Time	Narration
00:00	Welcome to the **spoken tutorial** on the importance of **calcium**.
00:06	In this tutorial, we will learn about:
00:09	Role of **calcium** and its requirement in our body,
00:13	Symptoms of its deficiency
00:16	and **Calcium** rich food sources.
00:20	**Calcium** is the most abundant mineral in our body.
00:24	99% of the body's **calcium** is found in bones and teeth.
00:31	The remaining 1% is present in our blood.
00:34	It gets excreted from our body through stool, urine and sweat.
00:41	**Calcium** serves many functions in our body.
00:45	The key function is the development and maintenance of bones.
00:51	If there is an excess of **calcium** in the body, it gets deposited in the bones.
00:58	In case of deficiency, it can be taken from the bones.
01:03	**Calcium** is essential for the transfer of nerve signals in our body.
01:09	It helps in muscle contraction and its movement.
01:14	It also helps in stopping the blood flow after a cut.
01:18	**Calcium** is needed for the secretion of **hormones** like **insulin** and **adrenaline**.
01:27	Other benefits are maintaining body weight, blood pressure and heart health.
01:34	Daily recommended intake for **calcium** varies for different age groups.
01:41	It is higher during periods of rapid growth such as childhood and adolescence.
01:49	For Infants until 12 months, 500 milligrams of **calcium** per day is recommended.
01:57	For children upto 9 years, 600 milligrams per day is recommended.
02:03	The requirements increase upto 800 milligrams per day during adolescence.
02:10	For adults, it is 600 milligrams per day.
02:15	The **calcium** requirements are also high during pregnancy and lactation.
02:21	During pregnancy and lactation, 1,200 milligrams is recommended.
02:29	Let us now discuss the effects of **calcium** deficiency.
02:34	Deficiency of **calcium** during pregnancy can result in a rise in blood pressure.
02:42	Swelling in hands and feet can be seen.
02:46	Inadequate **calcium** intake by mothers may affect the baby also.
02:53	Their birth weight may be low and their growth can be retarded.
02:58	Their physical and cognitive development can be damaged.
03:03	In children, **calcium** deficiency can cause **rickets**.
03:08	**Rickets** is a disorder of the skeletal system.
03:12	The growth gets stunted and there are changes in the shape of the spine.
03:18	Other signs are sunken ribs, protruding forehead and bow shaped bent legs.
03:26	Short height, widening of the wrist, elbow, knee and ankle joints can be seen.
03:34	In adults, early signs of **calcium** deficiency are muscle cramps.
03:40	Numbness or tingling sensation of fingers is also seen.
03:46	Mental confusion,

	irritability,
03:49	dry skin, brittle nails
03:51	and tooth decay can also occur.
03:55	Long term deficiency of **calcium** can result in **osteoporosis**.
04:01	In **osteoporosis**, the bone density is reduced.
04:06	The bones become fragile and prone to fractures.
04:10	Other symptoms are stooped posture, loss of height and back pain.
04:18	The risk of **osteoporosis** is higher in women as compared to men.
04:23	This is because **estrogen** levels in women decrease after menopause.
04:29	Thereby, **calcium** absorption decreases and its excretion through urine increases.
04:37	To avoid **calcium** deficiency, adequate intake of **calcium** rich food is essential.
04:44	The best sources are milk and milk products.
04:48	This includes curd, paneer **(unsalted Indian cheese – Bracketed text is only for International languages)**, cheese and khoa **(thickened whole milk – Bracketed text is only for International languages)**.
04:55	**Calcium** obtained from them gets easily absorbed in our body.
05:00	200 millilitre of cow's milk provides 236 milligrams of **calcium**.
05:07	100 grams of curd from cow's milk has 150 milligrams **calcium**.
05:14	30 grams of paneer from cow's milk has 142 milligrams **calcium**.
05:21	Few non-vegetarian food are also rich in **calcium**.
05:25	For example: dried shrimp, bombay duck, prawns, lobsters and dried bony fishes.
05:34	100 grams of prawns will give 67 milligrams of **calcium**.
05:40	20 grams of dried shrimp has 73 milligrams of **calcium**.
05:46	15 grams of dried bombay duck fish has 208 milligrams of **calcium**.
05:54	Seeds are an excellent source of **calcium**.
05:58	For example: sesame seeds, niger seeds, flax seeds, dill seeds and poppy seeds.
06:05	1 tablespoon or 5g of sesame seeds has 64 milligrams of **calcium**.
06:14	Apart from these, nuts like almonds and walnuts are also rich in **calcium**.
06:21	Many green leafy vegetables have good amount of **calcium**.
06:26	For example: leaves of amaranth, agathi, drumstick and fenugreek.
06:33	Even radish leaves, colocasia leaves and mustard leaves are good sources.
06:39	100 grams of amaranth leaves has 330 milligrams of **calcium**.
06:46	100 grams of fenugreek leaves has 274 milligrams of **calcium**.
06:52	**Calcium** is present in some beans, like soybean, horse gram and moth beans.
07:00	50 grams of horse gram gives 135 milligrams of **calcium**.
07:07	Finger millet is also a rich source of **calcium**.
07:11	30 grams of finger millet provides 110 milligrams of **calcium**.
07:18	Along with food intake, **calcium** absorption is equally important.
07:24	Presence of **oxalates**, **phytates** and fiber affect **calcium** absorption.
07:30	They are present in nuts, seeds, beans, and green leafy vegetables.

07:38	These substances may bind with **calcium** to form an insoluble complex.
07:45	As a result, **calcium** absorption in the body is inhibited.
07:50	The absorption can be enhanced by using various cooking techniques.
07:56	For example: soaking, sprouting, boiling, roasting and fermentation.
08:05	For **calcium** absorption, avoid tea, coffee and cola with **calcium** rich food.
08:13	They contain **caffeine** which enhances **calcium** excretion through urine.
08:20	For maximum **calcium** absorption, few other nutrients are required.
08:25	For example: **vitamin D, magnesium, potassium** and **phosphorus**.
08:32	Apart from nutrients, adequate physical activity and exercise are also required.
08:39	This will enhance the bone mass and bone strength.
08:44	In addition to all this, age also influences **calcium** absorption.
08:50	It is highest during infancy and childhood.
08:55	During adulthood, absorption is moderate and then it decreases with age.
09:02	Therefore, adequate intake of **calcium** rich food from an early age is essential.
09:09	This brings us to the end of the tutorial. Thank you for joining.