



Aging Association between the Hemoglobin in Dynamic Exercises Practitioners, Yogic Practitioners and Inactive (Sedentary) Older Adults

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Purpose: To study the association between blood hemoglobin in healthy older adults according to the living style i.e. Dynamic Exercises Practitioners, Yogic Exercises Practitioners and Sedentary older Adults age ranges between 51-62.

Method: Total 120 Subjects were selected for the study. Forty fit male i.e. doing Dynamic Exercises or Yogic Practitioners or unfit participant's i.e. Sedentary adults from the prospective randomized generation of Amravati City were selected for the study. They were further divided into the age group ranges from 51-53; 54-56; 57-59 and 60-62 of age specific Blood Hemoglobin was tested using the Sahil's Method and

Findings:

➔ In the age group 51-53, 54-56, 57-59 and 59-61 there were no association between the levels of hemoglobin amongst inactive (sedentary) adults and Dynamic Exercises; Inactive Subjects and Yogic Practitioners; Dynamic Exercises and Practitioners Yogic Practitioners at ages ranged from 51-62. This happens because the difference of the hemoglobin amongst all the age groups and type of activities performed.

➔ Though the non significant difference amongst inactive (sedentary) adults and Dynamic Exercises; Inactive Subjects and Yogic Practitioners; Dynamic Exercises and Practitioners Yogic Practitioners at ages ranged from 51-62. But the graphical representation shows that in the age group 51-53 Dynamic exercise practitioners were better as compare to others. But overall Yogic practitioners were good in hemoglobin level.

➔ The participants' characteristics are presented as means by age groups. Data normality was assessed using the column diagram; all variables were found to be sufficiently normally distributed. For between-group comparisons, independent sample chi square-tests were use. The association between blood hemoglobin was tested using graph. The confounding effect of current physical activity, Yogic Practices, physical activity previous in life, was controlled for by multiple regression analysis. The two-sided level of significance was set to $p < 0.05$. The associations were investigated in relative values.

Conclusion:- Relative hemoglobin level of the Dynamic Exercises and Practitioners Yogic Practitioners at ages ranged from 51-62 shows that in the age group 51-53 Dynamic exercise practitioners were good as compare to others. But overall Yogic practitioners were better in hemoglobin level.

Keywords: hemoglobin, aging, Dynamic, Yogic, Sedentary

Introduction:

Blood oxygen transport capacity changes or depends upon the level of hemoglobin. It slightly changes with the level available in the human body. In other words significant decrease in iron content of the red blood cells it is called as iron deficiency. Due to lack of iron the disease occurs is known as anemia. The anemic persons face the problems of fainting as well as the feelings of fatigue of very less workout. This fatigue comes in light due

to the oxygen carrying capacity. Due to the reduced amount of hemoglobin oxygen carrying capacity is decreased, and not able to sustain even mild exercises. Gardner, et. al., (1975) had attempted a study of 29 iron deficient anemic men and women with low hemoglobin levels were placed in one of the two groups. One group received intramuscular injection of iron over the 80 days period. On the other group was received intramuscular injection of placebo of same color salt solution over the 80 days period. A third group with normal level of Hemoglobin serves as controls. All the three groups were tested with exercise induced Harvard step test program, pre and post test after 80 days of treatment period. Experimental group with intramuscular injection of iron over the 80 days period improves in heart rate from 152 to 123 as the placebo group. Davis, J.E. and N. Brewer found increase in blood volume of nine week training. Kjellberg and others got the same results blood volume rises 10 to 19%. Measurement by Wenger in 1961 Datey in 1969 and Patel 1973 reported respiratory rate decreased during and after Shavasana. Overall respiratory rate decreases upto 10 respiration per minutes. Miles 1964 and Rao 1968 studies the Ujjayi Pranayama effect on respiratory rate, significant respiratory rate decreased with training of Ujjayi Pranayama.

Sahli's Method Hemoglobin: Hemoglobin is the transport operator of the gases i.e. it carries pure oxygen to the blood and removes CO₂ from the blood. It is made of four globuline chain. In adults there are two alpha and two beta globuline chains. In fetus and infancy two alpha globuline chains are seen. As the growth passes upwards alpha globuline chain one alpha chain was replace by gamma alpha globuline chain. At last adult stage there are two alpha and two beta globuline chains. To estimate the hemoglobin by Sahli's Method there is a need of hemometer, HB Tube, HB Pipette and N/10HCL. Take N/10 HCL at lowest level in HB (0.02 gram) tube put it in 20 micro litters of whole blood mix it well for 5 minutes. As procedure is complete color matches and read the results. A low hemoglobin level refers to Anemia and a high hemoglobin level refers to Ploicythemia. Normal values of Hemoglobin are Male 14- 18gm%; Female 12-16gm%; Children's 11-13gm% and Infants 17-21 gm%.

Statistical Analysis

Table 1 Age wise groups of Inactive Subjects, Dynamic Exercises Practitioners and Yogic Practitioners Blood Hemoglobin

Age Group	Inactive Subjects	Dynamic Exercises Practitioners	Yogic Practitioners
51-53	12.91	13.52	13.08
54-56	12.34	13.09	13.46
57-59	11.88	13.05	13.14
60-62	12.47	13.03	13.27
Mean	12.4	13.1725	13.2375

Figure 1 Level of Hemoglobin

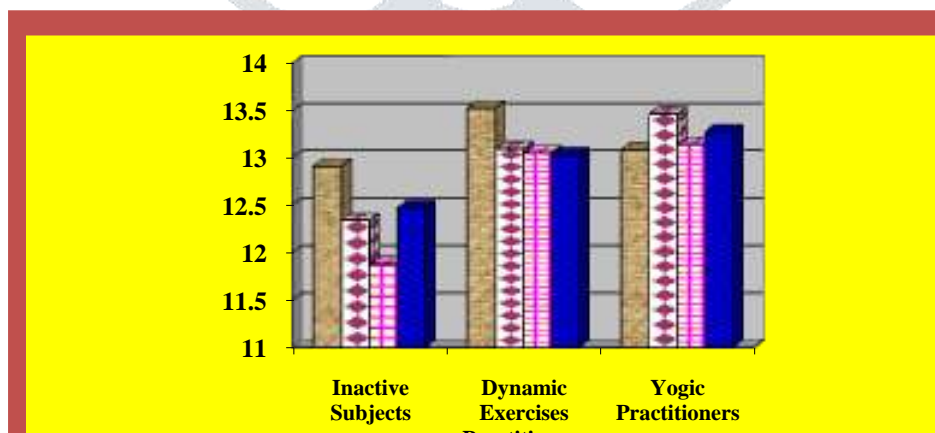


Table 2:- χ^2 Statistics for association between Inactive Subjects and Dynamic Exercises Practitioners; Inactive Subjects and Yogic Practitioners Dynamic Exercises and Practitioners Yogic Practitioners

Age group wise Association groups of Inactive Subjects, Dynamic Exercises Practitioners and Yogic Practitioners Blood Hemoglobin			
Age Group	Inactive Subjects and Dynamic Exercises	Inactive Subjects and Yogic Practitioners	Dynamic Exercises and Practitioners Yogic Practitioners
51-53	0.3316	0.2625	0.5275
54-56	0.4676	0.3974	0.2914
57-59	1.103	0.9979	0.8868
60-62	0.6473	1.3211	0.561

χ^2_{tab} critical at 9 degrees of freedom at 5% is 16.919 and at 1% is 21.666

Null Hypothesis: There is no association between the levels of hemoglobin amongst Inactive Subjects and Dynamic Exercises; Inactive Subjects and Yogic Practitioners; Dynamic Exercises and Practitioners Yogic Practitioners at ages ranged from 51-62. $\chi^2_{\text{cal}} < \chi^2_{\text{tab}}$, thus null hypothesis is accepted at 5% and 1% both. Thus by χ^2 test, it may be concluded that there may not be any association between the levels of hemoglobin amongst Inactive Subjects and Dynamic Exercises; Inactive Subjects and Yogic Practitioners; Dynamic Exercises and Practitioners Yogic Practitioners at ages ranged from 51-62.

Findings

1. In the age group 51-53, 54-56, 57-59 and 59-61 there were no association between the levels of hemoglobin amongst inactive (sedentary) adults and Dynamic Exercises; Inactive Subjects and Yogic Practitioners; Dynamic Exercises and Practitioners Yogic Practitioners at ages ranged from 51-62. This happens because the difference of the hemoglobin amongst all the age groups and type of activities performed.
2. Though the non significant difference amongst inactive (sedentary) adults and Dynamic Exercises; Inactive Subjects and Yogic Practitioners; Dynamic Exercises and Practitioners Yogic Practitioners at ages ranged from 51-62. But the graphical representation shows that in the age group 51-53 Dynamic exercise practitioners were better as compare to others. But overall Yogic practitioners were good in hemoglobin level.
3. The participants' characteristics are presented as means by age groups. Data normality was assessed using the column diagram; all variables were found to be sufficiently normally distributed. For between-group comparisons, independent sample chi square-tests were use. The association between blood hemoglobin was tested using graph. The confounding effect of current physical activity, Yogic Practices, physical activity previous in life, was controlled for by multiple regression analysis. The two-sided level of significance was set to $p < 0.05$. The associations were investigated in relative values.

Conclusion: - Relative hemoglobin level of the Dynamic Exercises and Practitioners Yogic Practitioners at ages ranged from 51-62 shows that in the age group 51-53 Dynamic exercise practitioners were good as compare to others. But overall Yogic practitioners were better in hemoglobin level.

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