

Mito 101

What is Mitochondrial Disease?

“Mitochondrial diseases result from failures of the mitochondria, specialized compartments present in every cell of the body except red blood cells. Mitochondria are responsible for creating more than 90% of the energy needed by the body to sustain life and support growth. When they fail, less and less energy is generated within the cell. Cell injury and even cell death follow. If this process is repeated throughout the body, whole systems begin to fail, and the life of the person in whom this is happening is severely compromised. The disease primarily affects children, but adult onset is becoming more and more common.

Diseases of the mitochondria appear to cause the most damage to cells of the brain, heart, liver, skeletal muscles, kidney and the endocrine and respiratory systems. Depending on which cells are affected, symptoms may include loss of motor control, muscle weakness and pain, gastro-intestinal disorders and swallowing difficulties, poor growth, cardiac disease, liver disease, diabetes, respiratory complications, seizures, visual/hearing problems, lactic acidosis, developmental delays and susceptibility to infection.” (UMDF (United Mitochondrial Disease Foundation), 2008)

In Canada there are approximately 9000 people with definite mitochondrial disease, about 1 in 4000. However, even the largest Mito Clinic in Canada by far, at Hamilton Health Sciences McMaster Children’s Hospital, sees only about 300 cases, which means that many people are going unrecognized. The bigger issue is also that the symptoms can be so diverse, that many folks are being labelled as having other diseases. Also, many people need to be screened and that takes more resources to fund the few specialty clinics that have the expertise to screen them. (Dr. M. Tarnopolsky, 2008)

How common are mitochondrial diseases?

- About one in 4,000 children in Canada and the United States will develop mitochondrial disease by the age of 10 years. (MitoAction, 2008)
- Approximately 9000 people in Canada have definitive mitochondrial disease. (Dr. M. Tarnopolsky, 2008)
- However, many of these people are going unrecognized and undiagnosed. The symptoms can be so diverse, that many people are being labelled as having other diseases. (Dr. M. Tarnopolsky, 2008)
- Many people need to be screened for Mitochondrial Disease, and that takes more resources to fund the few specialty clinics that have the expertise to screen them. (Dr. M. Tarnopolsky, 2008)
- In adults, many diseases of aging have been found to have defects of mitochondrial function. These include, but are not limited to, type 2 diabetes, Parkinson's disease, atherosclerotic heart disease, stroke, Alzheimer's disease, and cancer. In addition, many medicines can injure the mitochondria. (MitoAction, 2008)