

EFFECT OF NURSE LED INTERVENTION ON COGNITIVE AND NON-COGNITIVE FUNCTIONS AND SERUM TNF ALPHA LEVELS IN PATIENTS RECEIVING CHEMOTHERAPY FOR COLORECTAL CANCER AT TATA MEMORIAL HOSPITAL.

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ABSTRACT

INTRODUCTION

Chemotherapy is associated with cognitive dysfunction, fatigue, depression and sleep disturbances attributable to multiple factors ranging from structural alteration to the brain tissues to production of pro-inflammatory cytokines. Exercise has been associated with benefits such as improved physical function, strength, fatigue, QoL, and possibly survival and recurrence among cancer survivors.

OBJECTIVE

To evaluate effect of resistance and aerobic exercises on cognitive and non-cognitive (fatigue, depression and sleep) functions and serum TNF α levels in patients receiving chemotherapy for CRC.

METHODOLOGY

This randomized controlled parallel group design included 64 and 65 participants in study and control group respectively. Baseline assessment was done before starting chemotherapy and thereafter at 3, 6, 9 and 12 months from baseline assessment. Nurse led intervention included 1 week of supervised and 12 weeks of unsupervised resistance and aerobic exercises and administration of Vitamin D- 60,000 IU, total 8 sachets over a period of 12 weeks.

RESULT

There was significantly better cognitive function, reduced fatigue, reduced depression and better quality of sleep in study group participants compared to control group participants at all i.e. 1st, 2nd, 3rd and 4th follow ups following administration of nurse led intervention. ($p < 0.001$)

However, there was no statistically significant difference in serum TNF α level.

CONCLUSION

The study findings revealed that combined resistance and aerobic exercises are effective in improving cognitive function, fatigue, depression and quality of sleep in patients receiving chemotherapy for CRC.

METHODS

Research approach- Quantitative

Research Design- Parallel open group randomised controlled trial.

R O₁ X O₂, O₃, O₄, O₅

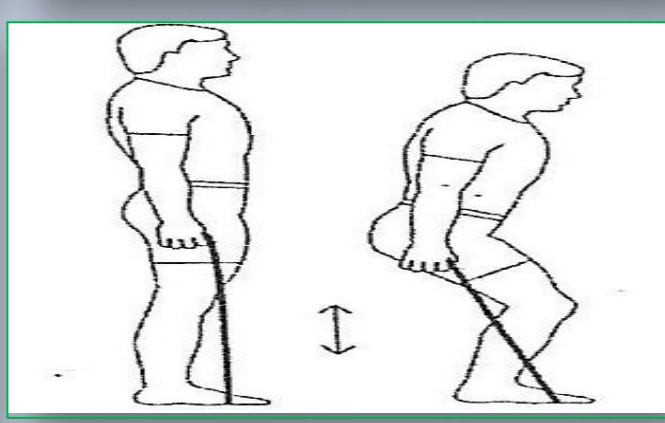
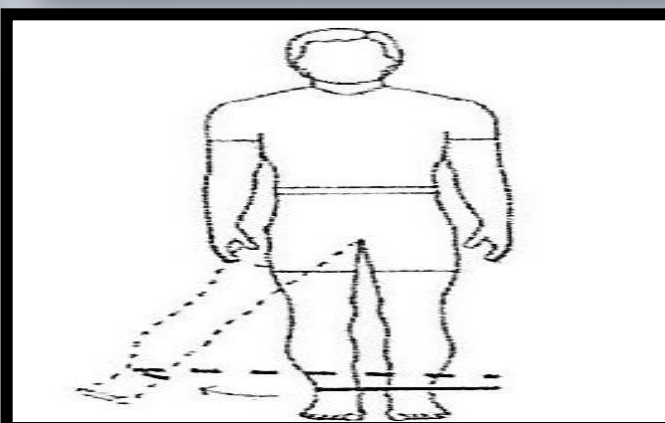
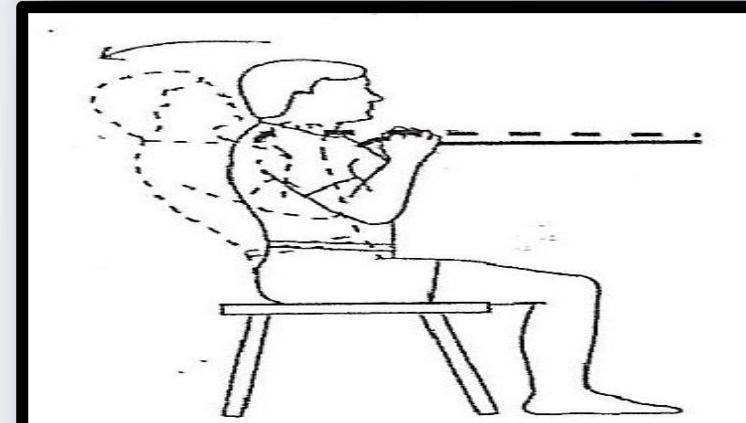
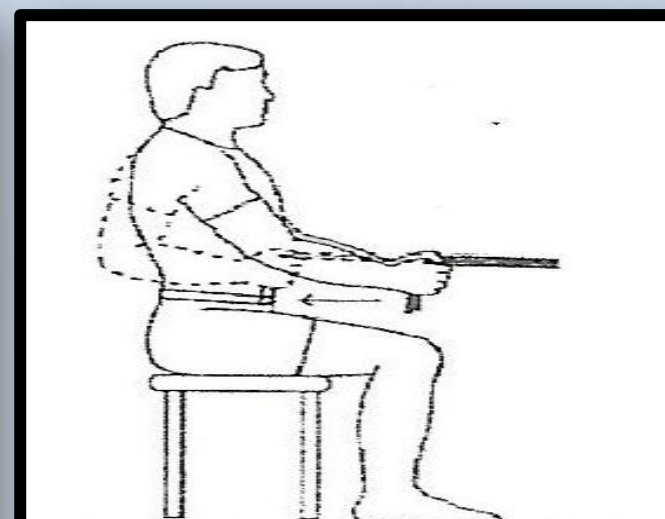
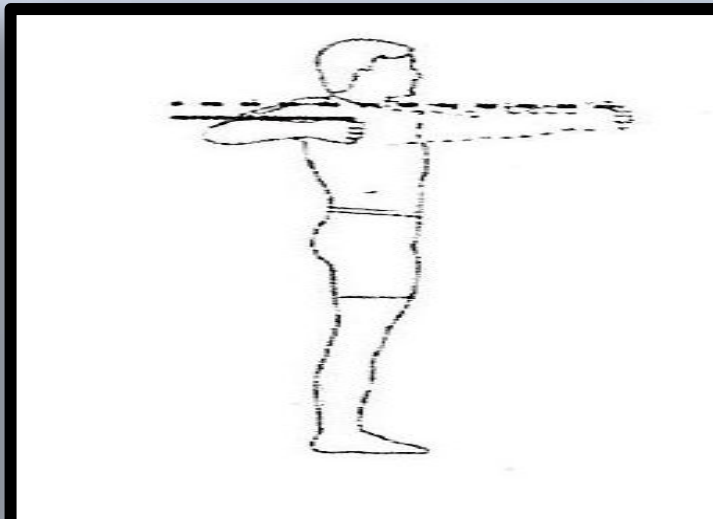
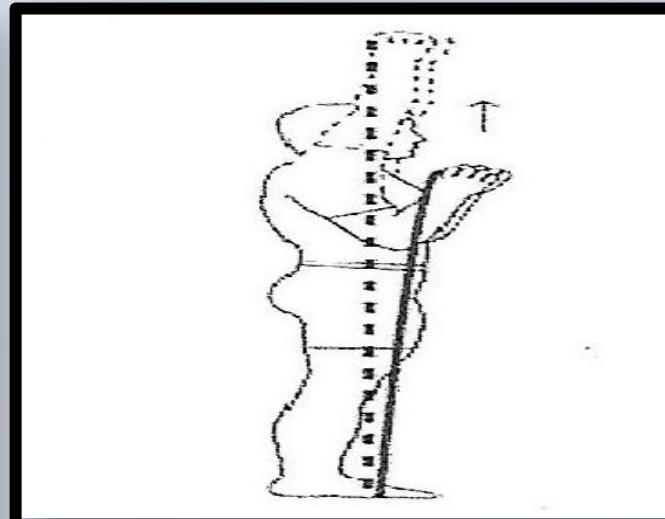
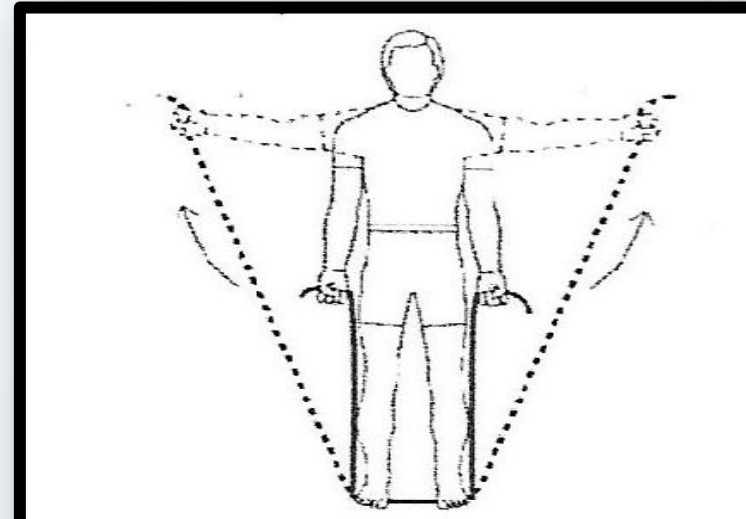
R O₆ O₇, O₈, O₉, O₁₀

R- Randomization

O₁ & O₆- Baseline assessment of cognitive and non-cognitive functions and serum TNF α level.

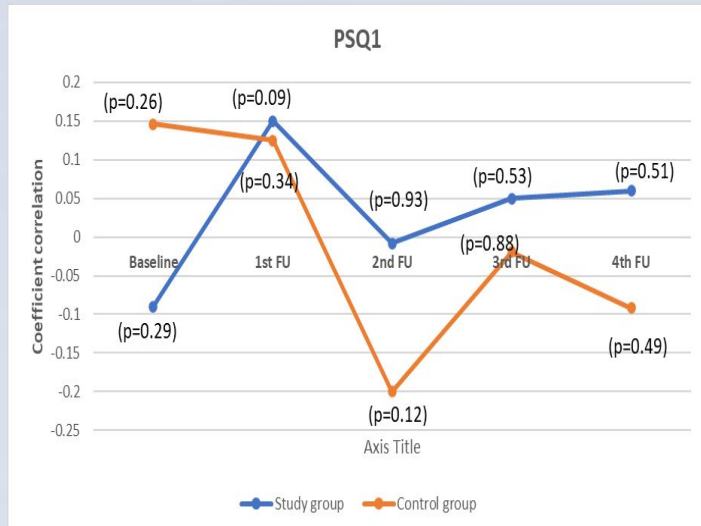
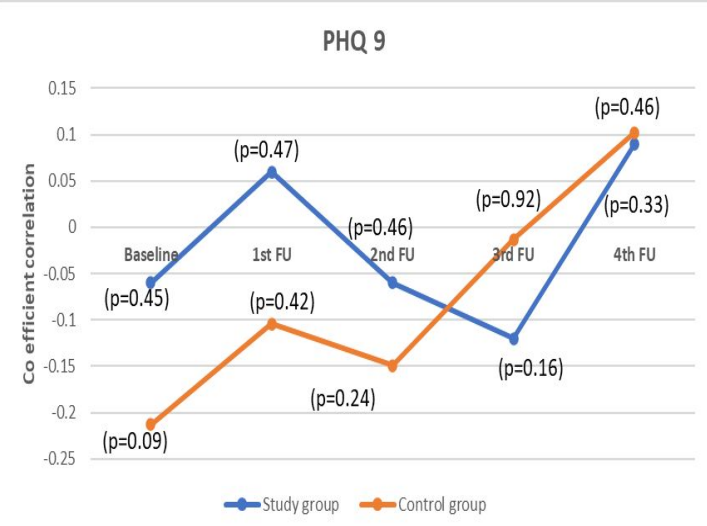
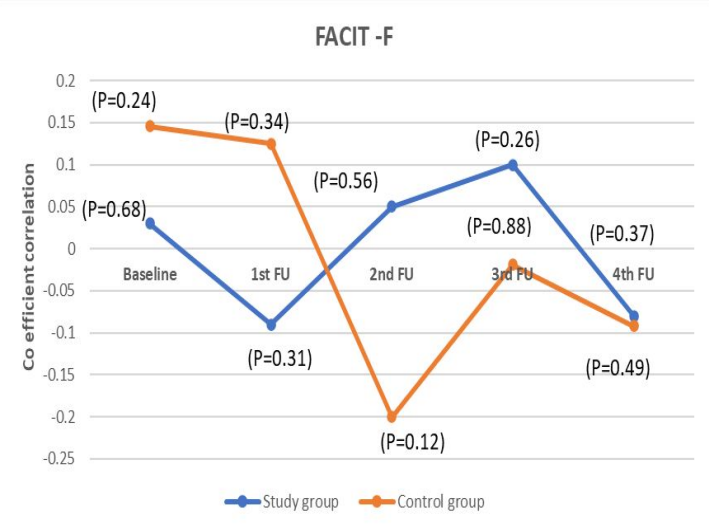
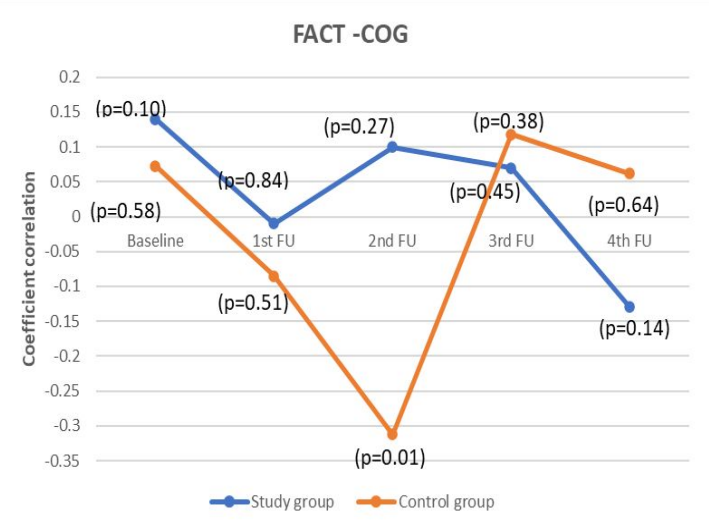
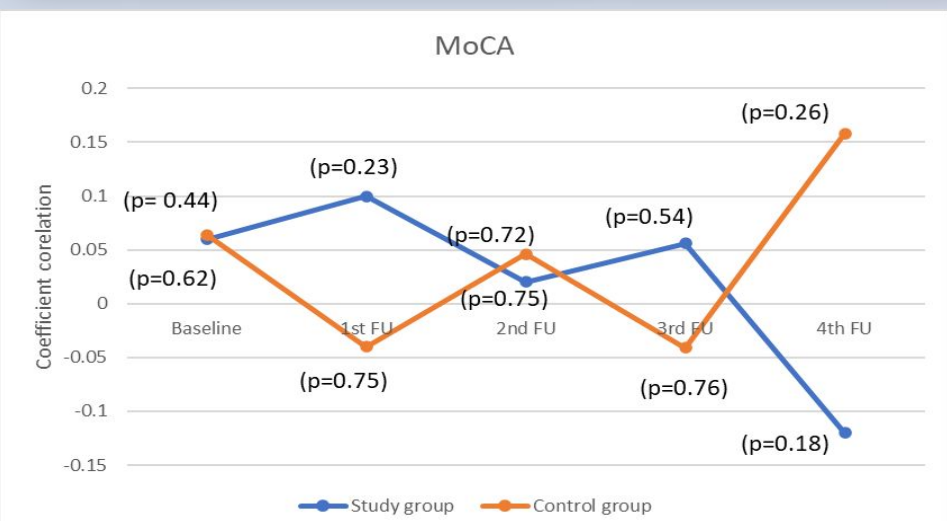
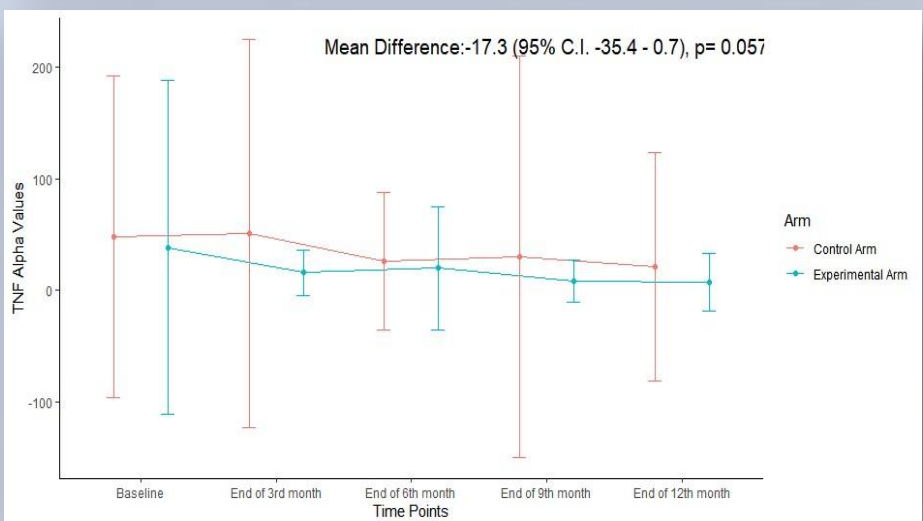
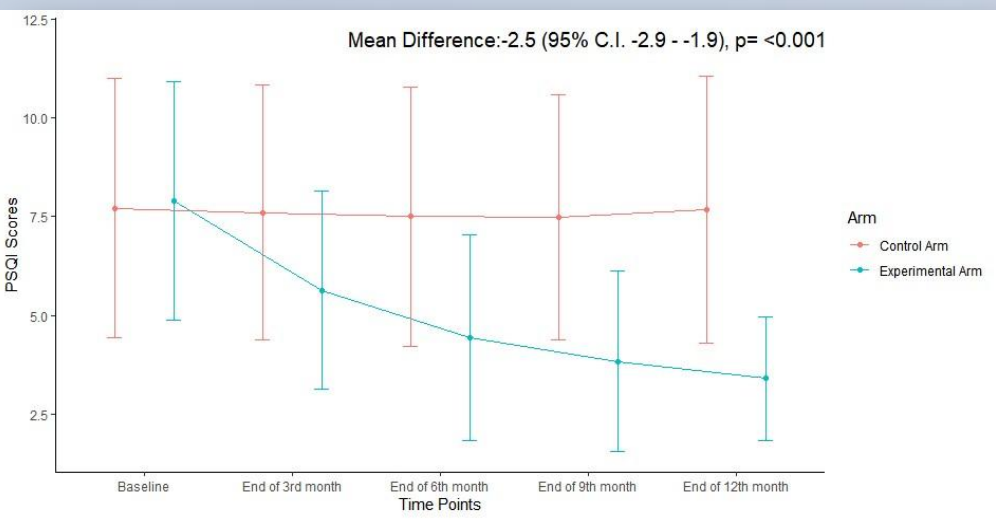
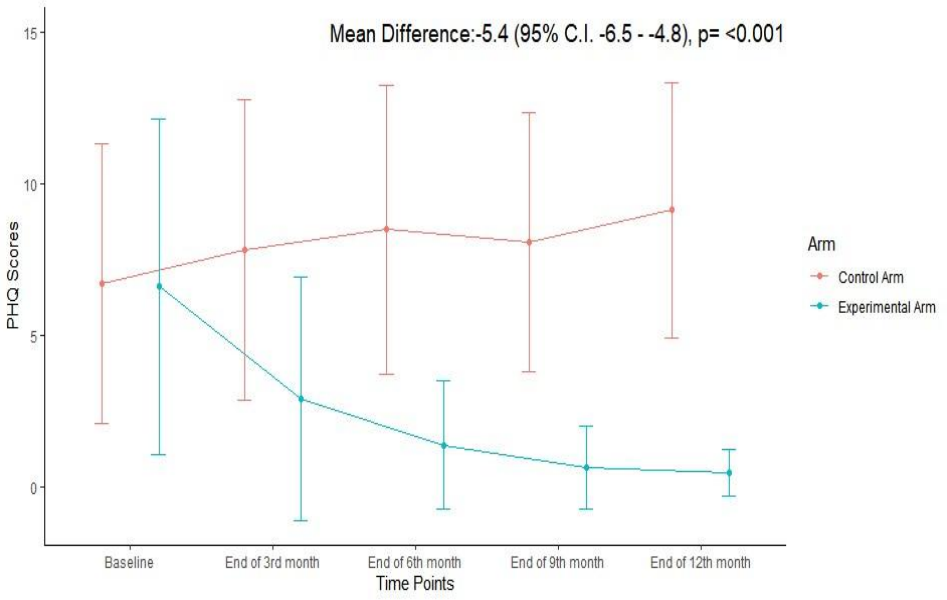
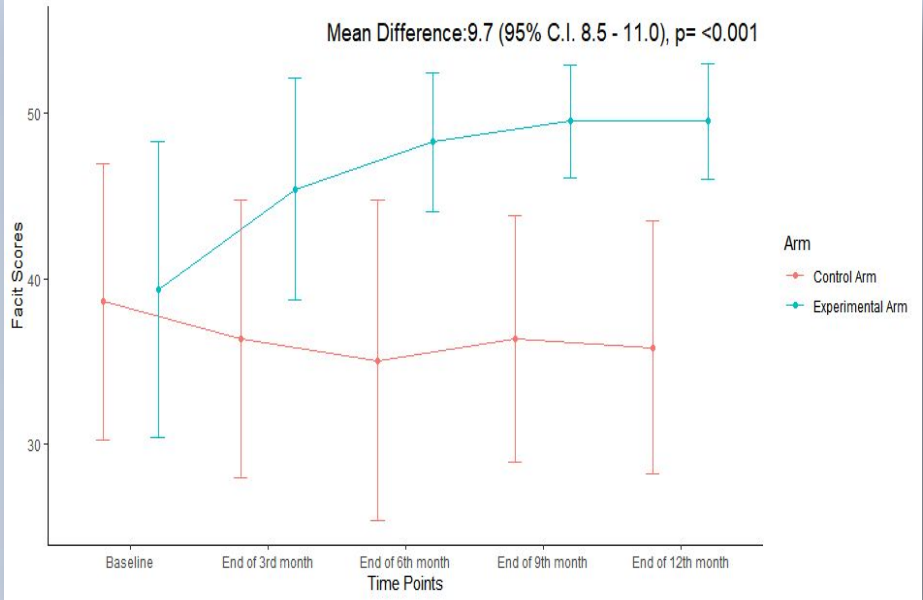
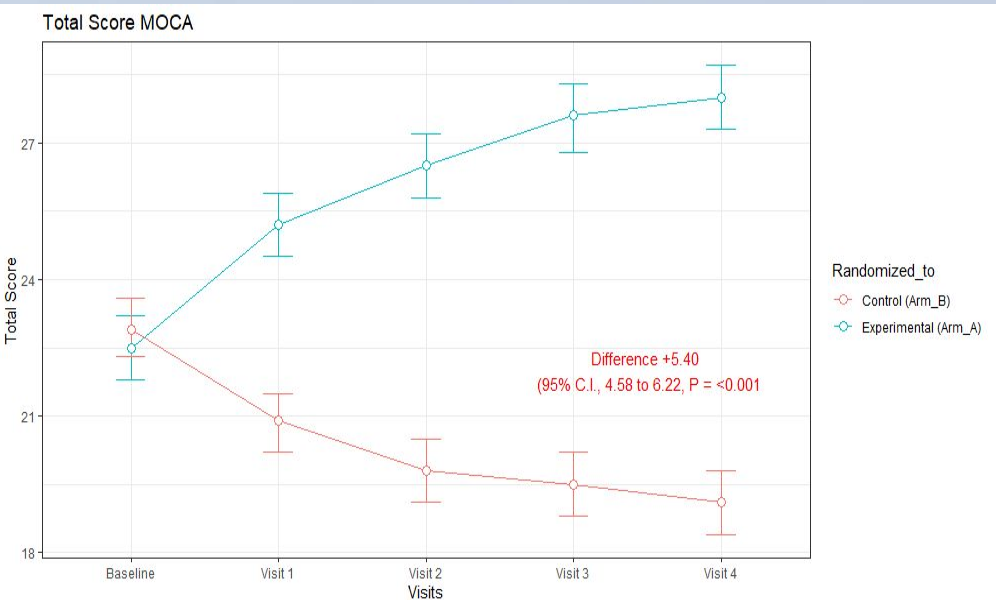
O₂, O₃, O₄, O₅ } Assessments of cognitive and non-cognitive functions and serum TNF α level at 3rd, 6th, 9th and 12th months after baseline
O₇, O₈, O₉, O₁₀ } assessment.

STUDY INTERVENTION (Aerobic + Resistance exercise - 150 hours/week)



VIT D ADMINISTRATION : Week 1, 2, 3, 4, 6, 8, 10, 12

RESULTS



DISCUSSION

Exercise is associated with significant reduction in time to complete processing task and improved memory. A meta-analysis from 28 studies involving 1573 participants concluded that cancer related fatigue was positively affected by exercise ($p=0.01$). Exercise of about more than 135 minutes per week has a moderate effect on reducing symptoms of depression ⁽¹⁾. Distal/peripheral dilation of blood vessels leads to secretion of melatonin which induces sleep ⁽²⁾. Studies have shown acute exercise can increase IL- 6 which is known to cause drowsiness ⁽³⁾. Alexandra MV Wennberg, et al. (2019) found no association between cognitive impairment and TNF α levels in 1602 older adults ⁽⁴⁾.

CONCLUSION

Study findings showed combined resistance and aerobic exercises improves cognitive function, fatigue, depression and quality of sleep in patients receiving chemotherapy for CRC

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