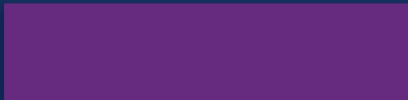


Exercise for Individuals with Down Syndrome & Their Parents

Day with the Experts | **Dr. Luis Columna and Jamie L. Jaime-Concepción**

Physical Activity, Health & Families



Today's Roadmap

01

Why PA Matters

Benefits for children & adults

02

DS & Obesity Risk

Trisomy 21 + cardiometabolic risk

03

Barriers & Solutions

Common barriers & how families overcome them

04

Exercise Ideas

Aerobic, strength, kids & parents

05

Mothers' PA Program

Our current research

06

Aquatics & Safety

Summer programming & safety

07

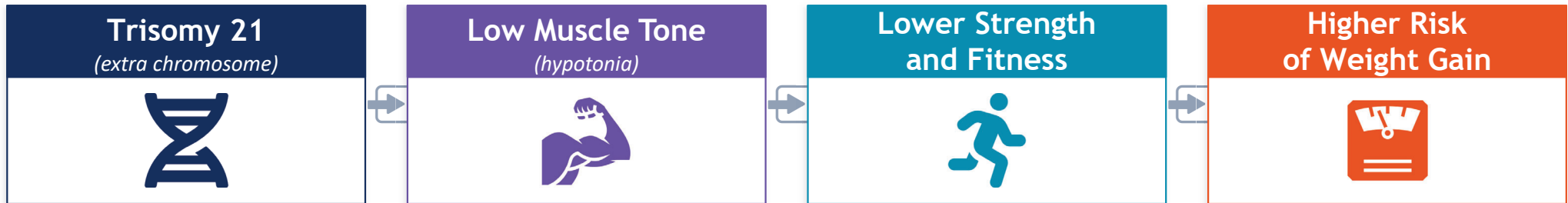
Future Directions

Latino families, US & Puerto Rico

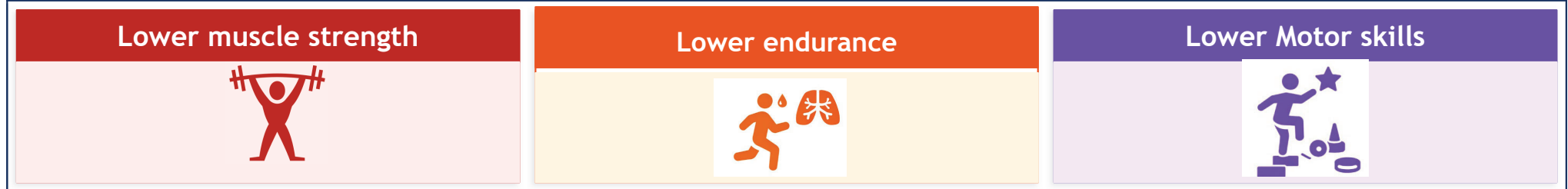


Why Physical Activity Matters

Down Syndrome and Why Physical Activity Matters



Why movement can be harder



Why physical activity helps

Regular physical activity **helps** children with Down syndrome:



Build **muscle strength**



Improve **fitness** and stamina



Support a **healthy** weight



Improve **energy** and mood



Build **confidence** and independence



Support **motor** development



Barriers to Physical Activity & How to Overcome Them

Barriers to PA in DS Families — and Evidence-Based Strategies

Barrier

Time constraints & caregiver fatigue

Medical concerns (heart conditions, neck instability)

Lack of inclusive fitness spaces

Low child motivation / behavioral challenges

Parents unsure how to exercise their child safely

Cultural & language barriers (Latino families)

Strategy

Integrate PA into daily routines (walk to school, active chores, movement breaks)

Get medical clearance first; avoid contact sports and diving; ask your doctor about any heart conditions and neck stability

Use home, playgrounds, parks; advocate for adapted community programs

Use preferred activities; music, dance, and social play boost motivation

Build confidence through simple, structured guidance; start small and celebrate wins

Culturally tailored, Spanish-language programming; community trust-building



Exercise Ideas for Children & Adults

How Much Physical Activity Does Your Child Need?

60
minutes per day

What counts as physical activity?

- ✓ **Can be split into shorter bouts** — 10 or 15 minutes at a time counts
- ✓ **Play counts** — tag, dancing, playground, swimming
- ✓ **Family activity counts** — the more you move together, the better
- ✓ **Strength activities count too** — aim for 3 days/week

💡 **Important for DS:** Children with DS have lower baseline fitness than peers. 60 minutes is the goal — but any movement is progress. Start where you are.

Aerobic Activities for Children with Down Syndrome

Goal: 60 min/day of moderate-to-vigorous PA | Can be broken into 10–15 min bouts | Priority: Make it FUN, frequent, and part of family routine



Walking

Start 10–15 min/day; family walks build habit; use scavenger hunts or favorite music to boost motivation



Biking

Adaptive bikes work well; begin on flat surfaces; balance bikes build confidence before pedaling



Dancing

Music-based PA is highly motivating; GoNoodle, Just Dance, or YouTube videos work at home — FREE



Swimming

Excellent low-impact option; develops full-body fitness ← see aquatics safety section



Playground & Sport

Tag, obstacle courses, throwing/kicking; Special Olympics provides peer sport structure



Active Video Games

Ring Fit, Wii Sports, VR fitness; bridges motivation gap for screen-preferring children

Strength & Functional Movement for Children with DS

Why strength training matters: Nearly all children with DS are born with reduced muscle tone, called hypotonia. This can lead to poor posture, loose joints, and difficulty with everyday physical tasks. Strength activities directly address this.

Bodyweight Exercises

- Squats & sit-to-stand from chair or floor
- Wall push-ups → floor push-ups (modified)
- Bear crawls & crab walks (core and arms)
- Step-ups on stairs or low step
- Animal walks: frog jumps, inchworm
- Balance challenges: single-leg stands, beam walking

Resistance Bands & Playground

- Resistance bands: rows, shoulder press, lateral band walks
- Monkey bars & climbing structures (grip and upper body)
- Swinging: builds core stability and sensory integration
- Pulling & pushing games: tug-of-war, cart pushing
- Functional movement: carrying groceries, laundry tasks
- Yoga and stretching for proprioception

**NOW, FOR YOU
AS A PARENT**



**Your health is part of this
conversation too!**

Benefits of Physical Activity for Parents — and Why It Matters for Children Too

38%

Lower depression risk
with regular PA

30%

Reduced cardiovascular
disease risk

50%

Caregivers exercising
report improved energy

Parents of Children with DS: A Special Population

- Caregiving demands are high — parents often deprioritize their own health
- Mothers of children with DS report elevated stress, anxiety, and depression
- PA is one of the most effective tools for improving caregiver mental health

The Core Message of This Talk

Children are more likely to be physically active when they observe their parents being active. **Modeling** is one of the strongest predictors of child PA. When parents move regularly, children move more. The effect works in both directions — active parents raise active children.

***“When parents move, children move.”
Everything in this talk builds from this idea.***

Start Small. Small Habits Matter More Than Perfect Programs.



For Parents:

You do not need a gym membership, a perfect schedule, or an expert plan. You need to start moving — with your child, today.

Try this week

-  10-minute walk after dinner
-  Dancing together in the living room
-  Playground climbing after school
-  Weekend family bike ride



Research shows:

Children are more active when their parents are active.

Your movement habits are the most powerful exercise tool your child has.

Taking care of yourself IS taking care of them.

Our Current Research: PA Program for Mothers of Children with DD

Program Design

- Group-based aerobic and strength training
- Sessions 3×/week, 60 minutes
- Social support is built into every session
- Flexible scheduling to accommodate caregiving

Preliminary Outcomes

- Reduced perceived stress and anxiety
- Improved energy and sleep quality
- High retention and participant satisfaction



Next Steps: PA Program for Mothers of Children with DD

Spring 2026

The program is currently underway this semester

Ongoing focus: refining delivery and identifying what supports are needed for sustainability



Transfer to a Community Setting

Goal: partner with community organizations for long-term adoption and sustainability



Aquatics

Swimming and Water Activities: Great for DS, With One Important Catch

Why Swimming is Great for DS

- Low-impact: gentle on joints, great for kids who find land exercise hard
- Water resistance builds strength without weights
- Buoyancy helps kids with limited mobility move more freely
- Warm water is often calming and sensory-friendly
- Builds cardio fitness, balance, and coordination at the same time
- Summer: pools, splash pads, and lakes are low-cost and social

Safety: What Every Family Needs to Know

Drowning risk

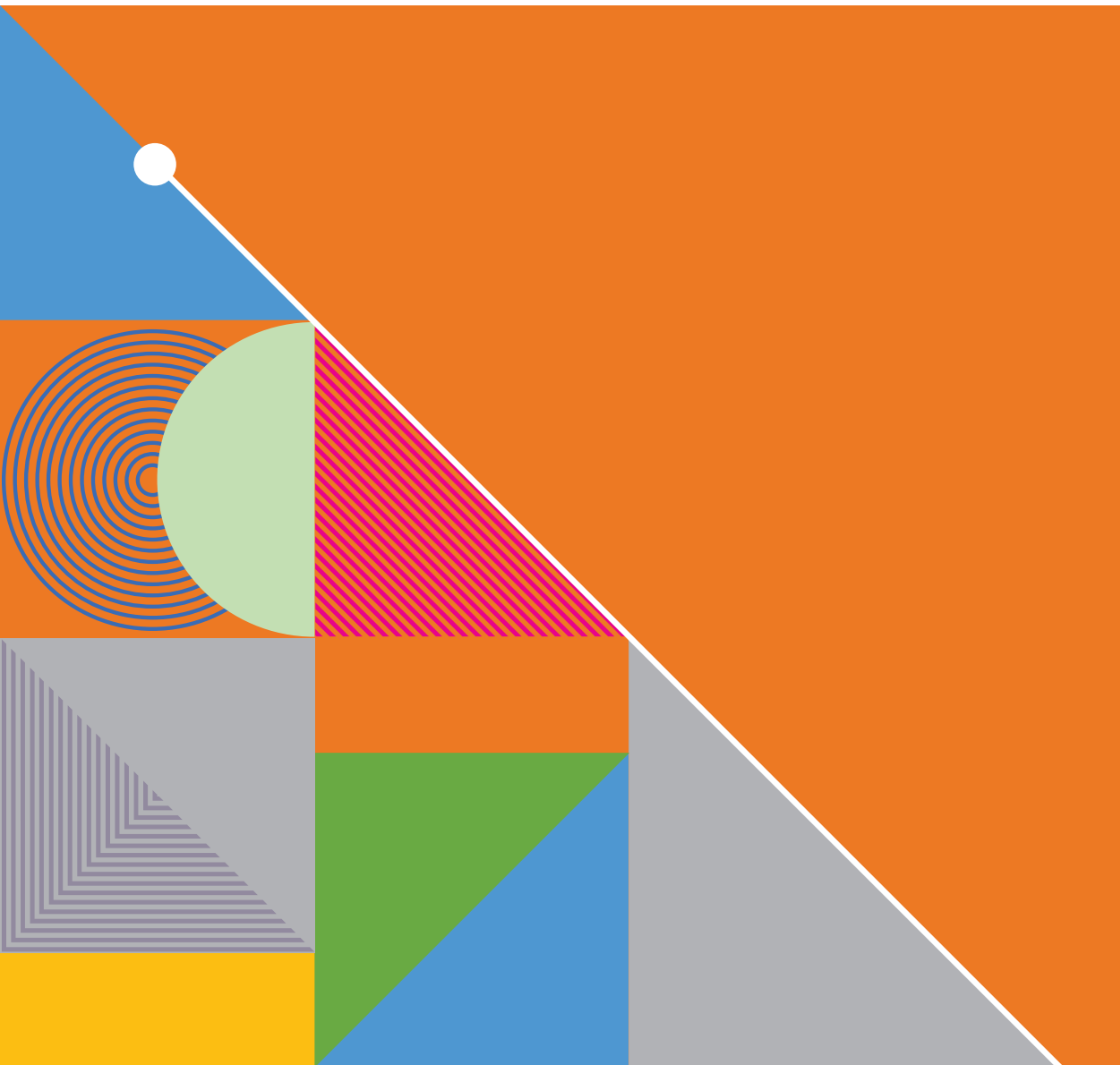
- Always have an adult in the water with younger children
- Lifeguard plus a designated family member watching your child
- Lock pool gates; door alarms at home

Before getting in the water

- Ask your doctor about neck stability (atlantoaxial instability) before diving or flips
- Get cardiac clearance if your child has a heart condition
- Ear infections are common in DS. Check before swimming; use earplugs if needed

Equipment

- Properly fitted life jacket for non-swimmers. Skip the inflatable arm floaties; they create false security



Assessments and Activities for Teaching Swimming

*Progressions
for six
developmental
levels*



**Monica Lepore / Luis Columna
Lauren Friedlander Litzner**



Future Directions: Expanding Our Work

Where We Are Headed: Expanding This Work

01 Puerto Rico Pilot

- After piloting the program locally, we plan to expand this work to **Latino families in Puerto Rico**.
- This will allow us to examine how the program works in a different cultural group.

02 Exploring Menopause and Caregiving

- How menopause affects mothers raising children with developmental disabilities.
- Your input will help us!
 - Scan QR code
 - Ask for a flyer for more info.



03 Expanding to Teens and Adults with Disabilities

- We are also developing a **physical activity program for teenagers and adults with Autism Spectrum Disorder and Down syndrome**.
- This work aims to create sustainable exercise opportunities across the lifespan.

04 Integrating with the Fit Families Program

- Combining the **physical activity program for mothers** with our **Fit Families program**.
- By integrating these programs, we can support both **parent health and child physical activity** within the same family-centered approach.

Where We Are Headed: Expanding This Work

01 Taking the Program to the Community

- From our university lab into the community.
- The goal is to make the program more accessible for families and to work with community partners to ensure it fits their needs and resources.

02 Puerto Rico Pilot

- After piloting the program locally, we plan to expand this work to **Latino families in Puerto Rico**.
- This will allow us to examine how the program works in a different cultural groups.

03 Expanding to Teens and Adults with Disabilities

- We are also developing a **physical activity program for teenagers and adults with Autism Spectrum Disorder and Down syndrome**.
- This work aims to create sustainable exercise opportunities across the lifespan.

04 Integrating with the Fit Families Program

- Combining the **physical activity program for mothers** with our **Fit Families program**.
- By integrating these programs, we can support both **parent health and child physical activity** within the same family-centered approach.

Key Takeaways

Biology drives the risk



Trisomy 21 → hypotonia → lower metabolic rate → obesity risk. This is structural, not behavioral. PA is the most powerful modifiable lever.

Families and communities shape health



Physical activity does not happen in a vacuum. What happens at home, at school, in the neighborhood, and in the culture all shape whether a child moves.

Role Modeling: the most powerful tool parents have



When parents are active, children are more active. Build confidence first. Group settings and support from others are not extras. They are what makes change stick.

Aerobic + strength = the combination



60 min/day aerobic PA plus functional strength training addresses both cardiometabolic risk and hypotonia-related limitations.

Mothers' health IS family health



When mothers move, children move. Our PA program for mothers produces a documented spillover effect. Self-care is caregiving.

Aquatics: opportunity AND responsibility



Swimming is ideal for DS. But swim safety is a life-saving priority. Structured summer programs address both at once.



PHEAPA LAB

Promotion of Health Equity through Adapted Physical Activity

“When parents move, children move.”

Dr. Luis Columna

lcolumna@wisc.edu

Jamie L. Jaime-Concepción

jamie.jaimeconcepcion@wisc.edu

