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Bone and skin are connective tissues, and in both the major organic constituent is type I collagen. The relationship between skin and bone has been investigated in many articles. Savas et al. [1] reported a simultaneous decrease in skin collagen content, skin thickness and bone mineral density in women with a 4-year period of amenorrhoea due to anorexia nervosa (AN). This association supports the hypothesis that a generalized loss of collagen is a major factor in the causation of osteoporosis following oestrogen deficiency.

Moreover, in AN there is often a vegetarian lifestyle that has an impact on fat metabolism causing a remarkable stimulation of carnitine

uptake and a reduction in collagen synthesis-associated genes [2]. In addition, an increased risk of osteoporosis, which is also known to be associated with a lowered collagen synthesis, has been associated in vegetarians with a low cobalamin (vitamin B12) status.

References

1. Savas M et al (1989) The effect of anorexia nervosa on skin thickness, skin collagen and bone density. *Br J Obstet Gynaecol* 96(12):1392–1394
2. Karlic H et al (2008) Vegetarian diet affects genes of oxidative metabolism and collagen synthesis. *Ann Nutr Metab* 53:29–32

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