, Yogurt, Chaach, Lassi etc offer several nutritional benefits. Incorporating fermented dairy products into a balanced diet can contribute to better digestive health, improved nutrient intake, and overall well-being.

- **Probiotics**: Fermented dairy products are very good medium to deliver probiotic bacterias.
- **Improved Lactose Digestion**: Fermentation breaks down lactose, making fermented dairy products easier to digest.
- **Enhanced Nutrient Absorption**: The fermentation process can increase the bioavailability of certain nutrients, such as vitamins and minerals.
- **Protein Quality**: Fermented dairy products are a good source of high-quality protein.
- **Bone Health**: Many fermented dairy products e.g. Greek Yoghurts are rich in calcium and vitamin D.
- **Reduced Risk of Chronic Diseases**: Regular consumption of fermented dairy products may be associated with a reduced risk of certain chronic diseases.
- **Lower Fat Content**: Some fermented dairy products, especially when made with low-fat milk, can provide the benefits of dairy while being lower in fat compared to non-fermented options.

Butter & Ghee

Butter and milk fat can be important parts of a diet, providing various nutritional benefits, but they should be consumed in moderation due to their high saturated fat content.

Butter

- **Fat Content**: Butter is high in fat, with around 80% of its content being fat. It contains a mix of saturated fats, monounsaturated fats, and a small amount of polyunsaturated fats.
- **Vitamins**: Butter is a good source of fat-soluble vitamins, particularly Vitamin A, which is important for vision, immune function, and skin health. It also contains Vitamin D, which is crucial for bone health and calcium absorption.
- **Butyrate**: Butter contains butyrate, a short-chain fatty acid that has been linked to various health benefits, including improved gut health and reduced inflammation.

Milk Fat (Ghee)

- **Nutrient Density**: Milk fat provides a range of essential nutrients, including fat-soluble vitamins (A, D, E, and K). It contributes to the overall nutrient density of dairy products.
- **Fatty Acids**: Milk fat contains a mix of saturated fats, monounsaturated fats, and small amounts of polyunsaturated fats. Some of the fatty acids in milk fat, like conjugated linoleic acid (CLA), have been studied for potential health benefits.
- **Satiety**: The fat content in milk can help with satiety, making you feel fuller for longer, which can be beneficial for appetite control.

Dairy in Childhood

Dairy Provides essential nutrients that support growth, development, and overall health during formative years.

- **Calcium** – key building block for strong bones and teeth
- **Protein** – Essential for growth and development
- **Vitamin D** – for calcium absorption, essential for bones and teeth (through fortification)
- **Vitamin A** – important for vision, immune function and skin health.
- **Vitamin B2 & B12** – support energy production, brain development and formation of blood cells
- **Lactoferrin** - an iron-binding glycoprotein helps in iron absorption
- **Immunoglobulins**, together with **lactoferrin, lacto-peroxidase** and **lysozyme** form a very important antimicrobial system, which improve immunity and prevent infection in infants.

Dairy in Adolescence

Adolescents bodies require increased amount of certain nutrients as they experience rapid physical and biological changes. Many Nutrients are abundantly found in Dairy products.

- **Calcium** – majority of bone mass is built. 11–18-year-old females require 800mg/day and males require 1,000mg/day
- **Vitamin D** – vital for calcium absorption and bones health (through fortification)
- **Protein** – necessary for muscle development, strengthening and repairing tissues.
- **Vitamin B2 & B12** – crucial for energy production due to growth, increased physical activity and need for cognitive focus in schools. Vitamin B12 is only found naturally in animal foods.
- **Milk Fat –** provides necessary energy and support absorption of fat soluble vitamins like A, D, E and K.

Dairy in Adulthood

Dairy remains a vital component of a balance diet in adulthood, offering essential nutrient that support overall health, bone density and metabolic function.

- **Calcium** – most bone growth is completed by early adulthood, maintaining bone density becomes crucial to prevent gradual loss that can lead to osteoporosis later in life.
- **Vitamin D** –Limited sun exposure may lead to deficiency of Vitamin D naturally resulting poor bone health. Fortified dairy with Vitamin D helps better calcium absorption.
- **Protein** – remains important for maintaining muscle mass, which naturally declines with age. Beneficial for weight management as it promotes satiety and helps regulate appetite.
- **Potassium –** helps regulate blood pressure.
- **Magnesium –** involved in numerous biochemical reactions in the body, including energy production and muscle function.
- **Vitamin B2 & B12** – support energy metabolism, red blood cell formation and neurological health.

Dairy in Adulthood

It is important to have a healthy diet and lifestyle to help keep us in good health and avoid developing health problems common in older age. As we enter into our 40's there are a number of changes happening in our bodies, especially to our muscle and bones.

- **Dairy and muscle health**

  - Losing muscle is a natural part of getting older. Staying as active as possible, exercising regularly and making sure we get enough protein in our diet can help to slow down the rate of muscle mass and strength that occurs with age.

  - Milk and dairy products are great choices as they are naturally rich in protein, plus they provide calcium and potassium, minerals that contribute to muscle function.

- **Dairy and bone health**

  - Bone mass begins to fall in both males and females from around the age of 35 years.

  - In women, there is a phase of fast bone loss in the 10 years or so following the menopause (when monthly periods stop).

  - To help keep the bones strong and slow down bone loss as we age, it is important to take regular exercise and maintain a healthy weight. A healthy dairy rich diet with enough calcium and vitamin D throughout life is important for bone health.

Dairy in Pregnancy and Lactation

The demand on a woman's body increase significantly during pregnancy and lactation periods. Dairy products provides essential nutrients that support both mother's health and development of baby.

- **Calcium** – During pregnancy, baby's bones and teeth development require steady supply of calcium. Mother's bone health may compromise if the diet is lacking in calcium.
- **Vitamin D** –crucial for the development of the baby's bone and teeth during pregnancy. It can help reduce pregnancy complications.
- **Protein** – is necessary for the growth of baby's tissues, including brain, muscles and organs during pregnancy. It aids in the production of breast milk during lactation.
- **Vitamin B2 & B12** – support energy metabolism, red blood cell formation and development of the baby's nervous system. Vit B12 prevents neural tube defects and support brain development.
- **Iodine** - is a key part of the thyroid hormones needed for many body processes including growth, metabolism and for the development of a baby's brain during pregnancy and early life.

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Regardless of the life stage, incorporating dairy into your daily diet is a delicious and affordable way to obtain the needed nutrients our bodies need to develop and prevent many diseases.

Thank You!