Time	Narration
00:00	Welcome to the **spoken tutorial** on the importance of **iron**.
00:05	In this tutorial we will learn about:
00:08	Benefits of **iron** in our body.
00:11	Causes
00:13	and symptoms of its deficiency.
00:16	Food sources of **iron**.
00:18	**Iron** is required for several vital functions in the body.
00:24	It is a major component of **hemoglobin** and **myoglobin**.
00:29	**Hemoglobin** is present in red blood cells.
00:33	It helps to carry oxygen from lungs to different parts of the body.
00:39	**Myoglobin** transports and stores the oxygen in muscle cells.
00:46	We require **iron** for growth,
00:48	brain function,
00:50	memory and concentration.
00:53	It is also required for cell function and
00:56	hormone synthesis.
00:58	It aids in energy production
01:00	and formation of **myelin**.
01:03	**Myelin** is an insulation layer that forms around the nerves.
01:09	**Iron** also helps in maintaining strong immunity
01:12	and improving gut health.
01:15	Our body has 70 percent of **iron** in red blood cells.
01:21	Twenty five percent is stored as **ferritin** in the liver,
01:26	spleen and bone marrow.
01:29	Six percent of **iron** is a component of **protein**.
01:33	**Protein** is required for immune functions, metabolism and **collagen** synthesis.
01:41	We will now learn about the causes of **iron** deficiency.
01:46	Poor intake of **iron** and its poor absorption are major causes of its deficiency.
01:53	Worm infestation, bacterial and viral infections are some of the other causes.
02:01	Excessive blood loss during menstruation and delivery can also lead to deficiency.
02:08	**Lead** poisoning is another factor that can cause **iron** deficiency.
02:14	In **lead** poisoning there is a decreased production of **hemoglobin**.
02:19	Excessive destruction of the red blood cells due to malaria is also a risk factor.
02:27	**Iron** storage in a full term pregnant woman can meet the infants **iron** requirement.
02:34	This is sufficient until the infant turns 4 to 6 months.

02:40	However, preterm and low birth weight babies have poor **iron** stores.
02:46	They become deficient within the first 2 months.
02:51	An **iron** deficient pregnant woman will transfer less **iron** to the fetus.
02:57	Amount of **iron** in the brain reduces in case of intrauterine **iron** deficiency.
03:05	It also affects the baby's brain functions.
03:09	Children and adolescents are at a higher risk of deficiency.
03:15	Women of reproductive age are also at the risk.
03:20	I will now tell you the causes of **iron** deficiency in children.
03:25	The most common cause in children is inadequate intake
03:29	and rapid growth.
03:32	Low birth weight is another cause.
03:35	**Iron** deficiency causes **anemia**.
03:38	It is a condition where the **iron** stores in the body are depleted.
03:44	This reduces the supply of **iron** to tissues and red blood cells.
03:50	Let us understand the signs and symptoms of deficiency.
03:55	Brittle nails or **spoon nails** are symptoms of **iron** deficiency.
04:01	In **spoon nails** the soft nails look scooped out.
04:06	Pale skin and swelling of the tongue also occur due to the deficiency.
04:13	Weakness, shortness of breath, headache, tiredness are other examples.
04:19	**Pica** is also one of the symptoms of **iron** deficiency.
04:25	**Pica** is an intake of inedible substances like clay or soil.
04:32	In adults, **iron** deficiency can contribute to depression.
04:37	This is because of its connection with **dopamine**.
04:41	**Dopamine** is called a happy hormone which makes us feel good.
04:46	**Iron** is required for the production of **dopamine**.
04:51	Deficiency of **iron** leads to low levels of **dopamine**.
04:56	**Iron** deficiency has serious effects on infants and children's health.
05:02	Deficiency of **iron** during pregnancy can cause deficiency in the fetus.
05:08	This can affect language learning and
05:11	behavior in children.
05:13	Altered coordination and motor function are also seen.
05:18	It also causes a disruption in the development of the nervous system.
05:24	Deficiency of **iron** inhibits the formation of **myelin** sheath around nerves.
05:30	This can lead to hyperactivity
05:33	and lack of attention in children.
05:36	We will now see how **anemia** can be prevented in children.
05:41	Delayed cord clamping at the time of birth helps to prevent deficiency.
05:47	It improves the **iron** stores in the baby for first 6 months.
05:53	This reduces the risk of **iron** deficiency.
05:57	After 6 months **iron** rich food should be given through complementary food.
06:03	I will tell you the food sources of **iron** in the later part of the tutorial.
06:09	I will now tell you the recommended intake of **Iron**.
06:13	Recommended dietary intake of **iron** per day differs for different age groups.

06:20	6 to 12 months old infants require 3 milligrams.
06:25	1 to 3 years old require 8 milligrams.
06:30	For 4 to 9 years old it is 11 to 15 milligrams.
06:36	10 to 15 year old boys require 16 to 22 milligrams.
06:43	10 to 15 year old girls require 16 to 30 milligrams.
06:50	For adult men it is 19 milligrams.
06:54	For adult women it is 29 milligrams.
06:59	To meet these requirements it is advised to include **iron** rich food.
07:05	Let us look at the food sources of **iron**.
07:08	Dietary **iron** is present in two forms: **heme iron** and
07:13	**non heme iron**.
07:15	**Heme iron** comes from **hemoglobin** and **myoglobin** found in meat.
07:22	Hence non vegetarian food are good sources of **heme iron**.
07:27	For example: goat meat, chicken, goat liver and brain.
07:33	**Non heme iron** comes from vegetarian food.
07:37	For example: legumes, grains, and green leafy vegetables.
07:43	**Heme iron** is absorbed well in the body.
07:47	**Non heme iron** is not absorbed well and is affected by some factors.
07:53	Only 17% of it gets absorbed.
07:57	**Calcium** and **phytates** present in food inhibit the absorption of **non heme iron**.
08:04	Roasting, germination and fermentation helps in reducing the **phytate** content.
08:10	Process for germination and fermentation is explained in other tutorials.
08:17	Please visit our website for more details.
08:20	To improve the absorption of **iron** it is recommended to have **vitamin c**.
08:27	**Vitamin c** helps in better absorption of **iron**.
08:31	**Non heme iron** absorption is improved when combined with **heme iron**.
08:37	We will now see the amount of **iron** present in different food items.
08:44	100 grams of goat liver has around 6 milligrams of **iron**.
08:50	100 grams of mutton has approximately 2 milligrams.
08:55	100 grams of chicken breast has nearly 1 milligram of **iron**.
09:01	100 grams of spinach has approximately 2.9 milligrams.
09:07	30 grams of kidney beans have around 1.8 milligrams.
09:13	Include these foods in your daily diet for good health.
09:18	This brings us to the end of this tutorial. Thanks for joining.