

4.0 AIMS AND OBJECTIVES

4.1 AIMS OF THE STUDY

To investigate the role of yoga and its possible mechanism involved in T2D related DNA damage & repair

4.2 OBJECTIVES OF THE STUDY

-) To assess the effect of Yoga practices on DNA damage & repair in patients with T2D
-) To investigate the mechanism of action involved in the effect of Yoga practices on DNA damage in patients with T2D

Mechanism of action of Yoga – a conceptual framework

Type 2 Diabetes, characterized by hyperglycaemic condition is associated with increased inflammation and oxidative stress, which in turn can increase the DNA damage that can lead to various debilitating conditions. Yoga is known to reduce oxidative stress and promote DNA repair as seen in previous studies. Hence, Yoga's effect on DNA damage can be considered to be mediated through its effect on oxidative DNA damage and DNA damage repair efficiency.

Oxidative DNA damage and DNA repair as mediators:

If oxidative DNA damage and DNA repair are mediators, then, the effect of Yoga on the resultant DNA damage should be routed via its effect on oxidative DNA damage and DNA repair. That is, the differences in the oxidative DNA damage (reduced) and the DNA repair (enhanced) should account for the negative association of Yoga and resultant DNA damage.

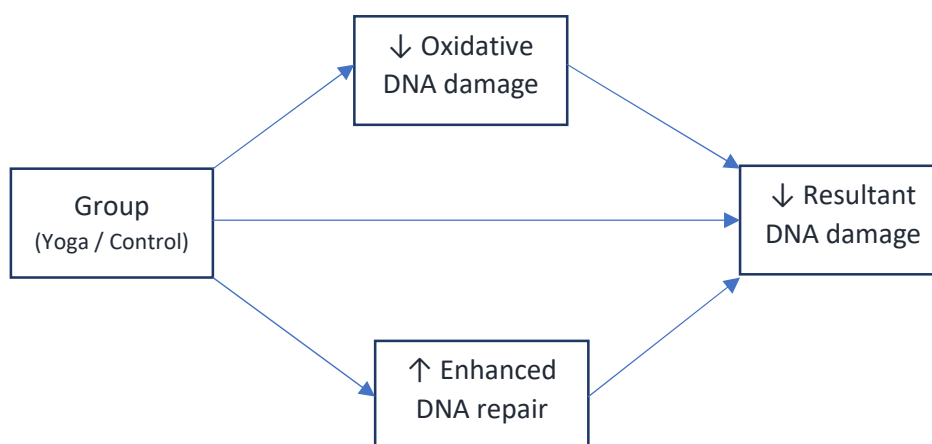


Fig 3. Mechanism of action of Yoga on T2D related DNA Damage

4.3 JUSTIFICATION OF THE STUDY

Though yoga is found to be beneficial in controlling the diabetic condition in T2D patients, its effect and mechanism of action at the molecular level is not understood properly. Better understanding at a fundamental level, like the magnitude and nature of T2D patient's oxidative DNA damage & repair processes in response to the yoga intervention, could help us understand and scientifically explain the mechanism of action of yoga and its benefits. This may also thereby help the scientific and medical community to promote its practice as an adjunct or alternative therapy for managing lifestyle diseases like T2D.

4.4 HYPOTHESIS AND NULL HYPOTHESIS

H_{A1}: Yoga practices may have an effect on DNA damage & repair associated with T2D.

H_{A2}: Effect of Yoga on alleviating T2D related DNA damage may be mediated through its effect on oxidatively induced DNA damage and DNA repair process.

H_{O1}: Yoga practices may not have an effect on DNA damage & repair associated with T2D.

H_{O2}: Effect of Yoga on alleviating T2D related DNA damage may not be mediated through its effect on oxidatively induced DNA damage and DNA repair process.