

Nutritional Deficiencies in Young People: Causes, Consequences and Strategies

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Introduction

Being in the 'prime of life', health problems of individuals ranging from teenage years to late twenties rarely cause concern. However, this stage of life can be challenging for many reasons. As young men and women push their bodies to achieve athletic, aesthetic and professional goals, they may not keep track of nutrition, follow restrictive diets and develop undiagnosed nutritional deficiencies.

Here we explore the types, causes and consequences of various nutritional deficiencies common in young adults.

Factors leading to deficiencies

Young people are more likely to follow restrictive diets for health or ideological reasons. They may also take nutritional supplements often without considering scientific data.

The rise of veganism in western countries is mostly driven by the youth population. The motivations vary from environmental concerns to desire for better health or weight loss. While plant based diets are linked with favorable cardiovascular and metabolic outcomes, there is concern over deficiencies in Iron and Vitamin B12 and associated problems ranging from anemia, low White Blood Cell numbers to tooth decay ^{1,2,3}. Eliminating animal products may also cause deficiencies

in essential amino acids unless one is always careful to consume a varied diet. For example: Grains lack lysine, while legumes are low in methionine.

Similar problems are seen in other restricted diets on the opposite end of the spectrum. Ketogenic or Carnivore diets which eliminate many plant products may cause deficiencies in Magnesium, Sodium, Folic Acid, dietary fiber and Potassium. Interestingly, people following such diets may also develop Iron deficiency due to a deficiency of Vitamin C which is necessary for Iron absorption. These dietary deficiencies can lead to muscle cramps, skin problems, fatigue etc.

For young women, puberty brings unique physical demands. Iron deficiency anemia is a known risk in menstruating girls ⁴. Even physically active, healthy appearing young women can suffer from the Female Athletic Triad: a condition which combines eating disorders, amenorrhea and osteopenia. This can lead to long term health problems for women including osteoporosis and infertility ⁵.

Need for Effective Supplementation

Experimental data also shows positive effects of Carnitine in case of viral infections. Its supplementation helped reducing hemolytic anemia associated with

Hepatitis C virus infection⁶. Clinical studies also indicate that Carnitine can reduce the toxic neuropathy which is a side effect of antiretroviral medication⁷.

Current challenges

The Coronavirus pandemic has again raised important issues of susceptibility to infectious disease. As with nutritional deficiencies, it was initially thought that young people were practically immune and need not practice social isolation. While older people, often with pre-existing health conditions, exhibit more severe outcomes, there are cases of young, apparently healthy people also succumbing to this virus⁸. A clinical trial to test the efficacy of Vitamin C in COVID-19 patients is currently underway⁹.

As we have seen, many dietary deficiencies may remain undiagnosed. This should lead us to consider unknown health issues stemming from undiagnosed deficiencies which might lead to unexpected adverse health outcomes in the young population.

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