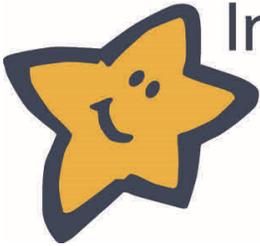


# Down Syndrome

Indiana™



## Heart Disease

*Ask the Expert...*

**Q: What is the risk for heart disease in adults with Down syndrome who do not have congenital heart problems (i.e., birth defects of the heart) and, specifically, atherosclerosis (hardening of the arteries)?**

**A:** Adult patients having Down syndrome but no evidence of congenital heart disease are at the same risk for eventual development of atherosclerotic cardiovascular disease (coronary artery disease, stroke, peripheral artery disease, and aortic aneurysms) as compared to individuals who do not have Down syndrome. Risk factors for the development of coronary artery disease and stroke include:

- (1) family history of early heart attacks or strokes,
- (2) hyperlipidemia,
- (3) hypertension,
- (4) smoking,
- (5) diabetes,
- (6) obesity, and
- (7) sedentary life style.

The American Academy of Pediatrics (*Pediatrics, July, 2008, Vol 122, No 1: 198-208*) recommends a screening fasting lipid panel in all children by age 10 years, and as early as 2 years of age if there is a positive family of early atherosclerotic disease.

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or call 317-925-7617.

Atherosclerosis is a nutritional disease of childhood and decreasing the incidence of coronary artery disease in mid- and late-life necessitates establishing healthy habits in nutrition and lifestyle early in life. (*Berenson, et al; "Atherosclerosis: A Nutritional Disease of Childhood", American Journal of Cardiology, 1998; 82:22T-29T*). The Muscatine, Iowa Study (*Clarke, et al; "Changes in ponderosity and blood pressure in childhood: the Muscatine Study"; American Journal of Epidemiology, 1986; Vol 124, No 2, 124:195-206*) confirmed that obese children have more significant hypertension and hyperlipidemia.

Longitudinal studies indicate that obesity acquired in childhood is predictive of worsened adult obesity and the development of coronary artery disease. If children become overweight before age 8 years, obesity in adulthood is likely to be more severe. Overweight children and adolescents may experience other health conditions associated with increased weight, which include asthma, liver damage, sleep apnea, and type 2 diabetes. Obesity also puts children at long-term higher risk for other debilitating chronic conditions such as stroke; breast, colon, and kidney cancer; musculoskeletal disorders; and gall bladder disease. The fundamental cause of obesity is a greater imbalance between energy intake (overeating) and energy expenditure (lack of exercise).

We must, therefore, encourage our children with Down syndrome to exercise more and decrease caloric intake to avoid obesity as a cause of developing atherosclerotic heart disease. We need to treat the development of hypertension or hyperlipidemia aggressively. If these patients develop insulin insensitivity (type 2 diabetes), this also needs to be aggressively managed. A significant number of patients with Down syndrome may also have low thyroid levels (hypothyroidism) which may accentuate their tiring easily and obesity. Blood tests are indicated to make certain that thyroid function is maintained normal.

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