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Abstract Topic: - Molecular effects of genetic variation

Abstract Title: - Yogic amelioration on the shortening of telomere: a review

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Aims: - The present review sheds a light on the different yogic interventions on telomere maintenance and its implications on humanity.

Methods: - Nature's key rule for the sustainability is reproduction. Depending on the resources and interaction within nature, cells undergo division, growth and maintenance of itself. Chromosomes are the main factor participating in these processes which are made up of DNA and proteins. The DNA wrapped around histones possess two loose ends which if aren't protected may stick or cut-off losing a lot of genetic material. For the protection of genetic material, telomere (synthesized by enzyme telomerase) forms the cap which covers the loose ends of DNA. Telomere serves as a molecular clock that controls the replicative capacity of cells and their growth to senescence. In absence of these signals, cell division continues and can lead to aberrations. This malfunction can result due to various external factors such as smoking, alcohol consumption, pollutants, life style etc. The reason is, that these factors induce the production of ROS in human body causing the oxidative stress and damages DNA, lipids and proteins affecting the telomere. Moreover, the genes (DKC1, TERC, TERT, NHP2) important for enzyme telomerase are also affected and can cause mutation. ROS production also modifies DNA bases (mainly 8 Oxo G) and causes single stranded DNA breaks in the genome. 8 Oxo G pairs with adenine as frequently as with cytosine. During replication this GC to TA transversions leads to mutation causing various disorders. [8- oxodG-DNA glycosylase cuts 8-OxoG and causes chain break at GC (8-hydroxyguanine residue- cytosine). These repeated lesions are highly error prone causing GC-TA mutations and genomic instability.

Results: - However, the traditional ancient practice of "Yoga" has shown the positive insight to ameliorate telomere shortening. There are few studies that proves that Yoga has shown its effect by reversing the accelerated manifestation of toxic buildup. There are various yogic practices that aim to reduce the buildup of ROS and improves the functional balance which may also lead to the best health.

Conclusions: - There is evolving evidence that regular practice of pranayama, asana, and meditation stabilizes telomeres.

Keywords: - However, the traditional ancient practice of "Yoga" has shown the positive insight to ameliorate telomere shortening. There are few studies that proves that Yoga has shown its effect by reversing the accelerated manifestation of toxic buildup. There are various yogic practices that aim to reduce the buildup of ROS and improves the unctional balance which may also lead to the best health.