

Vitamins n Vitamins are organic compounds required by the body in trace amounts to perform specific functions. Functions of vitamin A a. Visual cycle (retinal) O Vitamin A is a component of the visual pigments (rhodopsin) of rod in the retina O Rod cells are responsible for vision in dim light (night vision) O Rhodopsin consists of 11-cis retinal bound to the protein opsin. Provitamin A (β-carotene) n It is the plant precursor of vitamin A n It consists of two molecules of retinal linked at their aldehydes n In humans β-carotene has only about one sixth the activity of retinol. Sources of vitamin A n Vitamin A (retinal, retinol) n Are present only in animal tissue e.g. Liver, milk fat and egg n β-carotene (precursor of vit. A) n Present in dark green vegetables and orange vegetables & fruits. n When needed, it is released and transported to extra-hepatic tissues by the plasma retinol-binding protein (RBP). n They regulate synthesis of many body compounds (bone, skin, nerves, brain, blood, etc.) n They prevent nutritional deficiency diseases and allow optimal health at all ages. n Storage: adipose tissues n Overdosage symptoms: yellow coloration of skin Absorption & storage n Vitamin A is absorbed with fat in the intestine and secreted into chylomicrons which reach blood. Vitamin A function n Important functions: n Maintenance of healthy epithelium n Retinol and retinoic acid are required for the growth, differentiation, and maintenance of epithelial cells. Recommended dietary allowance (RDA) n 1 µg of retinol = 6 µg of β-carotene = 5 IU n . The daily requirement is about 5000 IU of retinol. Retinol retinal 2. n They include vitamin C and vitamins B. 3. 4