

Time	Narration
00:00	Welcome to the spoken tutorial on the importance of folate .
00:05	In this tutorial we will learn about:
00:09	Role of folate in the body.
00:12	Effects of folate deficiency.
00:15	Requirements of folate for different age groups.
00:20	Vitamin B9 is an important water soluble B vitamin .
00:25	It has two forms: folate and folic acid .
00:30	Folate is the natural form and is found naturally in foods.
00:35	Folate is also produced by bacteria in our intestines.
00:41	Whereas, folic acid is the synthetic form.
00:45	It is found in chemically enriched foods or supplements.
00:51	Folate is easily absorbed in our body as compared to folic acid .
00:58	We will now see the role of folate in our body and
01:02	the effect of its deficiency.
01:05	Folate is essential for various functions in our body.
01:09	Our body needs it for growth, repair, division and production of new cells.
01:18	Folate helps in lowering the homocysteine levels.
01:23	Homocysteine is a type of amino acid used to make protein.
01:29	High homocysteine levels impairs cognitive function.
01:34	It also damages the blood vessels of the heart.
01:39	This increases the risk of heart diseases.
01:43	Thus, folate helps in maintaining heart and cognitive function.
01:48	It is also required for a healthy pregnancy
01:51	and for closure of the neural tube .
01:55	The neural tube develops into the brain and spinal cord of the baby.
02:01	Failure in closure of neural tubes may result in neural tube defects.
02:07	Neural tube defects are the birth defects of the brain and spinal cord.
02:13	The two most common neural tube defects are anencephaly and spina bifida .
02:20	In anencephaly , parts of a baby's brain and skull do not form correctly.
02:27	In spina bifida , the baby's spine does not develop properly.
02:33	Thus, the baby can have physical disabilities.
02:38	They may develop muscle weakness of the legs and paralysis.
02:43	Curved spine and loss of urinary bladder control are other symptoms.
02:49	Difficulty in eating and swallowing is also common.
02:55	They may also have difficulty in learning and paying attention.
03:00	Closure of the neural tube takes place within 28 days of conception.
03:06	Until this time, the woman might not even know that she is pregnant.
03:12	By the time she knows, it might be too late to prevent these defects.
03:18	All women, especially of reproductive age should take adequate folate rich food.
03:25	Along with folate , other nutrients are important to prevent neural tube defects.
03:32	For example: vitamin B12 and choline .

03:39	During pregnancy, the requirements of folate increases.
03:45	Inadequate intake during this time can result in folate deficiency.
03:51	Poor absorption of folate by the body can result in deficiency.
03:58	Even excess of alcohol intake results in the same.
04:03	A deficiency of vitamin B12 can indirectly lead to folate deficiency.
04:09	Even if folate is present in our body, it will not be able to perform its function.
04:16	This is because vitamin B12 is required to convert folate into its active form.
04:24	Thus, adequate intake of vitamin B12 along with folate is important.
04:31	Eggs, chicken, meat and milk products are good sources of vitamin B12 .
04:39	Shellfish, liver, heart, kidneys, brain are other examples.
04:47	Individuals with genetic anemia can be at a risk of folate deficiency.
04:54	Examples of genetic anemia are sickle cell anemia
04:58	and thalassemia .
05:01	In these conditions, red blood cells are destroyed faster than they can be created.
05:08	Thus, adequate intake of folate is recommended during these conditions.
05:14	Please consult your doctor before taking any supplement.
05:19	Next, let us look at the symptoms of folate deficiency.
05:24	These symptoms can be seen in both men and women.
05:29	Some of the early signs are soreness and redness of the tongue and lips.
05:35	Other symptoms are fatigue,
05:38	irritability,
	sleep disturbances
05:41	and depression.
05:43	Ulcers in the mouth or stomach can also occur.
05:47	Long term deficiency can reduce memory and attention span.
05:53	Folate deficiency in pregnant women may have a bad effect on the babies.
05:59	For example: neural tube defects and
06:03	cleft lip and palate in babies.
06:07	A cleft is a gap or split in the upper lip or roof of the mouth.
06:13	This occurs when the tissues do not fuse together during growth in the womb.
06:20	Folate or vitamin B12 deficiency results in macrocytic anemia .
06:27	Let me explain to you how this occurs.
06:30	Both these nutrients are required for normal cell growth and division.
06:36	In case of their deficiency, the red blood cells do not mature or divide properly.
06:43	As a result, large immature red blood cells are formed which are few in number.
06:51	These have very low hemoglobin in them and are unable to function properly.
06:59	Hemoglobin helps to transport oxygen to other tissues and cells.
07:06	Thus, low hemoglobin levels can cause anemia .
07:11	Let us look at the per day recommendations of folate for different age groups.
07:18	For 1 to 3 year old children 90 micrograms is required.
07:24	For 4 to 9 year old children it is 110 to 142 micrograms .

07:32	For 10 to 15 year old adolescents it is 180 to 204 micrograms .
07:42	More than 200 micrograms per day for adolescents above 16 years is recommended.
07:50	For adult females and males it is 200 to 250 micrograms .
07:58	Pregnant women should have about 500 micrograms .
08:02	For breastfeeding mothers, it is 300 micrograms .
08:07	The requirements of folate are higher for women with a history of birth defects.
08:15	They should take 500 micrograms before conception and throughout pregnancy.
08:22	Adequate folate intake is also recommended for women who are planning pregnancy.
08:29	The requirements of folate can be met through diet.
08:33	Beans are excellent source of folate .
08:36	30 grams or ½ cup of uncooked beans gives about 80 to 120 micrograms of folate .
08:46	Cowpea, kidney beans, moth beans, soybeans are a few examples.
08:53	Even bengal gram, field beans, horse gram, dry peas are good sources.
09:00	Green leafy vegetables are also rich in folate .
09:04	For example: spinach, amaranth leaves, colocasia leaves, agathi leaves.
09:11	50 grams or 1 cup of uncooked spinach will give about 70 micrograms of folate .
09:19	1 teaspoon of powdered drumstick leaves gives about 10 micrograms of folate .
09:27	Other vegetables rich in folate are tender field beans, french beans and beetroot.
09:35	Even cauliflower, ladies finger and drumsticks have moderate amounts of folate .
09:43	Sunflower seeds, mustard seeds and niger seeds have little amount of folate .
09:50	1 tablespoon of these powdered seeds have about 15 to 20 micrograms of folate .
09:59	Among non-vegetarian foods, chicken liver and all sea food are excellent sources.
10:06	1 chicken liver of 60 grams will give about 600 micrograms of folate .
10:13	100 grams of any seafood will give more than 700 micrograms .
10:20	Please note that excessive heat and water decreases folate content.
10:26	Therefore, avoid overcooking and repetitive reheating of food.
10:33	Vegetables can be sautéed or steamed instead of boiling.
10:38	Pulses should always be soaked overnight before cooking.
10:43	Sprouting and cooking of whole beans enhances its nutrient content.
10:49	Fermentation and roasting will also help to improve the absorption of folate .
10:56	Adequate intake of folate is very important for our good health.
11:01	This brings us to the end of the tutorial. Thank you for joining.