

Train as Hard On an Arc Trainer as an Elliptical But With Lower Exertion

Comparison of Heart Rate and Subjective Responses to Exercise on Two Non-Impact Cross-Trainers

Michael Turner, Ph.D., Alison Williams, B.S.,
Amy Williford, M.S., Mitchell Cordova, Ph.D.
University of North Carolina at Charlotte



Introduction: The absence of shock on non-impact cross trainers does not imply that users will not feel stress under the load of exercise. Additionally, non-impact cross trainers with different movement patterns may create different cardiovascular responses and perceived stress when users exercise at comparable workloads.

Objectives:

Are there differences in heart rate response, perceived effort, and perceived joint discomfort when subjects exercise at fixed metabolic workloads on the CYBEX Arc Trainer or a popular elliptical trainer?

Methods:

Ten males and eight females were tested for maximal oxygen consumption and then performed steady state exercise at 55%, 65%, and 75% of their VO₂max on the CYBEX Arc Trainer and a popular elliptical trainer.

At each level, heart rates were recorded, and subjects reported on overall perceived exertion as well as indicators of perceived discomfort at the low back, hip, and knee.

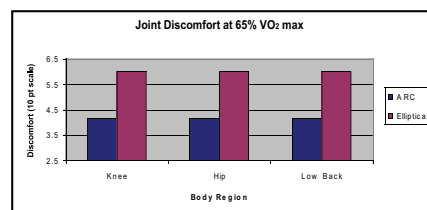
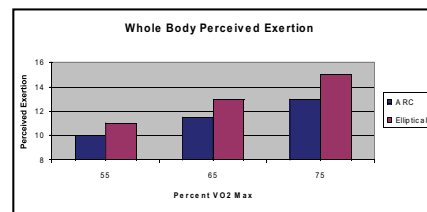
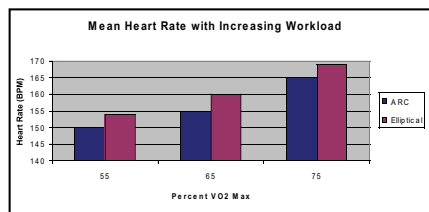
Results:

Mean heart rates at all three workloads were consistently and significantly lower on the Arc Trainer than the elliptical.

Whole-body perceived exertion increased along with exercise intensity on both devices, but was significantly lower on the Arc Trainer than the elliptical at each workload.

At 65% VO₂max, a level indicative of typical exercise workloads, subjects reported significantly more joint discomfort on the elliptical than on the Arc Trainer.

Conclusion: The CYBEX Arc trainer allows users to exercise at the same workload, with less stress and discomfort than elliptical trainers.



This study is available in its entirety at
www.cybexinstitute.com