

NASPE PETE Technology Workshop:



Technology for Physical Activity Monitoring

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Physical Activity Monitoring: Device Use in K-12 Schools

■ *Prevalence of Physical Activity Monitoring Devices in Public Schools:*

- In 2006 42% of physical education teachers nationally received staff development training on the use of physical activity monitoring devices.
- 37% on the use of technology to supplement instruction.
- From 17-48% receive training on administering fitness tests, assessing student performance, developing portfolios and individual physical activity plans.
 - Physical activity monitoring devices can assist in all of these processes providing objective data on physical activity measurement.

Introduction:

The World of a Future Physical Educator.

■ Heart Rate Monitor Types:

■ Strapless: *Uses a finger sensor to provide heart rate reading*

■ Advantages:

- Easy to use and no strap.**
- Cost effective.**
- Great elementary level**

■ Disadvantages:

- Accuracy may be variable.**
- Does not save data**



Physical Activity Monitoring: Heart Rate Monitor Types

■ ***Sensor Strap: Uses a sensor strap to provide heart rate reading***

■ ***Advantages:***

- ***Multiple functions possible***
- ***Downloadable data collection***
- ***Higher degree of accuracy***

■ ***Disadvantages:***

- ***Strap increases management***
- ***Ease of use?***



Physical Activity Monitoring: Heart Rate Monitor Types

■ Sensor Strap/GPS

■ Advantages:

- *Multiple functions possible*
- *Downloadable data collection*
- *Higher degree of accuracy*
- *Speed and Distance capabilities via GPS*

■ Disadvantages:

- *Strap increases management*
- *Ease of use?*
- *Affordability?*



Physical Activity Monitoring: Types of Devices

■ ***Pedometers***

- Evaluate vertical acceleration through use of a coiled spring-lever which moves vertically in response to body movement.

■ ***Accelerometers/Peizo Electric Pedometers***

- Utilize a strain gauge versus coiled spring mechanism:
 - Greater degree of accuracy at various speeds, in bench and step climbing activities
 - Ability to measure activity intensity

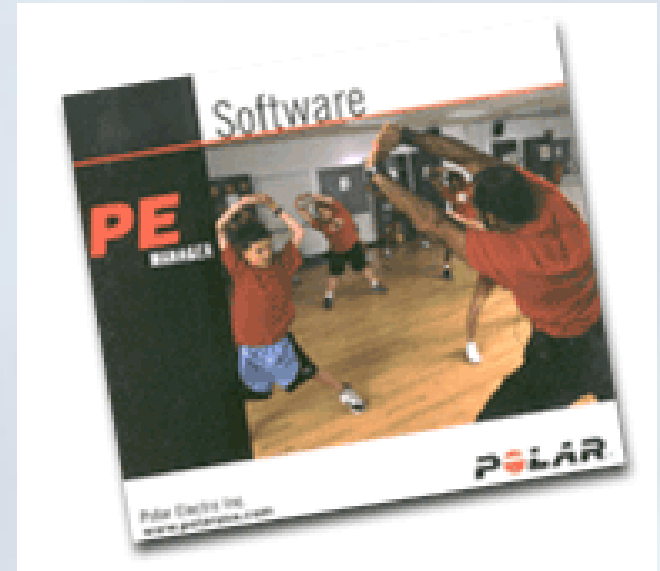


Ayabe, M., Aoki, J., Ishii, K., Takayma, K., & Tanaka, H. (2008). Pedometer accuracy during stair climbing and bench stepping exercises. *Journal of Sports Science and Medicine*, 7, 249-254.

New Lifestyles (2005). *New Lifestyles NL-800 Activity Monitor: User's guide and record book*. Lee's Summit, MO: Author.

Physical Activity Monitoring: Fitness Assessment System

■ Polar E Series Software/Pocket PC Companion:



Physical Activity Monitoring: Using Devices in Assessment

■ Polar Personal Trainer Data Management System

<http://www.polar.fi/en/support/downloads?product=&category=Software>

Polar Weblink



Physical Activity Monitoring: Using Devices in Assessment

■ Student Fitness Portfolio Activities:

Class Activities