



WHOLESOME NUTRITION FOR **Bright** **Active** TEENS

Are You Watching Out For Your Teen?

Nutritional needs will vary throughout a person's life depending on their stage of growth and development. For teens, this means an almost insatiable appetite as they experience their growth spurt, because of all the energy and nutrients that are required to build muscle, bones and skin. But is your teen getting the right nutrition? Being preoccupied with school, extracurricular activities, sports, afterschool jobs, family responsibilities and socialising with their friends, often leads teens to resort to health-compromising behaviours such as skipping meals, eating out of the vending machine or at fast food restaurants, or snacking on foods high in sugar, sodium, and unhealthy fats.

Parents can help their teens establish positive identities and healthy lifestyle habits by being role models and encouraging their teens to eat wholesome, nutritious foods. This issue of *News You Can Use* highlights some of the latest findings in this area of nutrition with some helpful tips on how to work with your teens to become their very best.

Nutrient-Dense vs. Kilojoule-Dense Food

While all foods provide some nutrients and kilojoules, nutrient-dense foods are best for the body because they provide more nutrients than kilojoules. Examples include whole grains, lean protein, and fresh fruits and vegetables. Conversely, kilojoule-dense foods are typically poor food choices because they provide kilojoules without very much nutrition, such as refined carbohydrates, candy and soda. As you can imagine, too much kilojoule-dense food will lead to excess kilojoules, weight gain and poor health.

For a growing teen, it is therefore important to get their energy and nutrition from nutrient-dense foods. Their high rates of growth and increased needs for kilojoules and protein, mean more micronutrients (vitamins and minerals) are also needed to help metabolise the food into new cells and tissues. Without these micronutrients, their body does not have all the “ingredients” it needs to use the energy and protein

Pro Vitality+

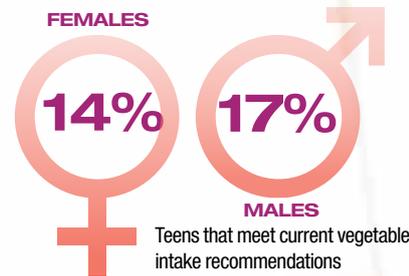
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Eating Enough Vegetables?



consumed to repair or make new cells.

Nutrients and micronutrients of specific concern for this age group include fibre, calcium, vitamin D, B-vitamins, iron and folate. However, because of poor eating habits, skipping breakfast, and high intake of fast foods, the average adolescent does not

consume enough vitamins A, B, C, E, zinc and magnesium. In fact, only 14% of females and 17% of males meet current vegetable intake recommendations.¹

Our European counterparts are also not consuming enough vitamins and minerals, according to a recent study of eight European countries, which found nutritional deficiencies across all age and gender groups.² Eating a varied diet of nutrient-dense foods instead of kilojoule-dense foods is the best way to ensure that the body gets all the nutrients and micronutrients it needs to build healthy skin, hair, bones, and muscles during adolescence.

What is the role of these essential nutrients in the body?³

NUTRIENT	KEY FUNCTIONS DURING ADOLESCENCE:
VITAMIN A	<ul style="list-style-type: none"> • Essential for growth and development, bone growth, normal vision, gene expression, immunity, sexual maturation and reproduction
VITAMIN B ₆	<ul style="list-style-type: none"> • Synthesis and metabolism of amino acids and red blood cells
FOLATE	<ul style="list-style-type: none"> • Synthesis and metabolism of DNA, RNA, and amino acids
VITAMIN B ₁₂	<ul style="list-style-type: none"> • Synthesis of amino acids • Metabolism of proteins and lipids • Important role in building myelin sheaths of nerve cells (myelin sheath helps conduct nerve impulses) and neurotransmitters
VITAMIN C	<ul style="list-style-type: none"> • Synthesis of collagen, carnitine, and neurotransmitters • Plays key roles as an antioxidant and in immunity • Enhances absorption of iron
VITAMIN D	<ul style="list-style-type: none"> • Essential for calcium metabolism
VITAMIN E	<ul style="list-style-type: none"> • Important antioxidant and for formation of red blood cells • Helps the body use vitamin K
CALCIUM	<ul style="list-style-type: none"> • Essential for proper mineralisation of growing bones in order to reach peak bone mass
IRON	<ul style="list-style-type: none"> • Essential component of hundreds of proteins and enzymes involved in metabolic activities in the body, particularly with oxygen transport and storage, immunity, and cognitive function
MAGNESIUM	<ul style="list-style-type: none"> • Involved in more than 300 important metabolic reactions of protein, carbohydrates, and lipids. Important roles in structural components of the body (bone, cell membranes, DNA, etc.)
ZINC	<ul style="list-style-type: none"> • Essential for growth and development, immune function, neurological function, and reproduction

*These medicines have not been evaluated by the Medicines Control Council. These medicines are not intended to diagnose, treat, cure or prevent any disease.

Don't Skip It! **Eating Breakfast** **Supports** **Healthy Body Weight**

Studies have shown that a regular eating pattern is important in obesity prevention. Recent data suggests that up to 60% of young people consistently skip breakfast. According to a population-based study of 4,000 adolescents conducted by the University of Eastern Finland, those who consumed five regular meals a day (breakfast, lunch, dinner, and two snacks) were associated with a

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- #2914 – RICH CHOCOLATE, 16 SERVINGS



reduced risk of overweight and obesity in both male and female teens as well as a reduced risk of abdominal obesity in boys.⁴ The researchers measured the effect of meal frequency on genes linked to obesity, specifically the presence of markers on obesity-susceptible sites on DNA. What they found was that regular meals diminished the “BMI-increasing” effect of these genetic variants. Furthermore, they observed that skipping breakfast was associated with excessive weight gain and waist circumference.

Another study found that adolescents who consumed poor breakfasts compared to those who ate more nutritious breakfasts had a 68% higher incidence of developing metabolic syndrome 27 years later during the follow-up evaluation.⁵ They suggested that the association was the result of a negative effect on blood sugar regulation. The message of these studies is that having healthy and nutritious breakfasts readily available in your home every day is vitally important.

What makes a nutritious breakfast? According to researchers at the University of Missouri-Columbia, a nutritious

breakfast is high in protein. The study was the first of its kind to look at the impact of eating breakfast on appetite and snacking in young people.⁶ Participants who normally skipped breakfast were given a high-protein breakfast or a normal-protein breakfast, and then underwent a brain scan using functional magnetic resonance imaging (fMRI) just prior to dinner, to evaluate the brain signals associated with food motivation and reward-driven eating behaviour. What they found was that those who ate protein-rich breakfasts were less likely to consume high-fat or high-sugar snacks later on in the day. Thus, starting the day with a healthy breakfast not only sets your teen up for a successful day, but also a nutritious one. For teens who complain about not being hungry in the morning, researchers from this study say that it only takes approximately three days for the body to adjust to eating early in the day.

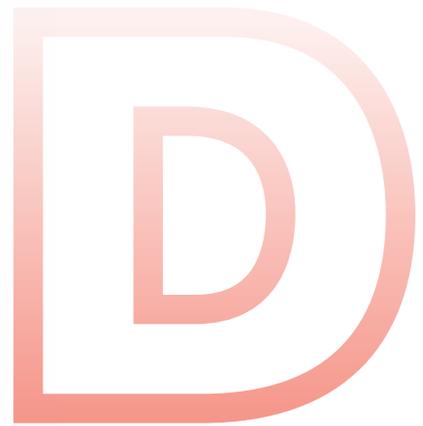
Build Strong Bones for a Strong Body

According to the Centers for Disease Control, 90% of peak bone mass is accrued by age 18 in girls and age 20 in boys.⁷ Because it is important for females to build their bone mass during adolescence, the body actually exhibits its greatest capability to absorb calcium around the start of menstruation, with rates decreasing from then on.⁸ The same holds true



Calcium and Vitamin D Intake Important for Adults Too!

While the majority of your bone mass is accrued during adolescence, it is never too late to ensure you're getting the right nutrients to maintain the bone density that you created. Adequate calcium, magnesium, and vitamin D is necessary to prevent further bone loss during adulthood.⁹



for males, who have peak calcium absorption during puberty, and who will accrue more bone mass than females in general.

A number of factors will influence the development of bone mass, but diet

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and behaviour are on the top of the list. A diet that provides adequate intake of calcium, phosphorus, and protein, as well as vitamin D and magnesium is essential for adolescents because bones are composed largely of these materials. A recent double-blind, placebo-controlled study found that supplementation with vitamin D provided musculoskeletal benefits in adolescent girls.¹⁰ Even moderate insufficiencies will significantly lead to weaker bones, and hinder the attainment of peak bone mass and final height.¹¹ The Endocrine Society recommends at least 600 IU/day in order to maximise bone health, and supplements for those who do not get this from dietary sources or who do not spend enough time in the sun.¹²

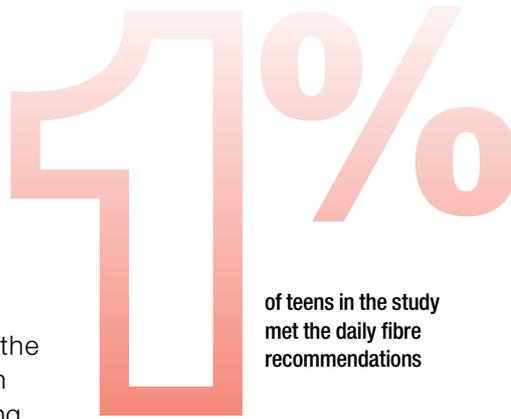
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Protect Your Girls! Good, Long-Term Breast Health

A recent study conducted by researchers at Harvard on Benign Breast Disease (BBD) highlights the importance of consuming fibre-rich fruits and vegetables, and nuts during the teen years. BBD, though not cancerous, is considered a marker for increased breast cancer risk. The team analysed data consisting of surveys completed by nearly 30,000 women during their high school years and conducted follow-ups several years later. They found that the women who had the highest fibre intake as adolescents (~28 g per day) had a 25% reduced risk for developing BBD compared to those with low fibre intake (~15 g per day), and those who ate nuts more than twice per week as teens had a 36% reduced risk of developing BBD.¹³



In another study, more than 6,500 adolescent girls in the prospective Growing Up Today Study cohort were evaluated for BBD risk relative to carotenoid consumption. Researchers found an association between carotenoid intake and lower BBD risk, suggesting that the mechanism may be through antioxidative or antiproliferative effects exerted by carotenoids while breast tissue is still developing.¹⁴ The significance of these two studies highlight the impact of adolescent nutrient intake on future health risk, and underlines the importance of a diet rich in fruits, vegetables, and nuts.



“Roughage” for the Heart

Research suggests that a diet low in excess salt and high in fibre and fresh fruits and vegetables may also protect your teen from future cardiovascular health problems. In one such study conducted on more than 500 teens in 2012, researchers found that teens eating diets lacking “roughage” or fibre, may have an increased risk for heart disease and diabetes.¹⁵ Strikingly, only 1% of the teens in the study met the daily fibre recommendations of 28g for females and 38g for males. What they found was that greater consumption of dietary fibre was associated with both lower abdominal fat and levels of inflammatory factors in their blood, both of which are negative risk factors for cardiovascular disease and diabetes. Researchers urge teens to eat more fruits, vegetables, and whole grains in their diet because heart disease and plaque development is a lifelong process that can be slowed down with good eating habits.

Iron Intake Important For All Teens

Iron is one of the most common nutritional deficiencies in adolescence. Both male and female adolescents must consume enough iron to meet the expanding blood volume that accompanies their growth spurt, although for females, this need increases due to the loss of blood from menstruation. Aside from its role in growth and oxygen storage and transport, iron has important roles in immunity and cognitive function. Getting enough may also improve your teen’s performance at school. A double-blind, placebo-controlled study of iron-deficient teenage girls found that supplementing with iron for eight weeks significantly improved verbal learning.¹⁶

How to Encourage Your Teens to Eat Healthily



Provide your teen with a healthy breakfast every day



Provide healthy family meals



Keep your kitchen stocked with healthy foods.



Reward achievements with non-food items such as new clothing, or tickets to a concert or event.



Invite teens to participate in cooking healthy meals.



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