

Introduction: Meditation is being increasingly known as a practice of health promotion which enables the relationship between the human mind and body. A growing body of research suggested that long-term meditation practice has been popularized among multidisciplinary scientific communities due to its wide array of benefits including enhanced telomere maintenance. This study aims to compare the telomere length, and the levels of plasma telomerase enzyme between long-term meditators and controls.

Method: In this case control study long-term meditators who practised meditation for more than 3 years were recruited from meditation centres in Sri Lanka and age, and gender matched controls (non-meditators) were recruited from the community using purposive sampling. Blood was collected into an Ethylenediaminetetraacetate (EDTA) tube using the venepuncture method. DNA was extracted from the buffy coat using a commercially available kit. Telomere length was measured via quantitative polymerase chain reaction using Absolute Human Telomere Length Quantification qPCR Assay Kit and plasma telomerase levels were measured using Human TE (Telomerase) Enzyme-linked Immunosorbent Assay (ELISA) Kit. Socio-demographic data were collected. Independent sample t-test was used to compare the mean relative telomere length, and plasma telomerase level between meditators and controls.

Results: Twenty six of the 36 participants (72.2%) were male and the mean age $\pm$ standard deviation (SD) of the meditators and controls were 42.78 ± 9.8 and 42.83 ± 9.78 years, respectively. Average telomere length (meditators: mean $\pm$ SD = 10.32 ± 1.10 kb; controls: mean $\pm$ SD = 6.82 ± 0.65 kb; $p=0.010$) and telomerase level (meditators: mean $\pm$ SD = 9.82 ± 1.99 ng/mL; controls: mean $\pm$ SD = 8.06 ± 1.57 ng/mL; $p=0.026$) was significantly higher in meditators compared to controls.

Conclusion: The findings of this study suggest that long-term meditation practice may have potentially beneficial effects on the telomere length and telomerase level and thus, delay cellular ageing.