

**To Cite this document:**

**Cagas, J.Y. (2016, January 19). Physical fitness testing: a big waste or (to address) big waist? A seminar presented at the DEPED National Training on Physical Fitness Testing. Baguio City: Teachers Camp**





# **Physical Fitness Testing: A BIG Waste or (to address) BIG Waist?**

---

Jonathan Y. Cagas, MSPE, MSS, M.Sc.  
Department of Sports Science  
College of Human Kinetics  
University of the Philippines Diliman



# Outline of Presentation

---



- ☐ Physical fitness testing: Is it still necessary?
- ☐ What should we test?
- ☐ The DEPED Physical Fitness Test Battery
- ☐ Things to consider in conducting large-scale PFT

# **PFT: Is it still necessary?**

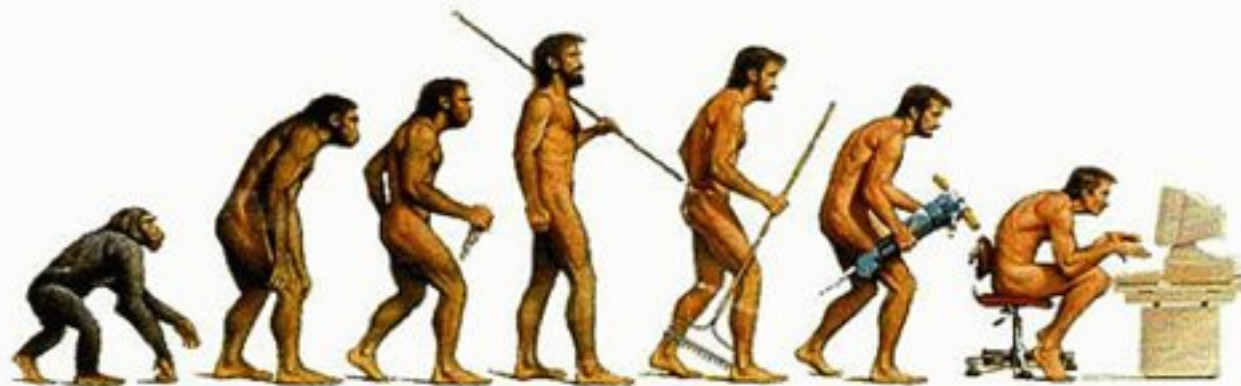
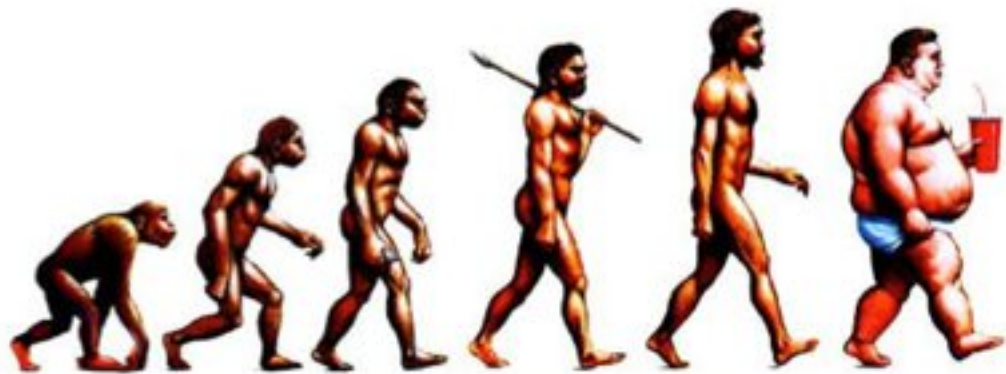
---

- ☐ **K-12 shift in PE curriculum**
- ☐ **Focus**
  - ☐ **motor and physical development**
  - ☐ **health and fitness**
  - ☐ **development of positive self-perceptions and social skills**
- ☐ **Change in lifestyle**



# Change in Lifestyle

---



- ☐ increased levels of childhood obesity.
- ☐ increased levels of physical inactivity among young people.
- ☐ increased prevalence of non-communicable diseases.

# Physical Inactivity

---

- ✱ A worldwide health concern even for young people.
- ✱ Young people 13 to 15 years of age do not meet PA recommendations
- ✱ <10% Filipino schoolchildren participate in health-enhancing PA.



(Guthold et al., 2010)



## **The association of physical activity and physical fitness with pre-adolescent obesity: an observational study in Metromanila, Philippines.**

Gonzalez-Suarez CB<sup>1</sup>, Grimmer-Somers K.

### **Author information**

### **Abstract**

**BACKGROUND:** Childhood obesity has been inconsistently associated with decreased levels of physical activity and fitness. Moreover, little is known about this relationship among Filipino preteens.

**METHODS:** This cross sectional study reports the association between childhood obesity, measures of physical activity, and fitness. Children aged 11 to 12 from randomly selected schools from San Juan, Metromanila were included. Outcome measures were body mass index, Filipino modified Physical Activity Questionnaire for Older children (F\_PAQ-C), standing broad jump, 50 m sprint and 20 m multistage shuttle run.

**RESULTS:** 380 children participated in the study. Obese children had significantly lower median scores in the F\_PAQ-C compared with overweight children. Overweight children had lower scores in the standing broad jump, 50 m sprints and predicted VO2max as compared with children with normal BMI. There were modest associations between the 50 m sprint, predicted VO2max, and F\_PAQ-C.

**CONCLUSION:** Our study has showed that physical activity and fitness scores were strongly correlated with childhood obesity. If childhood physical fitness is a predictor of physical fitness in adulthood which is a risk factor in cardiovascular diseases, there is a strong possibility that the prevalence of cardiovascular disease in the Philippines will increase dramatically in the future.

## **Dietary and physical activity patterns of 8- to 10-year-old urban schoolchildren in Manila, Philippines.**

Florentino RF<sup>1</sup>, Villavieja GM, Laña RD.

### **Author information**

### **Abstract**

This report is the second part of a study on the nutrition of urban schoolchildren in the city of Manila; the first part was on nutritional status. The primary purpose of the study was to gather data that will assist authorities in planning and implementing nutrition education programs focused on the growing problem of obesity and overweight in children. The study included 1,208 children 8 to 10 years of age, who were randomly selected from all public and private schools in the city of Manila. Data on the children's dietary and physical activity patterns, together with information on nutrition-related knowledge, attitudes, and preferences of the children and their parents, were gathered by interviews and self-administered questionnaires. There were distinct differences in dietary and physical activity patterns between the two groups of children. Children from private schools, who are generally of higher socioeconomic status than those from public schools, tended to consume more total food, more animal foods, fats, and oils, and more beverages, resulting in higher intakes of calories, protein, iron, and vitamin A than public schoolchildren. Moreover, children from private schools were apparently less physically active, were more likely to be driven to school instead of walking, and were more likely to prefer television and computer games over outdoor games. These differences agree with an earlier report on the nutritional status of the children as determined by anthropometry, which showed a higher proportion of overnutrition and a lower proportion of undernutrition among private schoolchildren than among public schoolchildren. Although the emphasis in public schools should be on prevention and control of undernutrition in children, private schools should begin to look at the emerging problem of overnutrition and the role of physical activity programs in the health of children. The information on the knowledge, attitudes, and preferences of the children and their parents showed that parents or guardians, teachers, and television influence the nutritional practices of schoolchildren. These groups should therefore be the major targets for nutrition education programs meant to improve the nutrition and health of schoolchildren.





## Fundamental movement skills and physical activity among children with and without cerebral palsy

Catherine M. Capio<sup>a,b</sup>, Cindy H.P. Sit<sup>a,c</sup>, Bruce Abernethy<sup>a,d</sup>, Rich S.W. Masters<sup>a</sup>

### Abstract

Fundamental movement skills (FMS) proficiency is believed to influence children's physical activity (PA), with those more proficient tending to be more active. Children with cerebral palsy (CP), who represent the largest diagnostic group treated in pediatric rehabilitation, have been found to be less active than typically developing children. This study examined the association of FMS proficiency with PA in a group of children with CP, and compared the data with a group of typically developing children. Five FMS (run, jump, kick, throw, catch) were tested using process- and product-oriented measures, and accelerometers were used to monitor PA over a 7-day period. The results showed that children with CP spent less time in moderate to vigorous physical activity (MVPA), but more time in sedentary behavior than typically developing children. FMS proficiency was negatively associated with sedentary time and positively associated with time spent in MVPA in both groups of children. Process-oriented FMS measures (movement patterns) were found to have a stronger influence on PA in children with CP than in typically developing children. The findings provide evidence that FMS proficiency facilitates activity accrual among children with CP, suggesting that rehabilitation and physical education programs that support FMS development may contribute to PA-related health benefits.

### Highlights

- Children with CP are less active and more sedentary than typically developing children. ► Children who are more skillful tend to be more active than those who have lower movement skills proficiency. ► Movement pattern proficiency influences the physical activity of children with CP more than typically developing children.



## **Physical activity and movement skills proficiency of young Filipino children**

Catherine M Capio, Cindy HP Sit, Kathlyne F Eguia, Bruce Abernethy

### **Abstract**

Recent reports indicate an increasing prevalence of overweight among Filipino children. Considering the known association of physical activity (PA) with obesity, this study reports the findings of an objective monitoring of PA in a sample of Filipino children. The study also explores the relationship of PA with fundamental movement skills (FMS) proficiency. Thirty-two children ( $6.54 \pm 2.45$  years old) wore an accelerometer for 7 days of PA monitoring and were assessed on five FMS (throw, catch, kick, run, jump). The children met the World Health Organization's recommendation of 60 min of PA per day, with more active time being accrued during weekdays than weekends. **Children with greater FMS proficiency were found to spend more time in PA than those who were less skillful during weekends.** Further research is recommended to examine PA and FMS proficiency associations, exploring the role of social interactions on weekends and weekdays.



# **Other driving forces for youth fitness testing**

---

- ☐ **perceived relation between physical fitness/activity and academic performance**
- ☐ **perception that childhood behaviours, physical fitness, and physical activity track from childhood into adulthood and influence adult behaviours, health, and fitness**

**(Morrow & Ede, 2009)**



# **Test results can be used to...**

---

- ☐ **motivate students**
- ☐ **evaluate programs including students and teachers**
- ☐ **publicise contributions and accomplishments of programs**
- ☐ **predict future results from current or past data**
- ☐ **assess or diagnose strengths, weaknesses, or needs**



- ☐ **classify students according to abilities**
- ☐ **compare results to a standard or criterion**
- ☐ **improve performance**



**Is it still necessary? YES!**



**What should we test?**



# **Philippine K-12 PE Curriculum Standards**

---

- 1. Habitual physical activity participation to achieve and maintain health-enhancing levels of fitness.**
- 2. Competent in movement and motor skills requisite to various physical activity performances.**
- 3. Value physical activities for enjoyment, challenge, social interaction and career opportunities.**
- 4. Understand various movement concepts, principles, strategies and tactics as they apply to the learning of physical activity.**



# Measuring human movement

---

- ☐ Movement description
  - ☐ how the movement looks like
- ☐ Movement product scores
  - ☐ performance or outcome
    - ☐ e.g., results of CVE test



# Fundamental Movement Skills

---

\* **Set of skills that form essential prerequisite foundations for more complex movements** (Gallahue, Ozmun, & Goodway, 2012; Haywood & Getchell, 2005)

\* **Required in different forms of physical activities**

\* **Consists of:**

- **Locomotor skills**
- **Object manipulation/control skills**





# **Test of Gross Motor Development - 2**

---

- ☐ **Locomotor**

- ☐ **measures skills involve in moving the centre of gravity from one point to another**

- ☐ **running, jumping, leaping**

- ☐ **Object Control**

- ☐ **measures skills involved in projecting and receiving objects**

- ☐ **throwing, catching, striking**

# Physical Fitness Tests

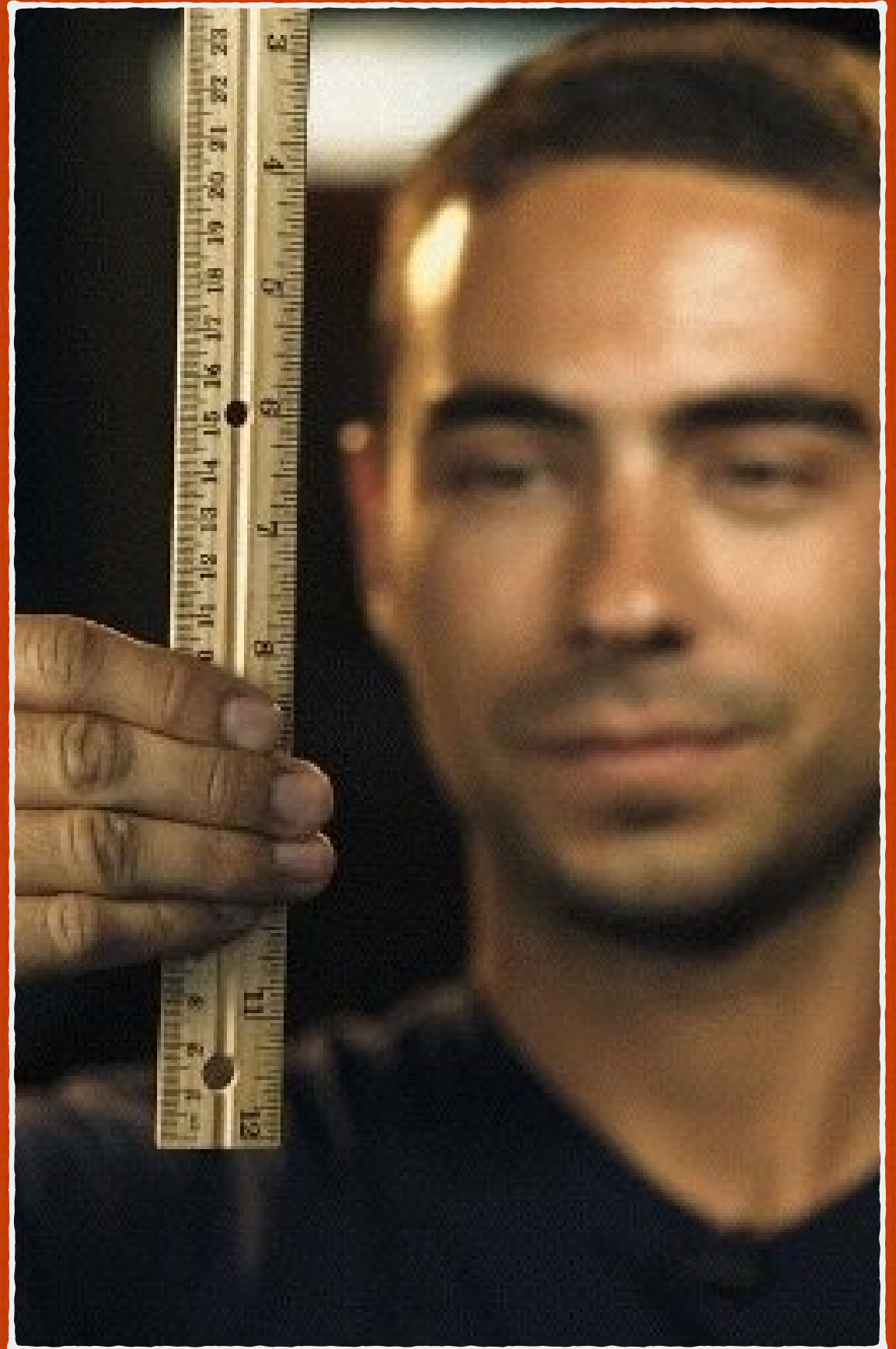
---

Health-related	Skill-related
Body composition	Agility
Muscular Endurance	Power
Muscular Strength	Reaction Time
Flexibility	Balance
Cardiovascular Endurance	Coordination
	Speed



# **DEPED Physical Fitness Test Battery**

---



# **Purpose of DepEd PFT Battery**

---

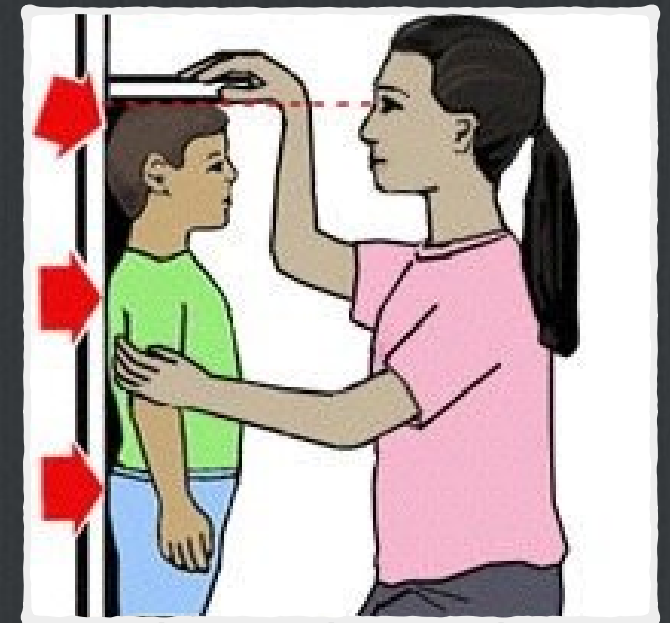
- ☐ **a requirement for admission into the SPS**
  - ☐ **must pass prescribed standards (?)**
- ☐ **an essential component of K to 12 Basic Education Curriculum from Grades 4 to 10**



# Tests for Health-related Fitness

---

- ☐ BMI for body composition
- ☐ Zipper test for upper body flexibility
- ☐ Sit-and-Reach for lower body flexibility
- ☐ 3-minute step test for cardiovascular endurance
- ☐ Push-up for muscular fitness
- ☐ Plank for muscular fitness (core stability)



# Tests for Skill-related Fitness

---

- ☐ 40-m Sprint for speed
- ☐ Standing long jump for leg power
- ☐ Hexagon Agility Test
- ☐ Stick Drop Test for reaction time
- ☐ Juggling for coordination
- ☐ Stork test for balance



# Comparison of PF Test Batteries

Components	Fitnessgram	EuroFit	Phil. PFS
Cardiovascular Endurance	PACER; 1-mile (1.6km) walk/run test	20 m endurance shuttle run	3 min step test
Body composition	BF% via BIA, skinfolds BMI	BF% skinfolds; BMI	BMI
Muscular Fitness	curl up, trunk lift, push up,	handgrip test, sit-ups 30 s, bent arm hang	plank and push up test
Flexibility	back-saver sit and reach; shoulder stretch	sit and reach	Sit and reach; zipper test
Balance		flamingo test	Stork Test
Speed		plate tapping (upper limb); 10 x 5 m shuttle run	40 m sprint
Reaction Time			Stick drop test
Agility		10 x 5 m shuttle run	Hexagon agility test
Coordination			juggling
Power		Standing broad jump	Standing long jump
Anthropometry		height, weight	Height Weight

# Comparison of PF Test Batteries

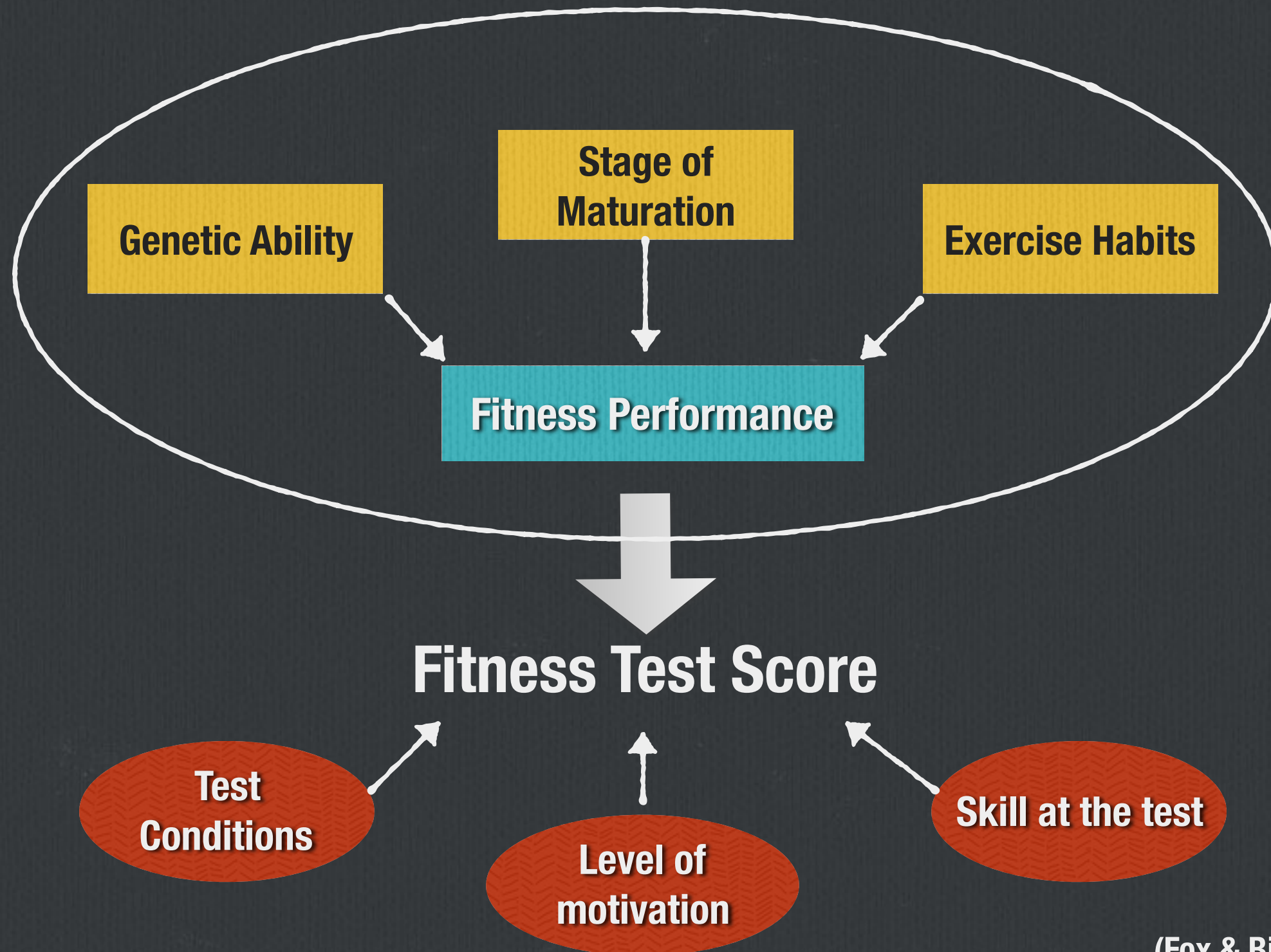
Components	ICHPER-Asia	Asian PFT (HK)	Phil. PFS
Cardiovascular Endurance	endurance run	x	3 min step test
Body composition	skinfolds measurements	x	BMI
Muscular Fitness	sit ups in 60s; pull-ups	x	plank and push up test
Flexibility	sit and reach	x	Sit and reach; zipper test
Balance			Stork Test
Speed			40 m sprint
Reaction Time			Stick drop test
Agility			Hexagon agility test
Coordination			juggling
Power		x	Standing long jump
Anthropometry			Height Weight



**How do we interpret  
the scores?**



# Contributors to Fitness Test Scores



(Fox & Biddle, 1988)



# **Norm- vs Criterion-reference Standards**

---

- ☐ **Norm-referenced standards**
  - ☐ **comparing a performance against others (of the same gender, class, etc.)**
  - ☐ **relative to other people**
- ☐ **criterion-reference standards**
  - ☐ **comparing a performance against a standard or criterion**

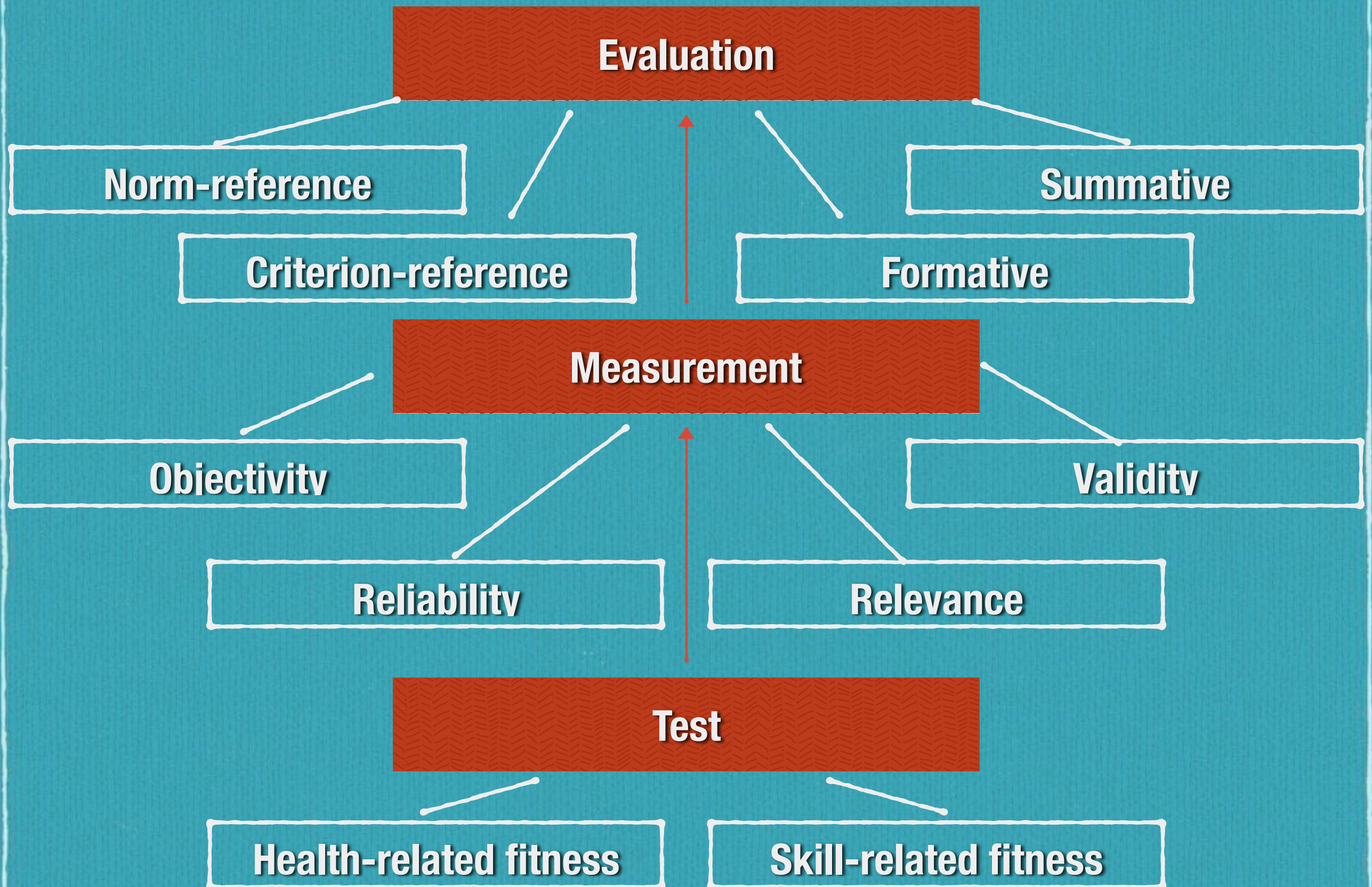


# Formative vs Summative Evaluation

---









# **10 Essential Issues in Conducting Large-scale PFT**

---

- ☐ **Purpose of Testing**
- ☐ **Proper Planning**
- ☐ **Training**
- ☐ **Quality of Data**
- ☐ **Reporting**
- ☐ **Support**
- ☐ **Costs**
- ☐ **Interpretation**
- ☐ **Programmatic Matters**
- ☐ **Policies and Politics**

(Morrow & Ede, 2009)



# Purpose of Testing

---

- ☐ What is the intention of the testing? Surveillance or selection?
- ☐ Will teachers have the option to administer one of several test items, or will specific test items be mandated?
- ☐ How, in what format, and to whom will test results be sent for record compilation and further research?

# Proper Planning

---

- ☐ **Testing requires time, planning, and resources**
- ☐ **Hasty decisions result in hasty testing, which results in poor measurements**
- ☐ **large-scale testing involves many logistical considerations not typically encountered when testing small groups**



# Training

---

- ☐ **students must be well aware of the nature, purpose, and methods of test completion and need to be prepared for the test itself.**
- ☐ **important to train teachers/data collectors.**
  - ☐ *in person, electronically, teach-the-teacher approaches, or through professional associations*
- ☐ **Youth fitness testing is often conducted by teachers with limited knowledge of test administration**

# Quality of Data

---

- ☐ Quality control during test administration is necessary to be confident of results
- ☐ sources of measurement error:
  - ☐ *testers*
  - ☐ *participants*
  - ☐ *test specifics*
  - ☐ *environmental influences*



# Reporting

---

- ☐ it is important to communicate results effectively to key stakeholders
- ☐ to whom will results be reported and in what format?

# Support

---

- ☐ **Financial support**
- ☐ **personnel support**



# Costs

---

- ☐ **Resources must be provided to support the time, effort, and expenses associated with large-scale testing.**

# Interpretation

---

- ☐ **Test administrators and decision makers need to carefully consider:**
  - ☐ **which testing items will be used?**
  - ☐ **how will results be interpreted?**
  - ☐ **how will results be reported?**



# **Programmatic Matters**

---

- ☐ **Testing is not an end to itself**
- ☐ **Testing is a means to initiate, develop, and maintain important educational/programmatic decisions.**

# Policies and Politics

---

- ☐ Is PFT mandated?
- ☐ How often should data be collected?
- ☐ What are the consequences for noncompliance?
- ☐ is training, support, and preparation of testers adequate?



## **A BIG Waste of time**

**If we fail to consider important influences prior to, during, and following testing.**

**BUT**

**with careful consideration, testing can potentially lead to positive influences on the “BIG waist”.**

**- Morrow and Ede, 2009**



# Summary

---

- ☐ **Physical fitness testing is an essential component of the PE curriculum**
- ☐ **It may be more useful and time-efficient to measure only health-related fitness, leg power, and balance in PE.**
- ☐ **There is a need to further develop the PFT Battery and provide clearer guidelines and standards**
- ☐ **Careful planning is important so PFT can address a BIG waist and not become a BIG waste (of time and resources).**



**Thank you very much.**



## References:

Fox, K.R., & Biddle, S.J.H. (1988). The use of fitness tests: Educational and psychological considerations. *Journal of Physical Education, Recreation, & Dance*, 59(2), 47-53.

Jankowski, M., Niedzielska, A., Brzezinski, M., & Drabik, J. (2015). Cardiorespiratory fitness in children: a simple screening test for population studies. *Paediatric Cardiology*, 36, 27-32. doi: 10.1007/s00246-014-0960-0

Morrow, J.R.Jr., & Ede, A. (2009). Research Quarterly for Exercise and Sport Lecture Statewide Physical Fitness Testing: A big waist or big waste? *Research Quarterly for Exercise and Sport*, 80(4), 696-701.

Morrow, J.R.Jr., Zhu, W., Franks, B.D., Meredith, M.D., & Spain, C. (2009). 1958-2008: 50 years of youth fitness tests in the United States. *Research Quarterly for Exercise and Sport*, 80(1), 1-11.

Mosier, B. (2012). FITNESSGRAM(R) administration: tips for educators . *Strategies: A Journal for Physical and Sport Educators*, 25(8), 6-7. doi: 10.1080/08924562.2012.10592174