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COMMENTARY

Exercise, Fitness and Health: Areas in which Dr. Shephard made a Difference

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Abstract

This commentary highlights the important influence Dr. Roy Shephard has had upon the fields of exercise, fitness, and health. It demonstrates how influential Dr. Shephard was in changing the exercise sciences and physical activity promotion internationally.

Introduction

When Dr. Roy J. Shephard (RJS) moved to Canada in 1964 to accept a position at the University of Toronto, I was doing postgraduate work in Germany. I had never met RJS but heard from him perhaps one year after my return to Université Laval in Quebec City in 1965. RJS phoned me to introduce himself and discuss some of the papers that I had published in German with Dr. Wildor Hollmann, my mentor at the Institute for Cardiovascular Science and Sport Medicine at the Deutsche Sporthochschule and the University of Cologne. RJS could read German but wanted to be sure of some of his interpretations of our data. He could also

read French and a few years later could speak it fluently. I realized early on that RJS was a very energetic man and a thoughtful person. It also did not take me long to appreciate that he was a very well-trained investigator and a very capable scientist. Canada had made a great acquisition with the recruitment of this physician who had little exercise biology in his background but who was destined to change exercise science in a big way.

One of his landmark contributions was to conceive and organize the 1966 International Symposium on Physical Activity and Cardiovascular Health held in Toronto. I had the privilege of attending the meeting as a young scientist, and it was a defining moment for all those interested in the topic of exercise and health. The Proceedings were published 5 months later as a special issue of the *Canadian Medical Association Journal*, and the short introduction written by RJS offered a glimpse of his ability to inform and entertain through his writing. From a personal point of view, the 1966 Symposium has been the event that launched the modern era of Canadian exercise science.

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Our paths have crossed multiple times over the following decades, as RJS and I, along with many others, were involved in the creation and the formative years of the Canadian Association of Sport Sciences, as members of numerous national committees and working groups, and as speakers at national and international meetings. RJS was part of the group of volunteers who planned and executed the Toronto 1988 International Conference on Exercise, Fitness and Health. The purpose of the conference was to develop a consensus statement on the current status of the science and the most important research questions to be addressed in the field. A second and more in-depth consensus conference was held in 1992, and again RJS was heavily involved in the planning, the development of the consensus statement, and the publication that resulted from this effort (both conference proceedings were published by Human Kinetics). RJS also contributed a chapter to a third evidence-based international effort focused on dose-response issues in the relationships between physical activity levels and health outcomes (published as a Supplement to *Medicine and Science in Sports and Exercise* in 2001). Across the 15 years or so during which we were planning these exciting events, the sophisticated scholarship of RJS was both inspirational and an extraordinary resource as we were striving to put together comprehensive and up-to-date programs rooted in the best science of the day.

I have had the privilege over the years of publishing six peer-reviewed papers with RJS. From my perspective, the most stimulating one was the short manuscript on the heterogeneity of the $VO_2\text{max}$ response to exercise training that we published together with the collaboration

of Dr. Tuomo Rankinen in the *European Journal of Applied Physiology* in 2004. Beginning in the mid-1980s, RJS and I had a divergence of interpretation of our repeated observations indicating considerable individual differences in the trainability of $VO_2\text{max}$ in young adults in response to fully standardized and monitored exercise training programs with essentially perfect compliance. RJS believed that this heterogeneity in responsiveness was in fact explained by the error associated with the trait measurement. Although we agreed that a fraction of this responsiveness variance resulted from test-retest and day-to-day fluctuation, we have provided ample data indicating that there is a strong genetic component as well. In a typical RJS way, he suggested that we put our disagreement to test in the form of a peer-reviewed paper. It culminated with the publication of a joint paper based on the data of the HERITAGE Family Study. We had previously shown in a *Journal of Applied Physiology* paper published in 1999 that the mean increase in $VO_2\text{max}$ after 20 weeks of endurance training reached about 400 mL O_2 /min with a standard deviation of about 200 mL/min in HERITAGE. RJS was of the view that most of this heterogeneity would disappear if we could somehow control for the error variance associated with the $VO_2\text{max}$ tests performed before and after the exercise program. It just so happened that in HERITAGE we had measured $VO_2\text{max}$ twice before and twice after the intervention for each completer. Using these data, RJS took the lead in developing a manuscript in which we explored to what extent the magnitude of the interindividual differences in trainability could be accounted for by the test-retest errors. The bottom line was that we could reduce the standard deviation from about

200 mL/min to about 130 mL/min. It was a fun paper to write, and the conclusions provided some comfort to RJS but reinforced our own conviction that there is true and compelling human variation in trainability for traits of interest to exercise scientists.

I could go on and on reminiscing on events and accomplishments that have characterized the extraordinary and productive career of RJS. He more than anyone else propelled the exercise science program of the University of Toronto onto the world scene and kept it in a prominent position for three decades. It was a shame that he was forced to retire from his faculty position at the University at the young age of 65 years. The letters sent by many of us to the President of the University asking that he be allowed to continue as an active faculty went nowhere. Fortunately for us, he remained engaged from his British Columbia retreat and continued to do what he enjoyed the most. By my own estimate, and extrapolating from PubMed, RJS has published approximately 200 peer-reviewed papers, plus a large number of reviews and book chapters as well as a few books, since he moved west of the Rockies. Very inspiring and a striking example for the current generation of Canadian exercise scientists!

Qualifications

The author's qualifications are as follows: Claude Bouchard M.Sc., Ph.D.

