# RELIABILITY AND VALIDITY OF USING A HOUSEHOLD VIDEO CAMERA TO ESTIMATE TRAVEL DISTANCE AND ENERGY EXPENDITURE OF RUNNING IN A COURT

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## Introduction

Recently, a computer-based tracking system of movements for soccer players during a match has been developed (1), but available systems are expensive. Therefore, we are attempting to develop a tracking system using an affordable household video camera (HVC). In this study, we evaluated the use of a HVC to estimate travel distance and energy expenditure (EE) of running in a court.

## Methods

Six healthy young men (BMI 22.5±2.7) ran on 12- and 8-m square lines and an 8-m straight line at a speed of 120-m/min for 6 minutes. The running was recorded by a HVC (NV-MX5000, Panasonic). The EE was measured by portable metabolic system (Meta Max 3B) at the same time. The final 2 minutes of data of each trial were analyzed.

## Results

The estimated travel distances in all of the conditions had a very high accuracy (-0.33 to 1.98%). Precisions were 1.48 to 6.42%. The estimated EE in all the conditions was significantly overestimated, but the magnitude relation between estimated and actual EE was similar.

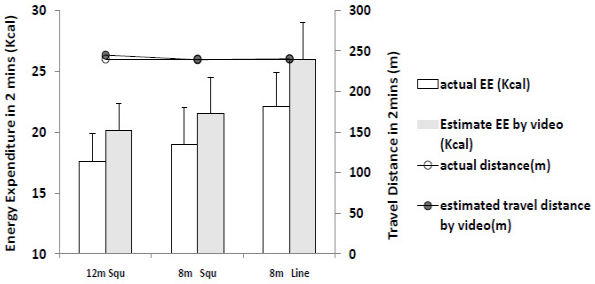


Figure 1. energy expenditure (EE) and travel distance. Squ : square.
No interaction was observed between actual and estimated in EE.
Significant main effect of method was observed (estimate > actual) .
EE was significantly different between condition(8mLine > 8m Squ > 8m Squ) .

## Conclusion

Although a more valid equation for calculating EE is required, our system of using a HVC has the potential to assess EE and travel distance during running in a court.

## References

1. Di Salvo, V. et al. (2007). *Int J Sports Med,* 28: 222-227.