

THE EFFECT OF COQ10 WITH WEIGHT TRAINING ON MUSCULAR STRENGTH

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Abstract

The major purpose of this research was to investigate the effect of CoQ10 with weight training on muscular strength measured as 1 R.M.(repetition maximum) in healthy people. The subjects in this research were the clients in weight loss program at APEX profound beauty clinic, thonglor, bangkok age 20-60 years. Simple random sampling was used to categorize 30 subjects in 2 groups, 15 subjects in each group. The experimental group received CoQ10 300 mg. post breakfast everyday with pyramid technique in weight training program. The control group received placebo post breakfast everyday with pyramid technique in weight training program. Both groups were trained 3 times per week for a period of 6 weeks. Data were statistically analyzed using an independence t-test and one way analysis of variance with repeated measurement and also the LSD test was employed for mean comparison. All testing used the alpha .05 level of significant.

Result showed that the control and experiment group have significantly enhanced physical performance measured as 1 R.M. muscular strength test at .05 levels after training in week 3 and week 6. When compare between two groups in relative muscular strength has no significantly enhanced physical performance measured as 1 R.M. muscular strength test at .05 levels after training in week 3 but when compare between two groups in relative muscular strength, CoQ10 has significantly increased physical performance in comparison to placebo measured as 1 R.M. muscular strength test at .05 levels after training in week 6.

Keywords: CoQ10/Weight Training/Muscular Strength

Background

CoenzymeQ10 (CoQ10) is synthesized in the human organism and is a fat soluble, vitamin like substance which can exist as ubiquinone (Oxidized CoQ10) or as ubiquinol (Unoxidized, reduced form). It plays various roles in the energy production of the muscles' cells. The concentration of the coenzyme in the tissue can decline, and thus be suboptimal, as a consequence of different pathological changes, In addition, additional factors that can negatively influence CoQ10 levels include intensive training and aging. Long lasting and intensive efforts by sport training likewise contribute to this reduction. Some existing studies have already shown that CoQ10 can mitigate muscle damage after high level training (Diaz-Castro J et al, 2011). Previous studies have been conducted utilizing differing dosage levels of CoQ10 and have shown conflicting results. CoQ10 was previously considered to be an ineffective substance for athletes, as past studies with CoQ10 did not give consistent results. This may have been caused by the study design or by an insufficient dosage of CoQ10.

Objective

The major purpose of this research was to investigate the effect of CoQ10 with weight training on muscular strength by comparing muscular strength and relative muscular strength between experiment group and control group after training in week 3 and week 6.

Methodology

1. Simple random sampling was used to categorize the 30 subjects.
2. Explanation of objective and all processions to subjects.
3. To measure 1 R.M. muscular strength test by Flat Bench Press on Smith Machine.
4. Categorization the 30 subjects in 2 groups, 15 subjects in each group.
5. Training protocol

-The experimental group received CoQ10 300 mg. post breakfast everyday with pyramid technique in weight training program.

-The control group received placebo post breakfast everyday with pyramid technique in weight training program.

-Both groups were trained 3 times per week for a period of 6 weeks. Training on Monday, Wednesday and Friday at 05.00-07.00 P.M. for 6 weeks.

6. Measured muscular strength 1 R.M. test after training in week 3 and week 6.

7. Data were statistically analyzed using an independence t-test and one way analysis of variance with repeated measurement and also the LSD test was employed for mean comparison. All testing used the alpha .05 level of significant.

Result

Result showed that the control and experiment group have significantly enhanced physical performance measured as 1 R.M. muscular strength test at .05 levels after training in week 3 and 6. When compare between two groups in relative muscular strength has no significantly enhanced physical performance measured as 1 R.M. muscular strength test at .05 levels after training in week 3 but when compare between two groups in relative muscular strength, the CoQ10 group has significantly increased physical performance in comparison to placebo measured as 1 R.M. muscular strength test at .05 levels after training in week 6.

Figure 1 Mean measured muscular strength by week 3, 6. Progress of fitness at week 3, 6 plotted as mean, stratified by study group.

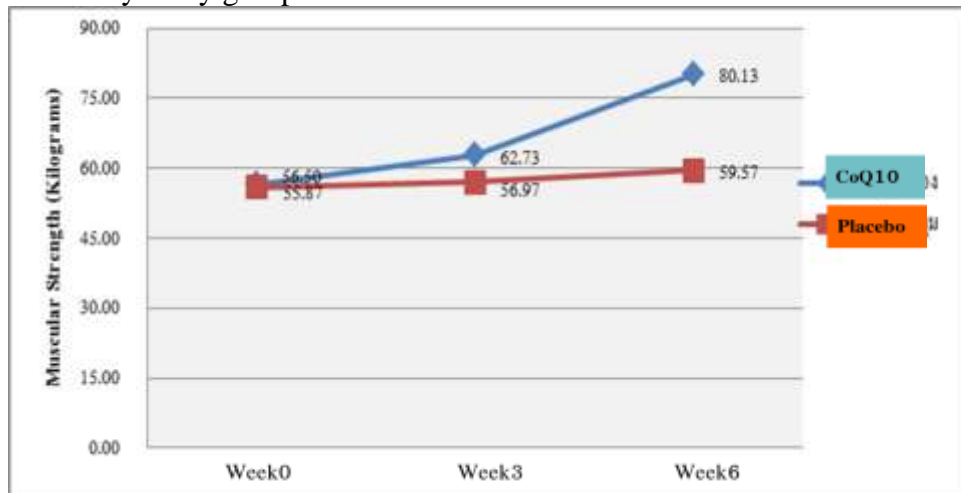
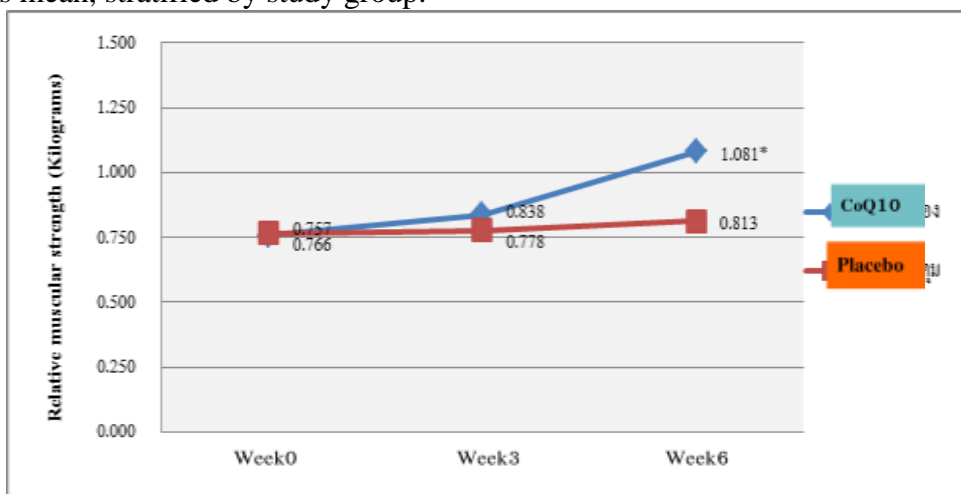


Figure 2 Mean measured relative muscular strength by week 3, 6. Progress of fitness at week 3, 6 plotted as mean, stratified by study group.



Discussion

Among these 30 healthy people, a continuous increase of physical fitness was observed in CoQ10 supplemented group as well as in control group during the study course, express in absolute values or in percentage units. This effect is attributed to the same training program. Result showed that the control and experiment group have significantly enhanced physical performance measured as 1 R.M. muscular strength test at .05 levels after training in week 3 and week 6 but the experiment group may have positively impacted the observed elevated level of the muscular strength more than control group.

When compare between two groups in relative muscular strength has no significantly enhanced physical performance measured as 1 R.M. muscular strength test at .05 levels after training in week 3. The muscular strength could be correlated with other biological parameter. The previous studies have shown that only athletes with a CoQ10 plasma level greater than 2.5µg/ml or more showed an increase in physical performance. (Gieb et al, 2004)

When compare between two groups in relative muscular strength, CoQ10 has significantly increased physical performance in comparison to placebo measured as 1 R.M. muscular strength test at .05 levels after training in week 6. Because high CoQ10 consumption and longer period of time (more than 4 weeks), the individual CoQ10 plasma levels of subjects can be achieved 6-8 µg/ml., a level that can improve physical performance. (Hosoe et al, 2007)

Conclusion

This study demonstrates that daily supplementation of CoQ10 300 mg. with weight training for 6 weeks significantly enhanced physical performance measured as 1 R.M. muscular strength test versus placebo in healthy clients at APEX profound beauty clinic, Bangkok. While adherence to a same training regimen resulted in an improvement in muscular strength output, as observed by improvement in the placebo group, the effect of CoQ10 supplementation with weight training significantly enhanced muscular strength production in comparison to placebo.

References

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