



# Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 2<sup>nd</sup> - 3<sup>rd</sup>, 2018  
Conference Proceedings  
International Journal of Exercise Science, Issue 9, Volume 7



## Do Taxane Based Chemotherapies Impair Improvements in $\text{VO}_2$ in Female Cancer Survivors?

Henry Piascik<sup>1</sup>, Karen Wonders<sup>2,3</sup>, FACSM, Stephen M. LoRusso<sup>1</sup>. <sup>1</sup>Saint Francis University, Loretto PA, <sup>2</sup>Wright State University, Dayton OH, <sup>3</sup>Maple Tree Cancer Alliance, Dayton OH

Taxane-Based chemotherapies result in serious physiological side effects in patients, including impaired muscle metabolism, myocyte damage, impaired balance, pain, fatigue, and sensations of numbness in the extremities. As a result, it has been suggested that individuals who have received taxane-based chemotherapies do not obtain the same benefits from exercise as those who receive other forms of cancer treatment. **PURPOSE:** To determine if female cancer patients who underwent taxane- based chemotherapies benefited from exercise as compared to those who received non-taxane based treatments. **METHODS:** Retrospectively, 101 females ( $57.88 \pm 11.59$ ), with female cancers (Breast (79), Ovarian (10), Endometrial (4), Uterine (2), and Cervical (1)) enrolled in a cancer rehabilitation program underwent a variety of fitness assessments, but only measures of  $\text{VO}_2$  are reported here. Each subject was provided an individualized mixed home (2 days) and facility based (1 day) 12 week exercise intervention. **RESULTS:** A strong positive correlation between  $\text{VO}_{21}$ - $\text{VO}_{22}$  ( $r=0.802$ ,  $p=0.000$ ), a low to moderate negative correlation between  $\text{VO}_{21}$ +age ( $r= - 0.365$   $p=0.000$ ), a low negative correlation between  $\text{VO}_{22}$ +age ( $r= - 0.215$   $p=0.036$ ) were found. A significant change from  $\text{VO}_{21}$  to  $\text{VO}_{22}$  ( $t=-5.372$   $p=0.000$ ) was determined. While there were no differences between Taxane and Non-Taxane measures of  $\text{VO}_2$ , there was a trend in percent change in  $\text{VO}_2$  ( $F=3.306$   $p=0.073$ ). There were also no differences in any measure of  $\text{VO}_2$  between taxane and non-taxane treatments by cancer type. Regression analysis indicated only age ( $t=2.775$   $p=0.007$ ) predicted percent change in  $\text{VO}_2$  values and  $\text{VO}_2$  1 values ( $t=-3.606$ ,  $p=0.001$ ), while age and cancer type predicted  $\text{VO}_{22}$  values ( $t=-2.117$ ,  $p=0.037$ ;  $t=-2.217$ ,  $p=0.029$  respectively). **CONCLUSION:** The data does not support the hypothesis that taxane based chemotherapies result in lower  $\text{VO}_2$  values, as both age and cancer type had greater overall effects on  $\text{VO}_2$ . Additionally, significant improvements in  $\text{VO}_2$  after the 12-week exercise intervention, regardless of treatment type, age, or cancer type supports the effectiveness of exercise-based cancer rehabilitation program to improve  $\text{VO}_2$  in a female cancer population.