Does the side of surgery and treatment have an effect on anthropometric and cardiovascular measurements in breast cancer survivors.

David H. Jones¹ 3 5, Melisa Nestore¹, Sara Henophy¹, Julia Cousin¹, John Keyserlingk² and Alain S. Comtois⁴

¹ VM Medical Integrative Health and Wellness Center, Montréal, Québec, Canada
² VM Medical Breast and Oncology Center, Montréal, Québec, Canada
³ Concordia University, Department of Exercise Science, Montréal, Québec, Canada
⁴ Université du Québec à Montréal, Département de kinanthropologie, Montréal, Québec, Canada
⁵ Department of Biological Sciences, University of Quebec in Montreal, Montreal, Qc., Canada

Preliminary work by researchers has shown that breast cancer patients that receive treatment on the left side of their body maybe at greater risk for more cardiovascular problems in comparison to patients that undergo similar treatment protocols on the right side of their body. Objective: Determine if the surgery side and treatment side for a patient has an impact on anthropometric and cardiovascular measurements. Specifically if surgery/treatment on the left side (L) is associated with poorer outcome measures compared to patients receiving surgery/ treatment on the right side (R). Methods: Measurements were taken on 14458 non-oncology (Reg) patients and 723 Cancer survivor (CS) patients that had an intervention on the L side, 672 CS that had an invention on the R side and 53 CS patients that an intervention on both sides (total 15906 female patients). All patients were recruited at the VM Medical Breast Center. Measurements included Body mass index (BMI), blood pressure (BP), resting heart rate (RHR), percent body fat, muscle mass, total body water and waist circumference. CS patients were also stratified into 8 different groups according to treatment they had received. The 8 groups (G1-G8) varied from surgery by itself (G1) to surgery with multiple forms of treatment that included surgery, chemotherapy, radiotherapy and hormonal therapy (G5). The different groups were then compared to Reg patients. A one-way ANOVA was performed followed by Dunnet’s post-hoc analysis, significance was set at P < .05. Results: Significant differences were seen between CS groups and Reg patients (P= 0.001) in 8 key variables. When comparing all CS patients that had treatment on the L side to all CS patients that had treatment the R side, no significant difference was noted between the two groups. When comparing L (n=246) and R (n=215) sides in G5 CS patients only (surgery, chemotherapy, radiotherapy and hormone therapy), significant (p<.05) poorer outcome measures were found in the G5
L side group for diastolic and systolic BP (78.1 ± 10.11 vs 76.5 ± 10.63 and 127.4 ± 16.36 vs 126.8 mmHg ± 17.32, respectively) and RHR (77 ±13.5 vs 75.57±12.07 b.p.m., respectively).

**Conclusion:** Patients that had surgical and treatment interventions on their L side tended to have poorer outcome measures than patients that had similar interventions on their R side. A more comprehensive evaluation of patients that had interventions and treatment on the L side should be undertaken to get a better understanding of the impact treatment has in this group.