

PHYSICAL EDUCATION PEDAGOGIES AND THE METABOLIC EQUIVALENCE OF TASKS (METS)

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NEW COLOMBO PLAN

Connect to Australia's future - study in the region

MAKING STUDENTS LIFELONG PARTICIPANTS IN PHYSICAL ACTIVITY

From our trip to Vietnam we found some ideas to implement to achieve this in Australia.



WHY DO WE WANT THIS?

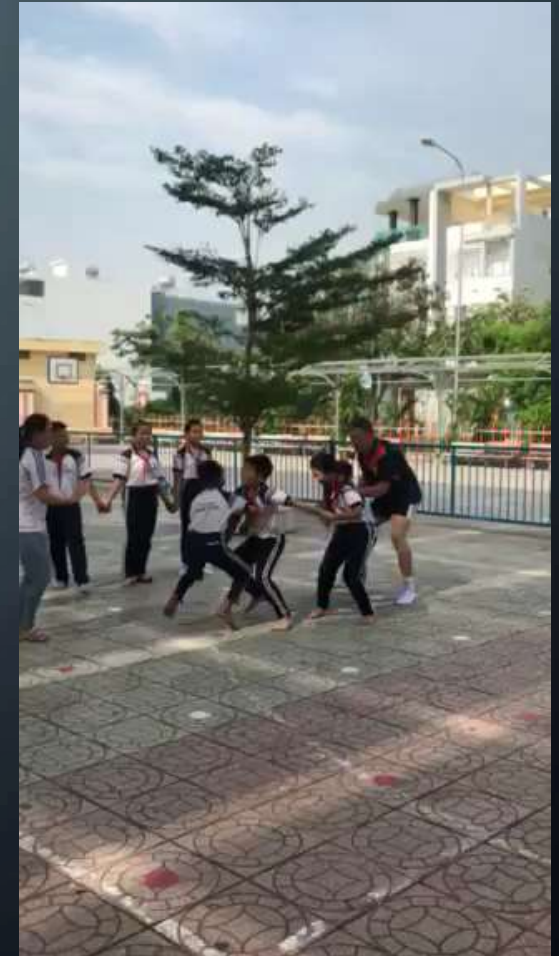
Increase METs of students to increase inclusivity

Highlighted are common METs for activities played with the Vietnamese students

Physical Activity Intensity	MET
Light intensity activities	< 3
sleeping	0.9
watching television	1
writing, desk work, typing	1.8
walking, 1.7 mph (2.7 km/h), level ground, strolling, very slow	2.3
walking, 2.5 mph (4 km/h)	2.9
Moderate intensity activities	3 to <6
resistance training (weight) training, multiple exercises, 8-15 repetitions at varied resistance	3.5
calisthenics (e.g., push ups, sit ups, pull-ups, lunges), moderate effort	3.8
Pilates, general	3.8
yoga, Hatha	3
water aerobics, water calisthenics, water exercise	2.5
bicycling, stationary, 50 watts, very light effort	5.3
	3
walking 3.0 mph (4.8 km/h)	3.3
calisthenics, home exercise, light or moderate effort, general	3.5
walking 3.4 mph (5.5 km/h)	3.6
bicycling, <10 mph (16 km/h), leisure, to work or for pleasure	4
bicycling, stationary, 100 watts, light effort	5.5
Vigorous intensity activities	> 6
jogging, general	7
calisthenics (e.g. pushups, sit-ups, pull-ups, jumping jacks), heavy, vigorous effort	8
running jogging, in place	8
rope jumping	10

HOW DO WE IMPLEMENT THIS INCREASE IN PHYSICAL ACTIVITY?

- 3-5 minutes of high MET activity at the start of every lesson



HOW WILL THIS HELP IN HPE LESSONS?

- Doing this 3-5 minutes of high MET activity results in us being able to focus more on content descriptors for the rest of the lesson.
- Students are then more engaged and ready to learn



ACTIVITIES & GAMES WE PLAYED IN VIETNAM

- Fly
 - Red rover
 - Toe tappers
 - Head tap
 - Crows and Cranes
 - Catch the worm
- $\text{METs} \times 3.5 \times \text{BW (kg)} / 200 = \text{Kcal/min.}$
 - For example, Fletcher is a 21-year old male who weighs 93 kilos.
 - 10 minutes of intense dance rehearsal at the start of a HPE lesson (METs 8.0)
 - $8 \times 3.5 \times 93 / 200 = 13.02 \text{ Kcal/min} \times 10 = 130.2 \text{ Kcal}$

**Note: 1 MET = 1 kcal kg⁻¹ hr⁻¹ or
1 MET = 3.5 ml kg¹ min¹ of O₂**

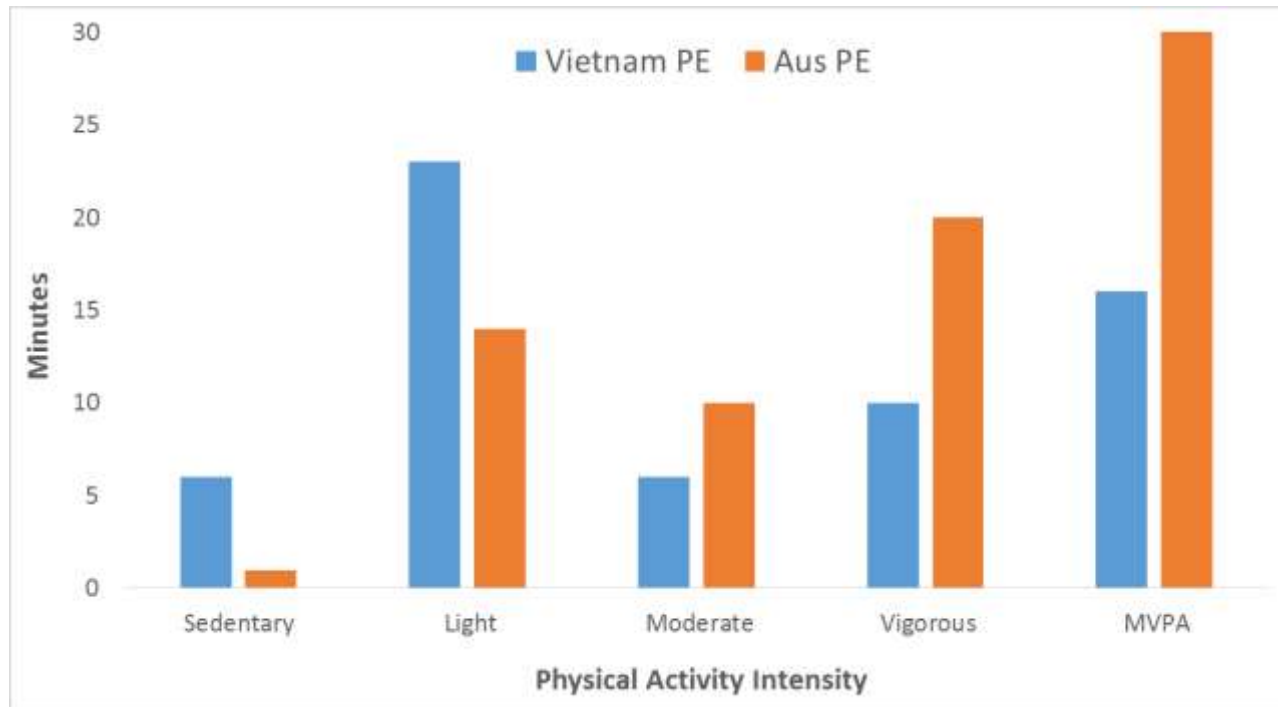
INTENSITY CALCULATIONS

Actigraph GT9X triaxial accelerometer

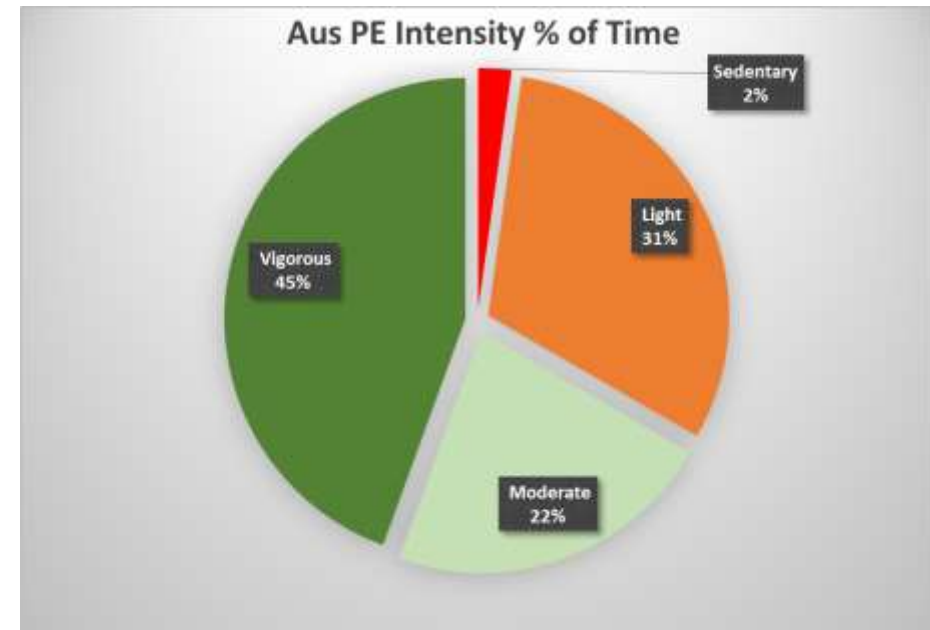
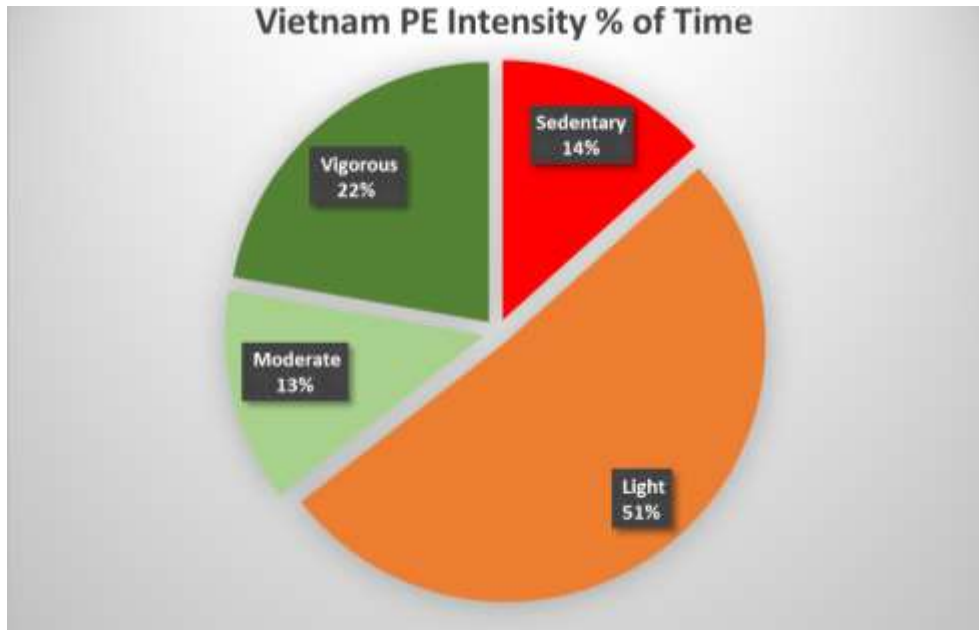
Measures energy expenditure on all 3D planes of motion



COMPARING AVERAGE PHYSICAL ACTIVITY TIME (N=20)



- Clear to see higher levels of Moderate-Vigorous physical activity for Australian HPE lessons compared to Vietnamese lessons
- Lots of sedentary and light physical activity spent for Vietnamese students



COMPARISON OF PIE GRAPHS

REFERENCING SOURCES

- <https://golf.procon.org/view.resource.php?resourceID=004786>
 - Gives a complete list of METs for all activities
- <https://www.topendsports.com/weight-loss/energy-met.htm>
 - Explains how the energy cost is determined through oxygen consumption