A man and a young girl are running through tall grass under a blue sky with clouds. The man is on the left, wearing a white shirt and dark pants, and the girl is on the right, wearing a white shirt and dark pants. They are both smiling and appear to be enjoying their run. The text is overlaid on the image in a yellow, outlined font.

See How They Run: Physical Activity among Hawai'i preschoolers in the Children's Healthy Living (CHL) Program.

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Introduction

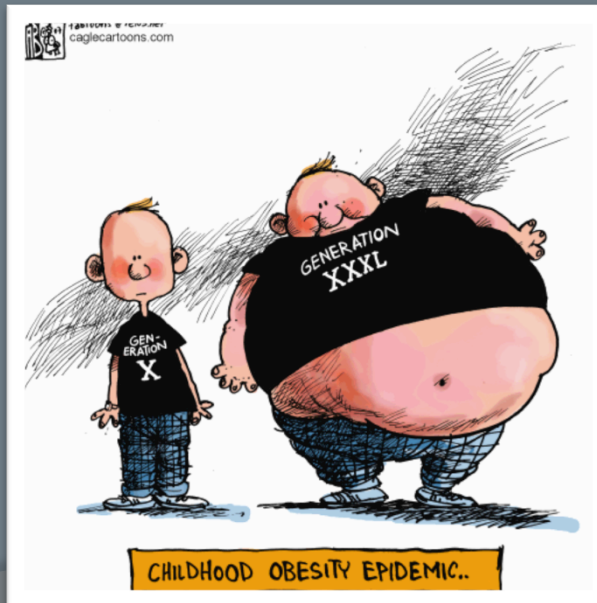
- Benefits of regular Physical Activity (PA) for children has been established extensively in literature
- PA is important to children's immediate
 - social
 - mental
 - physical health
- In 2007, 28% of children in Hawaii (6-17 years) participated daily in vigorous PA

Introduction

- The relationship between obesity and PA.
- In 2009-2010, approximately 16.9% of children and adolescents in the U.S. were obese.
- 1 in 3 low income children are overweight or obese before reaching the age of 5.

Introduction

- 9.1% of low income children in Hawaii were obese in 2010.
- Overweight and obese children tend to become overweight and obese adults.



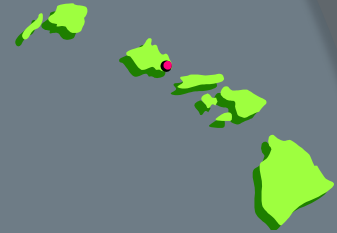
PA in children

- Basic movements
- Fundamental movement skills
- Unstructured activities (play)
- Structured activities (soccer, dance etc.)
- Short bursts of activities



Hawaii, the ideal place for PA?

- Geography and climate influence opportunities for PA in Hawai'i
- Outdoor opportunities for PA exist:
 - Pacific Ocean
 - City and county, state parks
 - Private recreational facilities
 - Various elevations (for hiking etc.)



Purpose

- To determine the types of PA children in Hawaii perform daily
 - Why is this important?

Research Questions

- Are preschool children in Hawaii participating in daily PA?
- What activities are preschool children in Hawaii doing daily?
- Of the activities performed by preschool children in Hawaii, which of these incorporate the geographical location and climate of the island?

Methodology

- The CHL Program (previously described)
- PA Feasibility Pilot
 - Purpose (validate accelerometry in the diverse population of children in Hawaii and Alaska)
 - 3 Head Start sites on O'ahu
 - 50 preschoolers; 46% part Native Hawaiian (all of mixed ethnicity); 14% part Other Pacific Islander (all of mixed ethnicity)
 - Anthropometric measurements

Methodology

Instrument



- Actical Accelerometer
- System for Observing Fitness Instruction Time (SOFIT)
- PA Logs (completed by parent or guardian)
 - 3 days of PA information (about child)
 - When, where, what, & intensity
 - 1 log = 24 hrs of information

CHIL Physical Activity Log


Date: _____ Day of the week: _____

TIME	PLACE	ACTIVITY	INTENSITY* Lo /Med / Hi
5:00 am			
5:30 am			
6:00 am			
6:30 am			
7:00 am			
7:30 am			
8:00 am			
8:30 am			
9:00 am			
9:30 am			
10:00 am			
10:30 am			
11:00 am			
11:30 am			
12 noon			
12:30 pm			
1:00 pm			
1:30 pm			

Methodology

Analyses

- Activity categories assigned to parent-provided activity
- Metabolic equivalent (MET) values assigned for activities

Activity	MET Range
Sleeping	0.9 and below
Sedentary	1.1-1.5 
Light Activity	1.6-2.9
Moderate Activity	3.0-5.9
Vigorous Activity	6.0 and above

Methodology Analyses

- Descriptive analysis- frequencies



Results

- Initial accelerometer sample size: 51
 - Mean age 3.6 ± 0.6 years (n=50)
 - 30 boys, 21 girls*

Hawai'i	n
Number of PA logs	129
Number of parents/children who submitted PA logs	45

*one parent did not provide demographic information

Results

Activities most frequently reported-Top 5

Activity	Frequency (n)*	MET
sleeping	2817	0.9
child default for additional minutes	719	1.5
child watching TV-sitting	407	1.2
eating (sitting)	375	1.5
child riding/ driving in a car	304	1.4

*Frequencies represent a tally of activities reported, for all children

Results by PA Intensity

Vigorous Activities; MET= 6.0 and above

Activity	Frequency	MET
Child unstructured outdoor play-hard	171	6.3
Child riding a bicycle/bike-moderate	39	6.2
Child riding a bicycle/bike-hard	25	7.8
Child playground equipment-hard	19	6.3
Child riding a scooter-hard	12	8.1

Results by PA Intensity

Moderate Activities; MET= 3.0-5.9

Activity	Frequency	MET
Child unstructured outdoor play-moderate	165	5.0
Child walking-moderate	53	3.6
Child unstructured outdoor play-light	33	3.8
Child tidying/cleaning room	20	3.4
Child walking-hard	17	4.6

Results by PA Intensity

Light Activities; MET = 1.6-2.9

Activity	Frequency	MET
Child playing with toys/action figures	205	1.6
Child preparing for the day	168	2.0
Child preparing for bed	149	2.0
Child walking-light	75	2.9
Child playing active video games-light	32	1.7

Results by PA Intensity

Sedentary Activities; MET=1.1-1.5

Activity	Frequency	MET
Child default for additional minutes	718	1.5
Child watching TV-sitting	407	1.2
Eating (sitting)	374	1.5
Child riding in/driving in a car	306	1.4
Child sitting quietly	77	1.4

Results by Geography and Climate

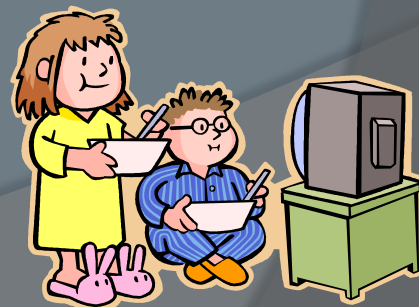
Parent provided activity

- Swimming (pool or beach)
- Playing outside (with toys, cousins, siblings)
 - Playing on jungle gym/ “play set”
- Riding bicycle outside
- Riding a scooter



Discussion

- Don't
- See How They Run
- Sedentary behaviors reported most frequently
 - Watching TV
 - Eating
 - Riding in a car
- Sedentary behaviors and obesity
 - Public health implications



Discussion

- Some vigorous activities reported
 - Outdoor play (hard)
 - Riding bicycle
- Moderate activities reported
 - Outdoor play (moderate)
 - Walking (moderate)

Discussion

- PA based on geography/climate
 - Swimming
 - Playing on sand
- Majority of preschoolers in this sample appear to be sedentary daily
- Children may need parental models of PA

Limitations

- Parents unaware of child's PA during preschool day
- Some activity unable to be categorized-labeled "child default for additional minutes"
- Logs are subjective measures possible introduction of bias
- Logs may not capture "total picture"
- Limited generalizability

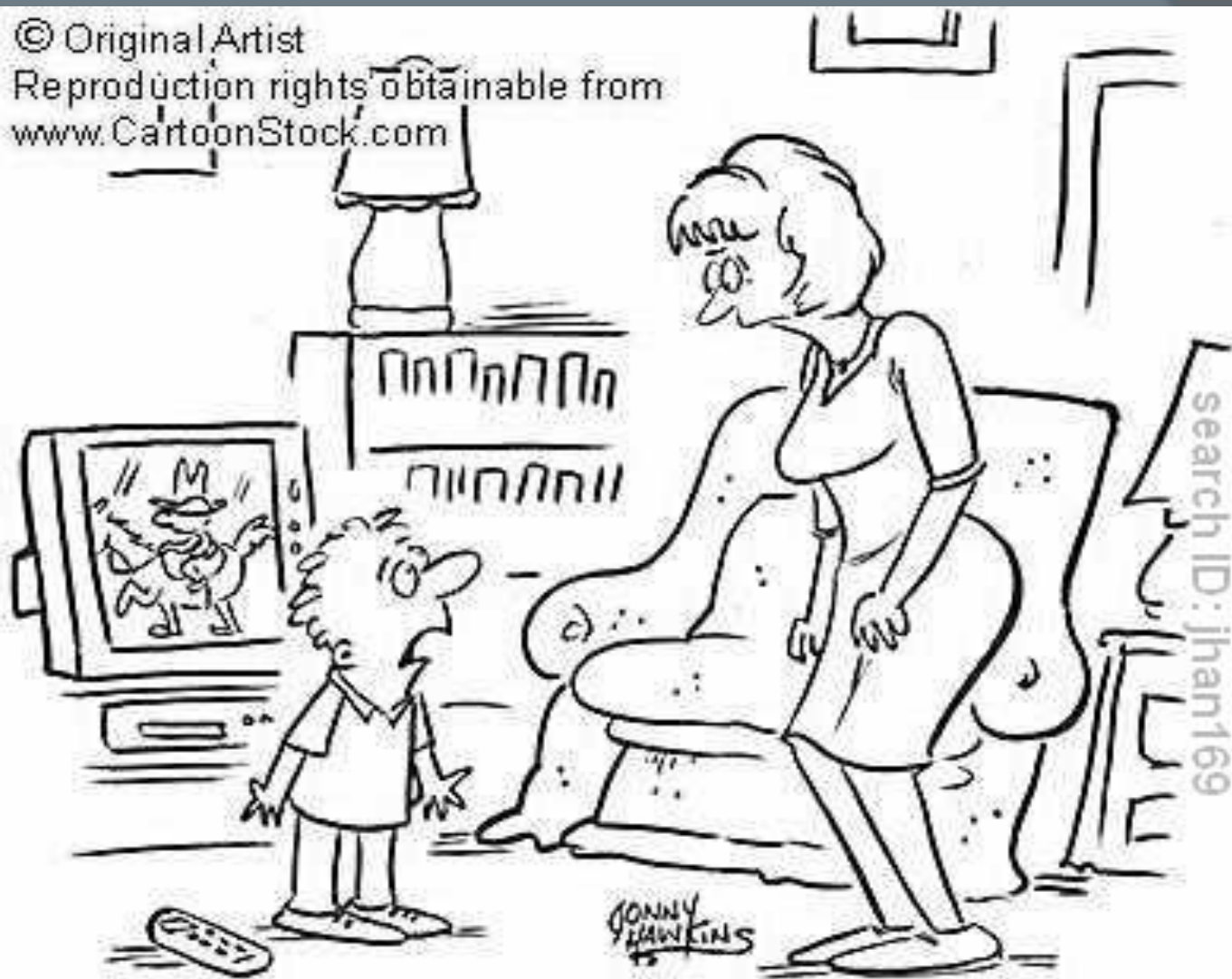
Implications

- ⦿ Encourage activities that children (despite geography) typically do
 - Bike riding
 - Playing on jungle gym
 - Playing with friends (tag, catch, etc)
- ⦿ Need for encouragement of Hawaii specific activities
 - Swimming
 - Running outdoors
 - Dance (hula and other cultural dances)
 - Hiking

Conclusions

- Most frequent activities reported are sedentary
- Activities were not geographically or culturally based
- Children may need parental models of PA
- Further efforts needed to encourage PA as well as geographic, cultural or climate based activities

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“But I do exercise, Mom ... I surf the net!”

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Mahalo to:

Children's Healthy Living PA Pilot Team

HCAP Head Start; administrators, teachers, assistants

Head Start Parents and preschoolers

Questions?



Selected References

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