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## Why do we Age?

Many theories on aging exist; however, none have proven to provide the complete answer. Error theories that point to free radicals or telomere shortening as the culprit suggest that decreasing oxidative stress through use of antioxidants in conjunction with a healthy diet and exercise can help delay the aging process. MitoQ is a potent neutraliser of free radicals that decreases oxidative stress and may help protect our bodies against long-term nerve and tissue damage that ultimately results in a decreased life span.

Why do we get older? What switches cells in our body to self-destruct mode after years of perfect performance? Is there a limit to how old we can live to?

If you have ever pondered these questions then you are not alone. Mankind has been trying to unravel the mystery of aging for the past few hundred years. Understanding the aging process is critical to our ability to understand and treat highly age-related diseases that currently kill or limit the quality of life of the majority of people in developed countries. Despite recent advances in molecular biology and genetics we are still none the wiser although a number of theories exist, some of which hold more credence than others.

Aging theories can be categorised into two main groups, although there is considerable overlap and interaction between them.

Programmed theories of aging state that our body is designed to age and that there is a certain biological time-line that our bodies follow. The ultimate length of this time line is regulated by either genes, hormones, or our immune system.

Error theories of aging assert that aging is a result of damage that accumulates over time. Cells die as a result of wear and tear, oxidation, protein build-up, or by other unavoidable natural processes that causes gradual degradation, particularly of DNA. Other error theories point to free radicals and telomeres as causes of aging.

Free radicals are produced as a by-product of many cellular reactions. These are normally kept in check by our bodies own supply of antioxidants, such as coenzyme Q10 (CoQ10). However, if free radical production is excessive, or if our supply of antioxidants is reduced, free radicals damage cellular components

such as proteins, fats and DNA, destroying tissue and ultimately causing our organs to stop functioning.

Telomeres are bits of spare DNA that live on the end of chromosomes. They allow chromosomes to divide and duplicate without losing any of their genetic material and have been likened to the protective plastic cap on the end of a shoe lace. Telomeres progressively get shorter with every subsequent cell division and shorter telomere lengths have been associated with cardiovascular disease, diabetes, cancer, osteoporosis, dementia, arthritis and a decline in cognitive function. Telomerase is an enzyme that has a protective effect on telomeres and can add bases to their ends,

increasing their length and their lifespan. Certain things, such as regular physical activity, eating a healthy diet containing limited or no processed foods, losing weight and reducing oxidative stress through use of antioxidants have all shown to increase telomerase.

CoQ10 is a potent antioxidant that is produced naturally by our bodies and is available as a supplement. It can neutralise free radicals and decrease oxidative stress. MitoQ is a revolutionary form of CoQ10 that has been formulated to get right inside mitochondria, one of the main sites of free radical production.

By decreasing oxidative stress, MitoQ has the potential to delay aging by decreasing cellular damage and increasing telomere length when taken in conjunction with a healthy diet and exercise.

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