

# IUNS 21<sup>st</sup> ICN International Congress of Nutrition “From Sciences to Nutrition Security”



Sociedad Argentina de Nutrición



IUNS

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# Conflict of Interest Disclosure

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## Conflict of interest:

The study sponsors' had no role in study design, data collection and analysis, decision to publish, or preparation of this presentation.

# Physical Activity and Health: New Knowledge in Research and Technologies

## Mini **SALTEN** Program

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***Session Supporting ILSI Branches: ILSI North America, ILSI Argentina and ILSI Focal  
Point China***

# The Context

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- Argentina is leading the regional rates of overweight school age children.
- We are facing rates between 38-48% of overweight children of 6 to 12 years old boys and girls in Argentina.
- Most of the children have at least one cardiovascular risk factor at the age of 10.
- This context directly influence PA interventions and should invite to think about PA curricula at school.

# The Context

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- ... Considering the context ... .Before designing interventions ... we wonder...
  - Which would be the quality and quantity of PA that should be provided by the school environment?
  - Are the current school programs enough inclusive to take in the majority of children?
  - Are the teachers considering the value of the association between physical activity and joy or pleasure during infancy?

# Scientific evidence from SALTEN

(our previous intervention in pre adolescents)

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- Higher prevalence of overweight kids in four and fifth grades so....Let's Start earlier!
- Include fun, inclusive and non competitive PA at school to guarantee the sum of **30 min of MVPA**.
- Educate on **healthy eating**.
- Include **parents** in the intervention.
- Assess the impact with more **robust** tools.





# ¿What is Mini SALTEN?

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- Mini SALTEN is a school-based program designed to prevent childhood obesity in first grade children (aged 6 and 7).
- Emphasis is placed on **motivating parents** to undertake and sustain the proposed changes.
- It was designed by Nutrition, Health and Well Being Area of ILSI Argentina.
- Was implemented during 2015 and 2016 as a “pilot model”.





# The Program: Theoretical Framework

- Angelo Socio-ecological Model

beliefs and attitudes



Culturally appropriate & affordable (low cost)

*Accessibility & Availability*



# The Intervention



1

## Virtual



Parental education/**information** on eating behavior & PA

2

## Active Breaks



Kid's PA intervention focused on 30 m of MVPA at school 3 days/week

3

## Complete



Parental education + active breaks

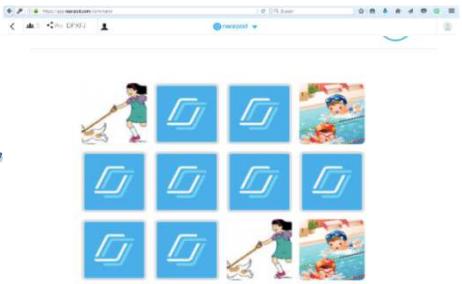
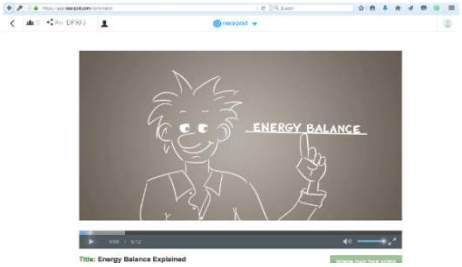
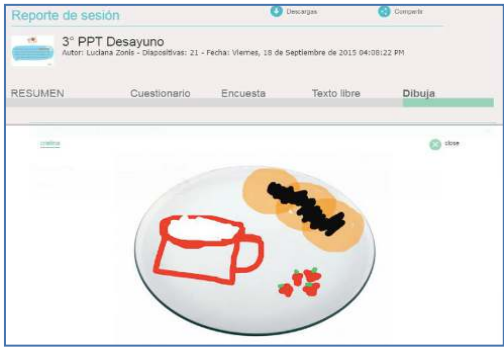
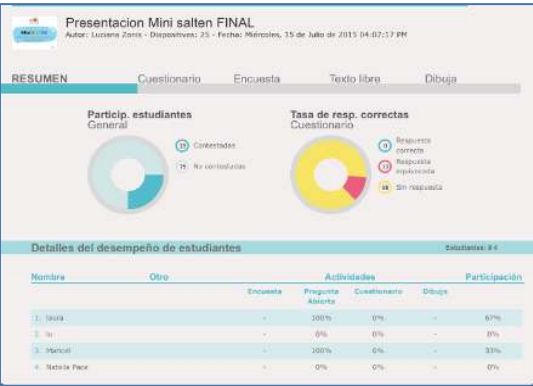
**Control Group**



FAMILY



# The web platform



carolinapuenta

close



maricel



magali



# Active Breaks

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- Activities during school breaks were promoted with *motivation* as a backbone and devoid of a competitive strive; *active play in which fun, pleasure, and sharing were emphasized.*
- Physical Activity instructor guided activities three times a week during two school breaks with the goal of promoting active play for a minimum of 20–30 min/day, depending on each school.
- The goal was that children spent 75% of their time running or jumping.
- This school-based intervention was complemented with a partial version of the web-based program.



# For more Study Protocol information...

Kovalskys et al. *BMC Public Health* (2017) 17:401  
DOI 10.1186/s12889-017-4327-3

BMC Public Health

STUDY PROTOCOL

Open Access



## Study Protocol of MINI SALTEN: a technology-based multi-component intervention in the school environment targeting healthy habits of first grade children and their parents

Irina Kovalskys<sup>1,2\*</sup> , Cecile Rausch Herscovici<sup>1</sup>, Paula Indart Rougier<sup>1,2</sup>, María José De Gregorio<sup>3</sup>, Luciana Zonis<sup>1,2</sup> and Liliana Orellana<sup>4</sup>

# Measures



- At baseline and 12 months.
  - Tri-axial accelerometer (model wGT3X-BT ActiGraph, Pensacola, FL, USA).
  - The children worn the accelerometer 24 hours per day for 7 consecutive days (including the weekend days). The device was removed during water activities.

## Accelerometer data analysis:

- ActiLife 6.11.8 software.
- Data downloaded in 15 second epochs.
- Wear time validation: 5 days including at least 1 weekend day; with at least 10 hours.
- Cut points of sedentary, light, moderate and vigorous PA: Evenson et al. (2008).







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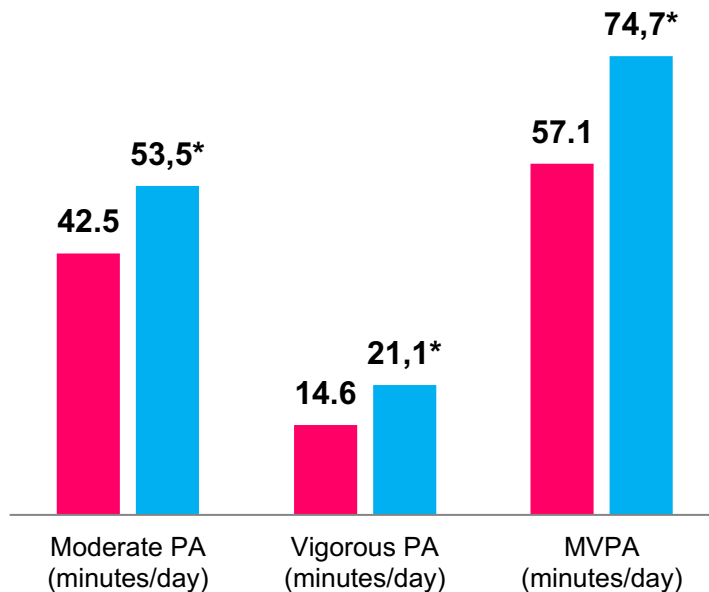
# RESULTS

# Physical Activity by sex ( baseline)



Objectively measured levels of physical activity in first grade children of Buenos Aires. Data from Mini SALTEN Study.

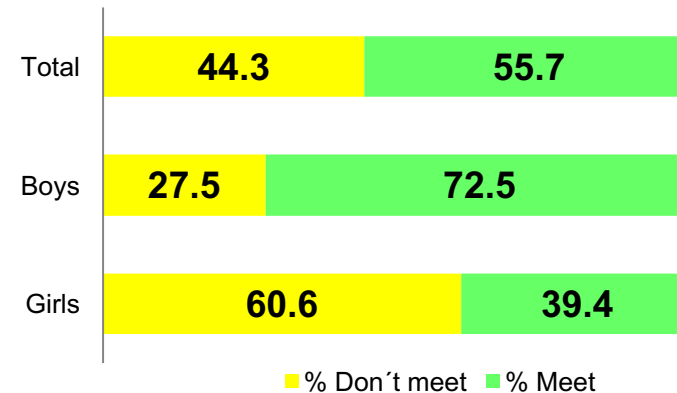
**Minutes of Moderate PA, Vigorous PA and MVPA per day by sex**



\* p < 0.000 (ANOVA)

■ Girls ■ Boys

**Distribution of the total sample and by sex according to the WHO PA Recommendation (≥ 60 minutes/day MVPA)**



Indart Rougier P<sup>1</sup>; De Gregorio MJ<sup>2</sup>; Zonis LN<sup>1</sup>; Favieri AL<sup>1</sup>; Rausch Herscovici C<sup>1</sup>; Kovalskys I<sup>1</sup>.

<sup>1</sup> Nutrition and Health Area. ILSI Argentina (International Life Sciences Institute). Buenos Aires. Argentina.

<sup>2</sup> Department of Anthropological Sciences. University of Buenos Aires. Buenos Aires. Argentina.

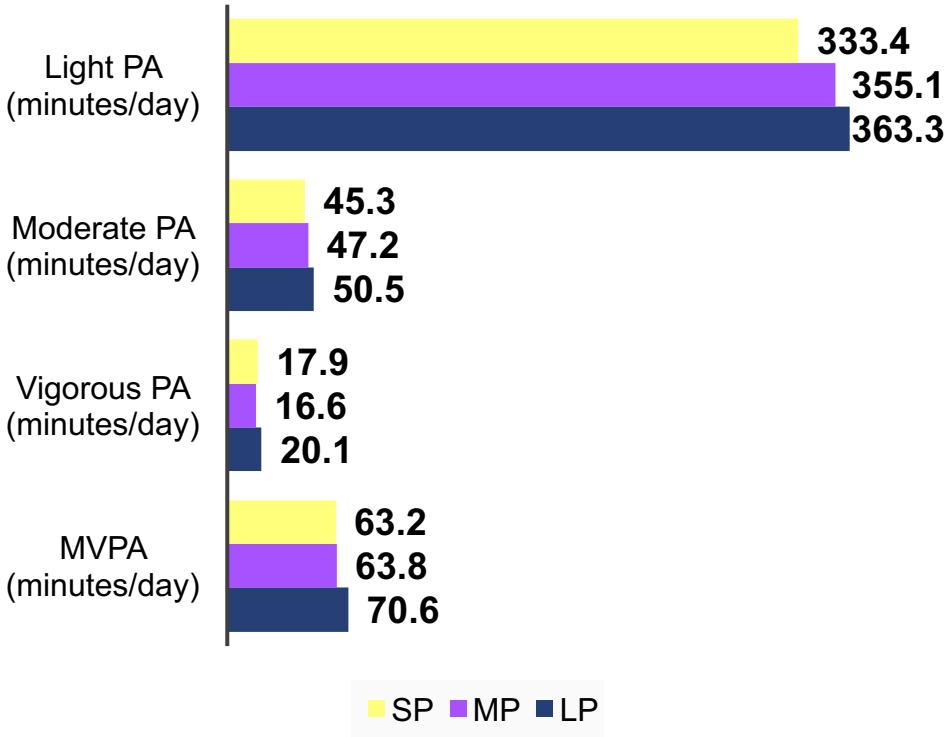


# Physical Activity by intervention group

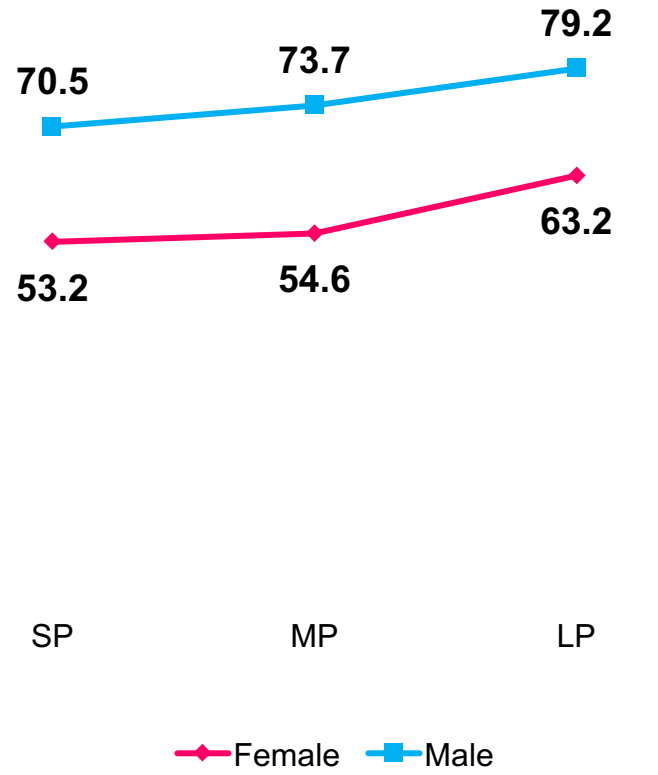
Levels of Physical Activity (PA)	Complete + AB		Virtual + Control	
	Baseline (n=92)	Post intervention (n=67)	Baseline (n=93)	Post intervention (n=67)
Minutes/day in Light PA				
Mean (SD)	352.8 (47.2)	340.5 (48.2)	356.1 (50.1)	337.7 (47.2)
Minutes/day in Moderate PA				
Mean (SD)	47.3 (12.6)	46.7 (14.7)	48.5 (15.5)	46.0 (13.8)
Minutes/day in Vigorous PA				
Mean (SD)	<b>17.5 (8.9)</b>	<b>17.9 (10.7)</b>	<b>18.1 (10.5)</b>	<b>17.5 (10.7)</b>
Minutes/day in MVPA				
Mean (SD)	64.9 (19.9)	64.5 (23.8)	66.6 (24.2)	63.5 (21.7)
Minutes/day in Sedentary				
Mean (SD)	929.1 (134.4)	940.3 (132.7)	946.3 (107.2)	917.8 (163.1)

# Playground size and levels of physical activity in first grade children of Buenos Aires. Data from Mini SALTEN Study.

**Minutes per day of light, moderate and vigorous PA by playground size**



**Minutes per day of MVPA by sex and by playground size**



Indart Rougier P<sup>1</sup>; De Gregorio MJ<sup>2</sup>; Zonis LN<sup>1</sup>; Favieri AL<sup>1</sup>; Rausch Herscovici C<sup>1</sup>; Kovalskys I<sup>1</sup>.

<sup>1</sup> Nutrition and Health Area. ILSI Argentina (International Life Sciences Institute). Buenos Aires. Argentina.

<sup>2</sup> Department of Anthropological Sciences. University of Buenos Aires. Buenos Aires. Argentina.

# Take away messages

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- The quantity and quality of PA is more linked with the facilities than with the motivation at 6 years old, driving to think about the importance of giving space and free time to play .
- Boys are naturally more active than girls. There is an important need to generate interventions oriented to improve the girls movement & increase their energy expenditure.
- Considering that a **half of the girls don't meet the WHO PA recommendation**, some specific preventive efforts should be considered when planning public health policies.

# My personal messages

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- If half of the population is overweight or obese the interventions focused on encourage PA should consider this context and the scientific evidence about effective strategies in overweight kids.
- Part of this consideration should be to develop a more inclusive curricula, more linked to fun, joy and fair play instead of a competitive program.
- The high risk of associate physical activity with a frustrating and not empathizing activity could negatively influence on the kid and influence on self-esteem driven to an opposite effect.

# Personal Conclusion



## Una escuela cambia los castigos por sesiones de meditación (y los resultados son sorprendentes)





# The Team



- **Nutritionists:**  
Paula Indart Rougier - Luciana Zonis - Tamara Ramírez - Andrea Lorena Favieri - Cecilia Casanova - Ximena Janezic - Mariana Pelypenko - Paula Mizrahi.
- **Physical Activity Teachers:**  
Claudio Margules - María Victoria Quintana - Rocío Cantilo - Tomás De Gregorio - Gustavo Aguilera - Cristian Ramón Campos - Lautaro Fernández Aguirre.
- **Statistician**  
María José De Gregorio
- **Advisor**  
Cecile Rauch Herscovici  
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