A high correlation coefficient between two fitness tests is easily obtained by using subjects with a wide range of age and fitness. The 0.84 R value of Jetté and colleagues between the measured and the step-predicted $\dot{V}O_2$ max is misleading; the important statistic is that the 95% confidence range of a single prediction was about 45% of the mean value. A person with a predicted value of 30 ml/kg•min might really have an "unfit" value of 22. Thus, even with the electrocardiographic counting of heart rate the test is of borderline value. Add to this prediction error a sizable error in counting the heart rate, and the test as it now stands hasn't a hope of coming close to predicting the $\dot{V}O_2$ max in the homes of most of our citizens. For example, the missing of two pulse beats in the time allowed for counting the heart rate would lead to an overprediction of $\dot{V}O_2$ max by as much as 25%. Subjects would probably better assess their "fitness" from age, weight based on height, and a grading of their physical activity into three categories.

It is fascinating how the authors get around the safety aspect. Despite defibrillators and full resuscitative potential and a highly trained physician in attendance, 5% of the subjects in the initial testing of the CHFT were turned down on the basis of a telephone interview, 8% were turned down after medical screening and 8% were rejected because of electrocardiographic or other abnormalities. The questionnaire included with the CHFT package would have caught the initial 5% if they had read it, yet many might ignore it. It is stated that extreme caution seemed reasonable when full medical care was available, but apparently this is not necessary when the test is sent out to the general public. I suggest that the authors planned their study and chose their monitoring personnel unwisely, for the place to prove the safety of a test is under control conditions. Fortunately, the dangers of exercise and exercise testing are usually overplayed and there is likely little danger, but the method used to investigate this point is a classic example of a poorly designed study.

There is no evidence that "the CHFT will serve as a useful motivating tool" for the population; this is hope and speculation. Perhaps the test might serve as a gimmick to increase awareness of activity and thus be useful, but this hypothesis has yet to be tested. One should not expect anything but a rough estimate of fitness with a home test, but the CHFT in the hands of most Canadians will overpredict fitness and possibly lead to complacency. While the objective of Health and Welfare Canada, to improve the fitness of Canadians, is admirable, the scientific section of *CMAJ* should be reserved for objective evaluations of such programs and not serve as a medium for marketing. If the purpose of the article is to provide professional information and education, objectivity is particularly important.

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To the editor: Dr. Cumming's spirited criticism of the CHFT is a unique reaction among those of the many hundreds of professional investigators who have seen and experienced the test. However, a reply may be helpful not only to Dr. Cumming but also to others who are coming into contact with the test for the first time.

To attack the CHFT on the basis of its limited scientific precision is to miss the point of the procedure. It is intended to be fun rather than a solemn laboratory exercise and, as such, it is designed to increase awareness of fitness and motivate Canadians to greater activity. If Dr. Cumming had read the more detailed account in the *Canadian Journal of Applied Sports Sciences*[1] he would have discovered his point already firmly made: "Under home circumstances, the test should not be considered a refined tool; there will inevitably be vagaries of stepping and counting in an unsupervised situation". The reason for discussing the precision of the test was not to prove that the average citizen could make a more accurate measurement of maximum oxygen intake than Dr. Cumming, but rather to see how well the procedure would work when evaluating as many as 100 people per hour in a field laboratory. Given multichannel electrocardiographic equipment, the test is then highly cost-effective.

Dr. Cumming apparently believes we carried out a "poorly designed study" to evaluate the safety of the procedure. We did, in fact, operate very cautiously in the early stages, recognizing the adverse publicity that could stem from even a minor misadventure rightly or wrongly attributed to performance of the test. However, we were not naive enough to believe that safety could be either proven or disproven with a sample of 14 000 adults. Such statistics can emerge only from use of the test by the entire adult population for many years.

The value of the record as a motivating tool also can only be proven when it has been available to the general public for a long time. However, the test-marketing data indicate encouraging initial interest of those receiving free copies of the record and, given an equally positive attitude of health professionals, "hope and speculation" may soon be replaced by evidence of the motivation that Canadians need badly.

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References

1. BAILEY DA, SHEPHARD RJ, MIRWALD RL: Validation of a self-administered home test of cardio-respiratory fitness. *Can J Appl Sports Sci* 1: 67, 1976

To the editor: In studying the CHFT we found by multiple regression analysis that $\dot{V}O_2$ max in a defined population could be predicted with a multiple R of 0.905 (not 0.84 as stated by Cumming). The predictor variables that best accounted for the $\dot{V}O_2$ max were the $\dot{V}O_2$ of the last completed stage of the test, postexercise heart rate, age and body weight, providing a prediction capability of 81%.

Dr. Cumming's statistical interpretation of the data is misleading. Thus it is erroneous to state that "the 95% confidence range of a single prediction was about 45% of the mean value". He most likely means that at the 95% confidence range, 95% of a population selected at random would fall within 45% (more precisely, 47.5%) of the area on each side of a normal distribution curve (± two standard errors of measurement). With the data cited in his example — that is, for a person who would be at the outer limit of the distribution — the prediction would be off by 26.7%. However, if the value was within one standard error of measurement (4.01 ml/kg•min) the prediction would be within 13%. Furthermore, again using Dr. Cumming's example, the error in missing two pulse beats is in the order of 5% and not 25% as he indicated.

The purpose of formulating the prediction equation, as outlined in our paper, was specific. The equation certainly was not intended for use by the general population. Notwithstanding, in the absence of other suitable methods to predict $\dot{V}O_2$ max, the equation presented provides a limited alternative for those acquainted with the concept of $\dot{V}O_2$ max.

For instance, we have compared the predictions of $\dot{V}O_2$ max using the Astrand-Ryhming procedure and the CHFT prediction equation against $\dot{V}O_2$ max as determined by our protocol. In a sample of 26 sedentary subjects the mean $\dot{V}O_2$ max measured on the treadmill was 33.5 (± 6) ml/kg•min, while