RED CELL DISTRIBUTION LEVELS ARE INVERSELY ASSOCIATED WITH CARDIOVASCULAR FITNESS IN FEMALES, BUT NOT IN MALES - AN ANALYSIS OF THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY 1999 - 2004

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Background: Lower cardiovascular fitness (CVF) is an established independent risk predictor of adverse cardiovascular outcomes. Red cell distribution width (RDW) is fast gaining recognition as an emerging cardiovascular risk marker. This study sought to explore the relationship between RDW and cardiovascular fitness across gender strata.

Methods: We identified 3,200 healthy study participants from the National Health and Nutrition Examination Survey 1999 to 2004 (age 20 to 49 years and 52% females) with cardiovascular fitness (VO2max) testing data, after excluding participants with missing values or those with technically limited studies. Multivariate adjusted logistic regression analysis was performed to analyze the association between RDW values and cardiovascular fitness. RDW was analyzed both as a continuous and categorical variable (in quartiles) across both gender strata.

Results: In females, the odds of having a low VO2max was 1.25 (95% confidence interval 1.12 to 1.39, p<0.001) with each unit (0.1) increase in RDW level compared to those with normal VO2max after adjustments (Table 1). In contrast, the association was statistically non-significant for males. (Table 1)

Conclusion: Red cell distribution width levels are inversely associated with cardiovascular fitness in females, but not in males.