

TOPIC: PROTEIN-RELATED DISORDERS

What Happens If We Consume Too Little or Too Much Protein?

- ◆ Too *little* protein in our diet can cause malnutrition, _____ & even death in extreme cases.
- ◆ Too *much* protein in our diet has _____ health effects (conflicting research shows risks & benefits).

| Lack of Protein | |
|---------------------------|---|
| Health Issue | Details |
| Marasmus (“Skin & bones”) | Protein-Energy Malnutrition (PEM) – chronic calorie deficiency inhibits growth, causes dangerous weight loss & low body mass. |
| Kwashiorkor (“Bloated”) | PEM with edema (swelling) – adequate calories but with protein deficiency causing edema & eventual wasting away of tissues. |
| Marasmic kwashiorkor | Combination of both diseases above. Can lead to bloated legs & arms but “skin & bones” elsewhere. |

NOTE: Eating too much/little protein likely means you’re consuming too little/much of other nutrients.

PRACTICE

Someone who consumes a diet that is too low in protein is at risk of developing _____.

- a) Kidney stones.
- b) Kwashiorkor.
- c) Scurvy.
- d) Zinc deficiency.

PRACTICE

Kwashiorkor is a disease caused by a chronic protein deficiency. One might assume that a protein deficiency could only lead to a “skin and bones” appearance due to muscle tissues wasting away, but kwashiorkor actually causes severe edema (swelling). Why?

- a) The body compensates for the lack of protein by storing water around muscle tissue.
- b) The lack of protein causes an immune response, triggering inflammation.
- c) There isn’t enough protein in the blood to act as a pH buffer, causing tissues to swell.
- d) There isn’t enough protein to draw fluid back into the blood, causing it to accumulate in tissues.