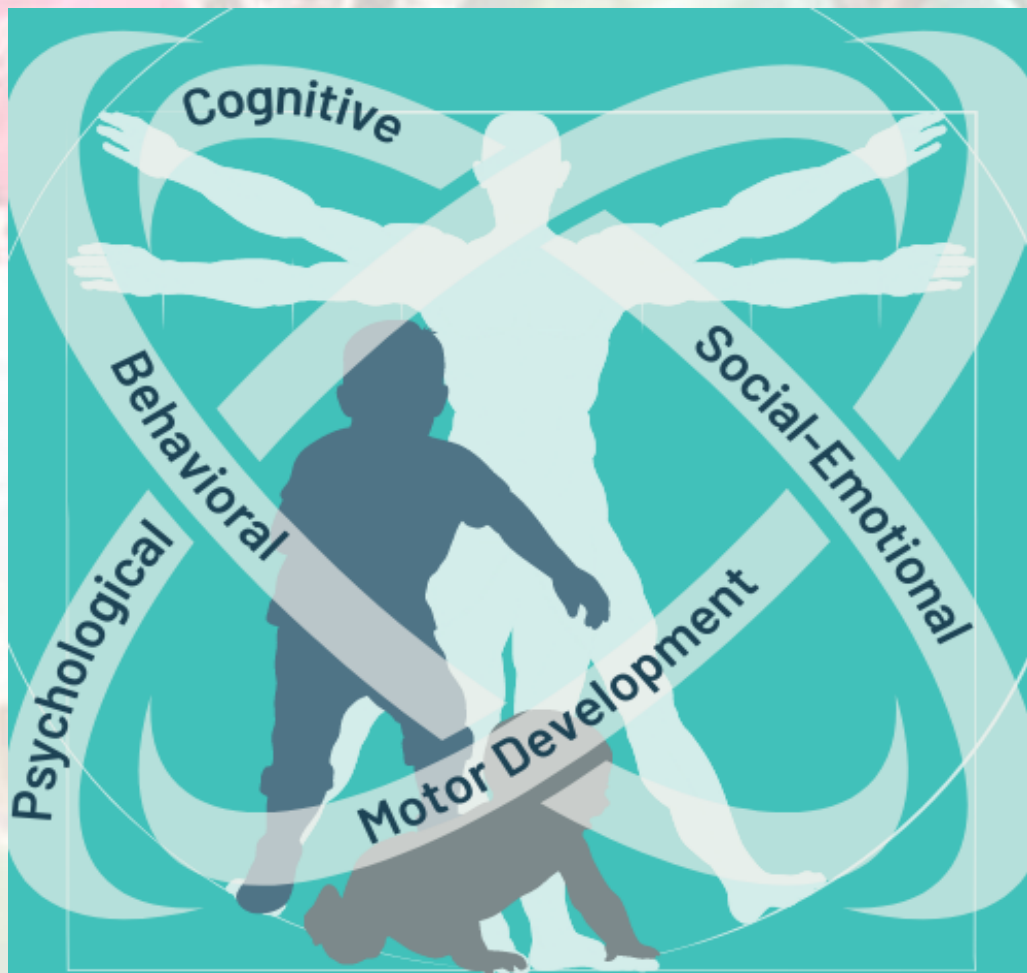


Advancing Mental Health with a Holistic developmental twist: What can we add?





**There are mental health challenges for all ages,
especially for youth and young adults**

- **Approximately 74% of emotional/behavioral health disorders are diagnosed before the age of 25**

**Motor Development – A Catalyst to a Holistic
Preventative approach for Long-Term Behavioral
Health?**



Play - (structured & unstructured) and youth sports are primary mechanisms critical for development in multiple domains

- **Unfortunately.....**
- Most children and adolescents do not engage in adequate health-enhancing physical activity (22%) and fitness habits (25%) -
- Youth Sport Participation in the U.S. is Declining – 70% (High SES), 50% (Mid), 30% (Low)
- The prevalence of obesity and severe obesity in the U.S. increased from 14.7% to 19.2% and 3.9% to 6.1% from 1999-2018 (NHANES Data).
- Many children do not develop adequate functional movement capabilities to be active (75% - <25%tile)
- **Kids Won't Play Because They Can't Play....**
 - **?What is the state of Italian youth?**

An emerging “Motor - Proficiency Barrier” problem...

Brian et al., (2019). Motor competence levels and developmental delay in early childhood: A multicenter cross-sectional study conducted in the United States, *Sports Medicine*.

580, 3-5 year olds

- 77% at risk for developmental delay (\leq 25th percentile)
- 30% at or below 5th percentile

***All groups (e.g., sex, race, socioeconomic status) prone to developmental delay**

De Meester et al., 2018 - N= 326, 7-12 yrs

Mean actual MC scores per group and percentage of children meeting the MVPA guideline per group (n = 326).

Group	% of total	N	n girls	n boys	Actual MC (percentile)	Percentage meeting MVPA guideline		
						Total	Girls	Boys
Low actual MC	76.07%	248	124	124	8.30 (7.92)	11.69%	8.07%	15.32%
Average actual MC	15.64%	51	28	23	42.55 (7.84)	25.49%	7.14%	47.83%
High actual MC	8.28%	27	16	11	74.59 (8.60)	40.74%	25.00%	63.64%
Total	100	326	168	158	19.15 (22.23)	16.26% (n = 53)	9.52%(n = 16)	23.42%(n = 37)

Note. Values in parentheses are standard deviations.



Impact of FMC on Physical Activity Levels, Cont...

- De Meester et al., 2018 N= 326 7-12 yrs
- MC – Motor Competence, PMC = Perceived Motor Competence
- Low MC <25%tile; High MC > 75%tile

Group		MVPA Min/day
1	Low MC – Low PMC	32.35
2	Low MC – Ave PMC	38.52
3	Low MC – High PMC	38.23
4	Ave MC – Ave PMC	48.39
5	Ave MC – High PMC	43.24
6	High MC – Ave PMC	61.28
7	High MC – High PMC	52.77

Proficiency Barrier Data

Stodden, et al., (2013). RQES
Data on 187 18-25 yr-old adults

	HRF index levels			Total
	Poor	Fair	Good	
Low MC (% within)	40 (61.5%)	23 (35.4%)	2 (3.1%)	65 (100%)
Moderate MC (% within)	24 (29.3%)	48 (58.5%)	10 (12.2%)	82 (100%)
High MC (% within)	1 (2.5%)	18 (45.0%)	21 (52.5%)	40 (100%)
Total Count (% within)	65 (34.8%)	89 (47.6%)	33 (17.6%)	187 (100%)

Abrams et al., 2023

MCA Class * PACER Crosstabulation

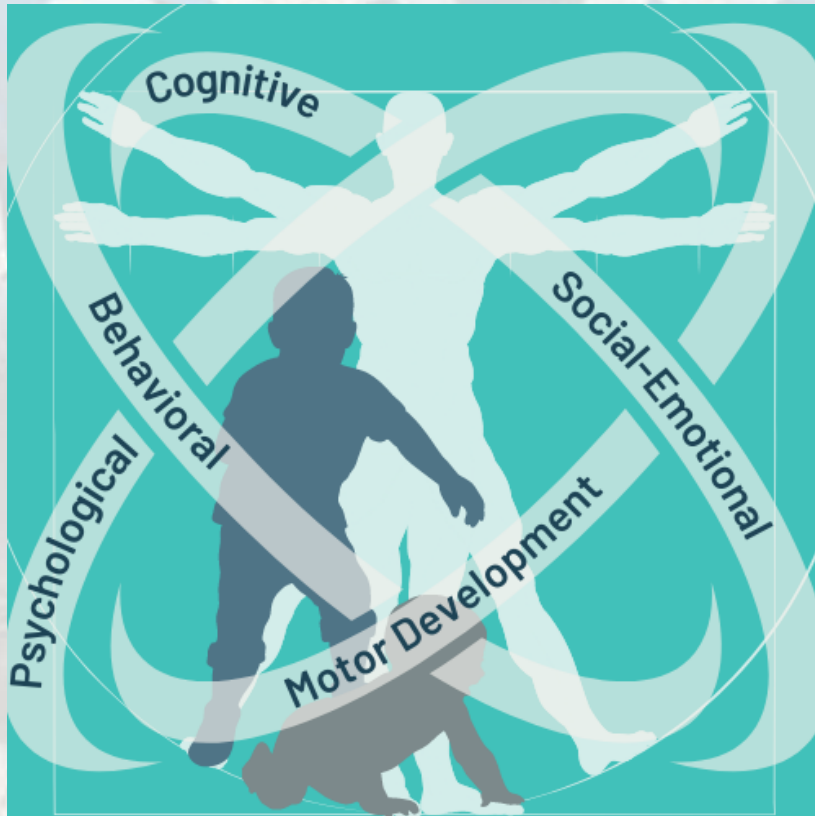
MCA Class			PACER HFZ			Total
			Health Risk	Needs Improvement	Healthy	
Low	Count		20	3	0	23
	% within MCA Class		87.0%	13.0%	0.0%	100.0%
Moderate	Count		107	30	45	182
	% within MCA Class		58.8%	16.5%	24.7%	100.0%
High	Count		8	7	14	29
	% within MCA Class		27.6%	24.1%	48.3%	100.0%
Total	Count		135	40	59	234
	% within MCA Class		57.7%	17.1%	25.2%	100.0%

MCA Class * Grip Class Crosstabulation

MCA Class			Grip Class			Total
			Low	Moderate	High	
Low	Count		11	8	4	23
	% within MCA Class		47.8%	34.8%	17.4%	100.0%
Moderate	Count		27	99	56	182
	% within MCA Class		14.8%	54.4%	30.8%	100.0%
High	Count		0	15	14	29
	% within MCA Class		0.0%	51.7%	48.3%	100.0%
Total	Count		38	122	74	234
	% within MCA Class		16.2%	52.1%	31.6%	100.0%

A More Holistic and Long-Term Approach to Development integrated into Mental/Behavioral Health Intervention?

Stodden, D. F., Pesce, C., Zarrett, N., Tomporowski, P., Ben-Soussan, T. D., Brian, A., Abrams, T. C., & Weist, M. (2023). Holistic functioning from a developmental perspective: A new synthesis with a focus on a multi-tiered system support structure. *Clinical Child and Family Psychology Review*.



➤ Psychological - Self-Concept Health

- Perceived Competence
- Self-efficacy
- Self-worth
- Motivations/SDT

➤ Physical Health

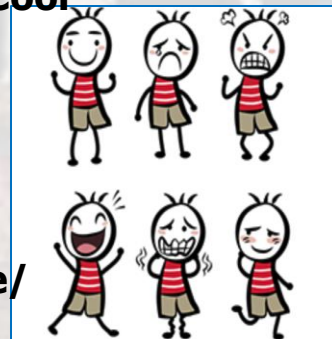
- Physical activity/Fitness
- Obesity
- Motor Development

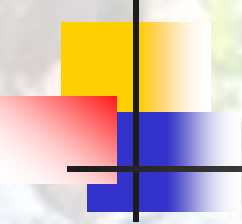
➤ Cognitive Health

- Executive Function (Hot & Cool)
- Achievement

➤ Behavioral Health

- Social Interactions
- Adult/Peer Interactions
- Emotional Control
- Performance of Appropriate/Acceptable Behaviors





Intervention to Promote Holistic Development

- Promoting health and well-being across the lifespan involves navigating a complex and intertwined labyrinth of biological, social and environmental factors
- Discipline-specific interventions to promote development have traditionally been fragmented
 - Siloed approaches to interventions are void of the essence of the complexity of human development
 - Generally siloed approaches applied to only one domain of development

“It all comes back to the importance of action for learning and the fundamental interrelatedness of the different parts of the human being (the social, emotional, cognitive, and physical parts) and of all human beings to one another [...]. The best and most efficient way to foster any one of those is to foster all of them” (Diamond, 2010 - p. 789).



Role of Functional *Movement*

Holistic Development Starts Early

- Successful interactions with other children & adults is facilitated by **purposefully and effectively** exploring/navigating their shared environment.
 - Effective = Motor coordination & control (i.e., Successful/learning to play)
 - Purposeful = Choices that relate to cognitive, psychological, social & emotional factors
- Children's **motor competence level** is an antecedent and/or "social capital" to facilitate successful development of interactions with others, as children learn to explore and successfully navigate the world
 - Successfully engage in physical activities
 - Develop self-concept (perceived competence, self efficacy, self worth)
 - Develop and maintain positive social interactions
 - Develop positive developmental trajectories of health



Role of Motor Development in Holistic Development

“After all, motor development is really behavioral development [...]. Thus, for researchers who view psychology as the study of behavior, motor skill acquisition is the stuff of the science.” (Adolph & Hoch, 2019 - p. 157)

Life Begins With Movement... And Ends Without it...

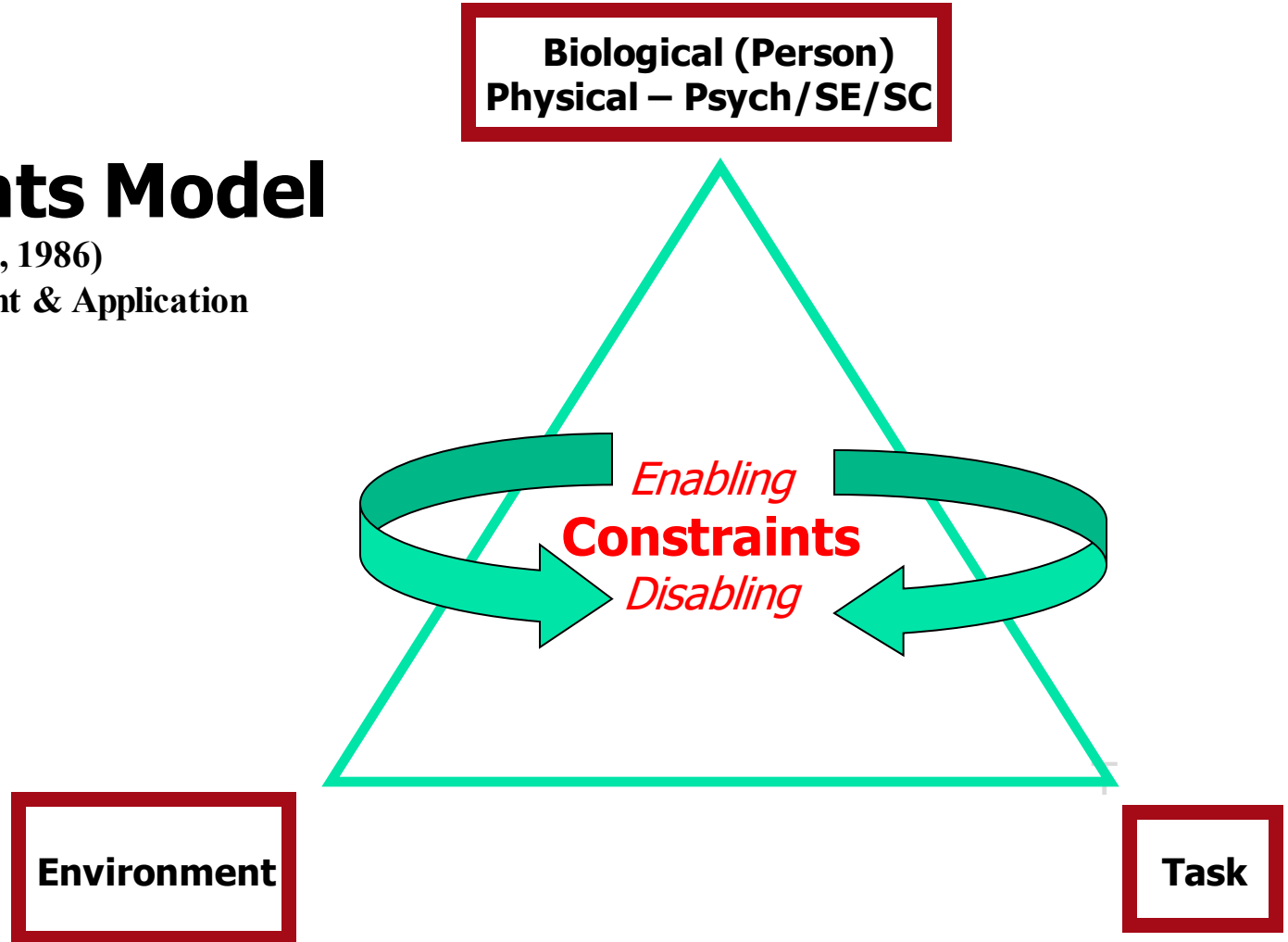
The Context of Movement is Critical

[Wall-E fitness humans videos - Google Search](#)

Constraints Model

(Newell, 1986)

Skill Development & Application



Foundations & Fundamentals: *Deep Grammar* of Movement

- **Perceptuomotor Integration**
- **Context-Conditioned Variability**
- **Force Development/Regulation**
- **Dynamic Postural Control**
- **Variability/Speed/Accuracy**
- **Response/Adaptation to Perturbation**



All movement should involve....

Learning.....

Move to Learn & Learn to MOVE

Pesce, C., Vazou, S., Benzing, V., Alvarez-Bueno, C., Anzeneder, S., Mavilidi, M. F., ... & Schmidt, M. (2023). Effects of chronic physical activity on cognition across the lifespan: A systematic meta-review of randomized controlled trials and realist synthesis of contextualized mechanisms. *International Review of Sport and Exercise Psychology*, 16(1), 722-760.

How much time/practice does it take to become “skilled” ??

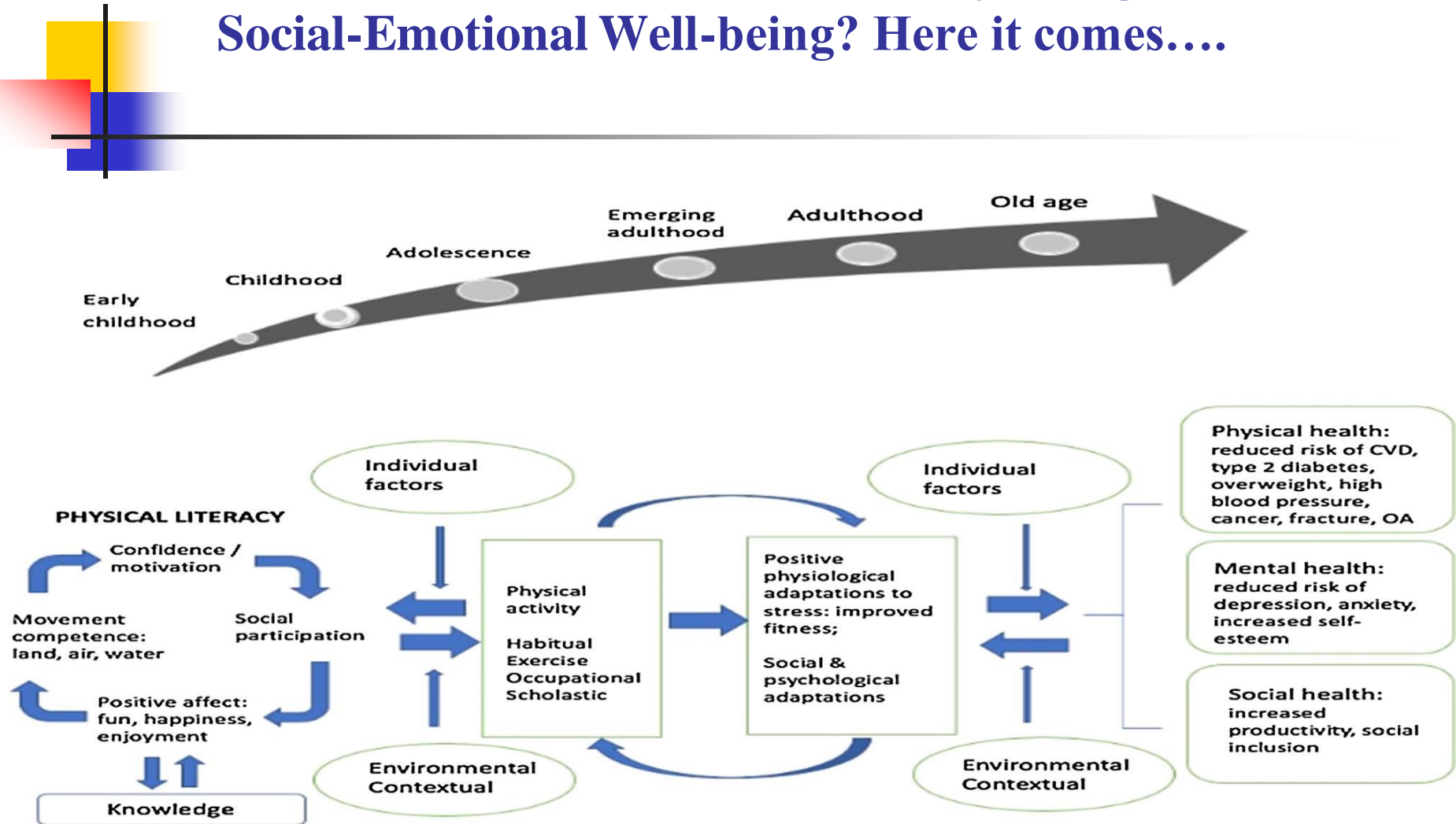


Motor Development/Competence Shapes Self-Concept

Perceived Competence/Self-efficacy, Self Worth, Social/Emotional, Autonomous Motivation, Confidence, etc...

- Harter, Eccles, Piaget
- Self-Determination Theory [Ryan & Deci, 2000]
- Achievement Goal Theory [Nicholls, 1984]
- Theory of Planned Behavior [Ajzan, 1985]
- Transtheoretical Model [Procheska J. O, & Diclemante C. C. 1983]
- Social Cognitive Theory [Bandura, 1986],
- Bronfenbrenner's [1979] Ecological Systems Theory
- Gibson's [1979] Ecological Perspective
- Physical Literacy [Whitehead, 2001]
- Zone of Proximal Development [Vygotsky, 1978]

What about the link between MC & Psychological and Social-Emotional Well-being? Here it comes....



Cairney, J., (2019). Physical literacy, physical activity and health: Toward an evidence-informed conceptual model. *Sports Medicine*, 49(3), 371-383.



We Need Your Input...

It is critical to identify children with (or at risk for) development delay across multiple developmental domains (as well as their mental behavioral health status) as a potential preventative mechanism to reduce prevalence of negative mental health trajectories

Track developmental trajectories to provide needed input on how to intervene at different levels

In what domains are we currently assessing?

Can we enhance assessment in a feasible way that does not add undue burden on children, families, teachers, administrators, & staff?



We Need Your Input...

Physical education (PE) is not highly valued in many countries

What could we assess in PE??

What is happening in Italy with Physical Education??

What about School Behavioral Health? Youth Sports?? (Think more Holistic)