

Youth Sport Specialization: IS IT ALWAYS BAD?



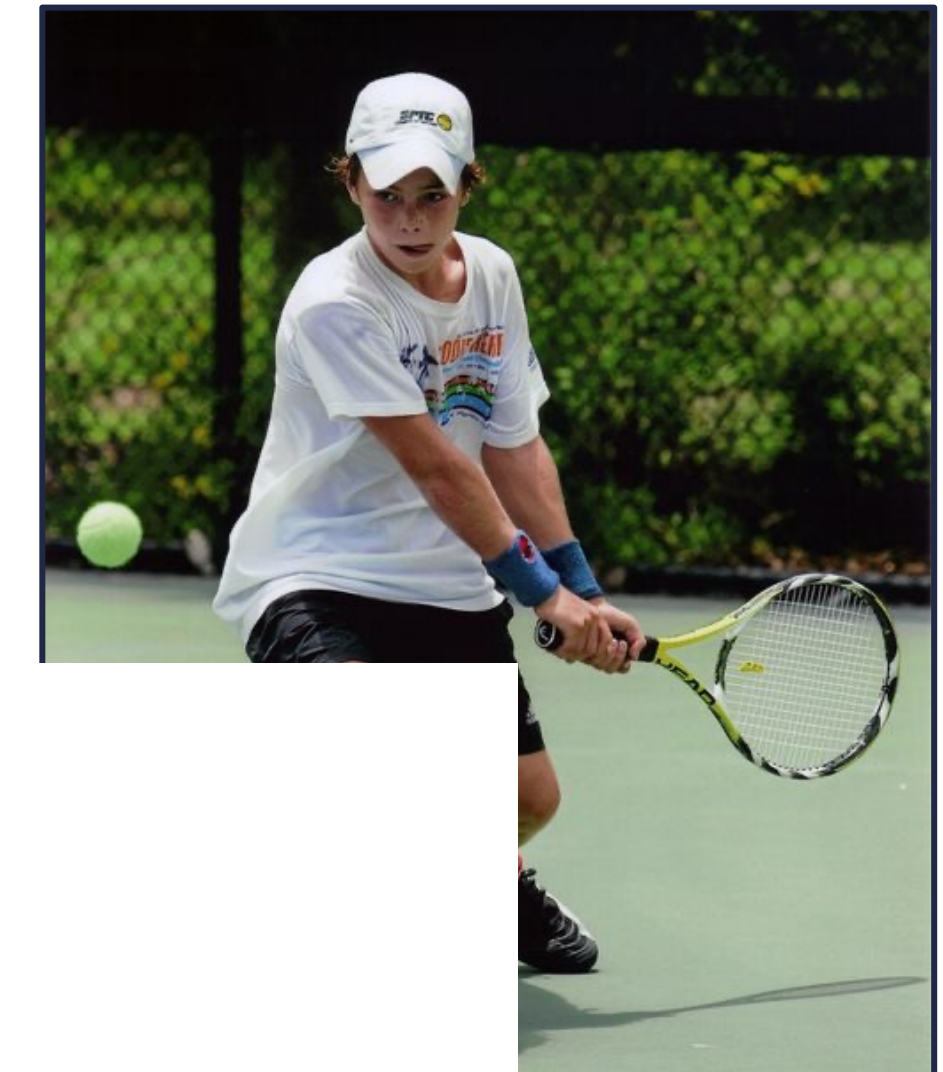
Neeru Jayanthi, M.D.

Director, EMORY Tennis Medicine

Director EMORY SM Research/Education

Co-Director Emory Youth Sports Medicine

Emory Sports Medicine Center



Neeru Jayanthi

@NeeruJayanthi

Emory Sports Medicine & Tennis Medicine physician specializing in research on safety and risks of young athletes. President STMS. Husband, Dad to 2 awesome boys

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Youth Sports Medicine Program

COACH
SAFELY



IS SPORT SPECIALIZATION ALL THAT BAD?

There are times when it may be appropriate to specialize

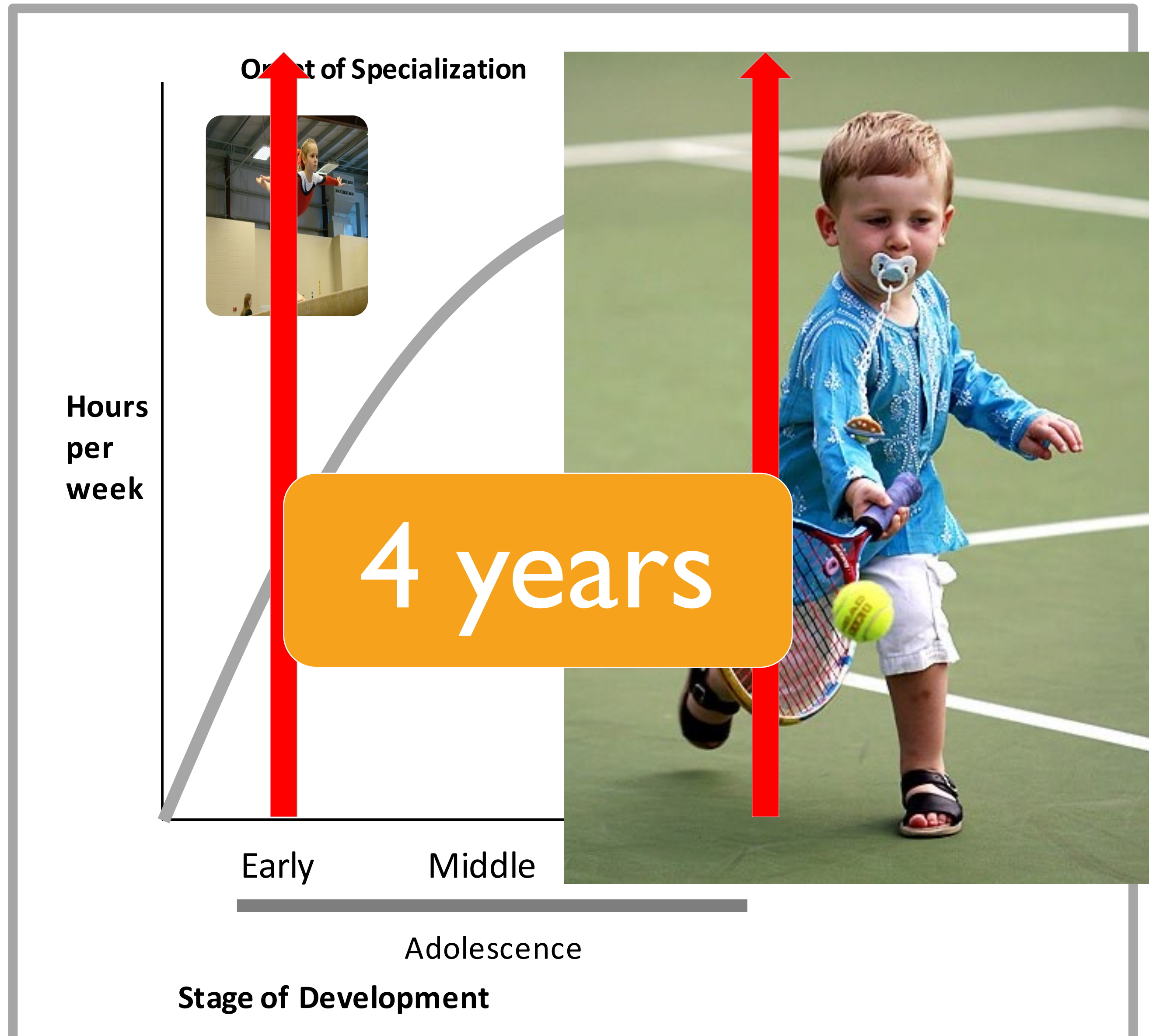
Despite "expert" recommendations, many will still specialize

We should still have a plan to guide training of specialized young athletes

HOW DO YOU TRAIN A YOUNG ATHLETE PROPERLY?



EARLY SPECIALIZATION MODEL



WHAT ARE THE HEALTH
CONSEQUENCES OF
YOUTH SPORTS INTENSE
TRAINING MODELS?

YOUTH SPORT SPECIALIZATION MODELS CREATED WITH DISREGARD FOR THE HEALTH EFFECTS TO YOUNG ATHLETES

Neeru J. Jayanthi, MD*; **Eric G. Post, PhD, ATC‡;** **Torrance D. Fabricant, MD, MPH§**

*Emory Sports Medicine Center and †Department of Family Medicine, Emory University, Atlanta, GA; ‡School of Exercise and Nutritional Sciences, San Diego State University, CA; §Department of Orthopaedic Surgery, Hospital for Special Surgery, and Department of Orthopaedic Surgery, Weill Cornell Medical College, New York, NY



Increase risk of overuse injury

Decreased opportunities

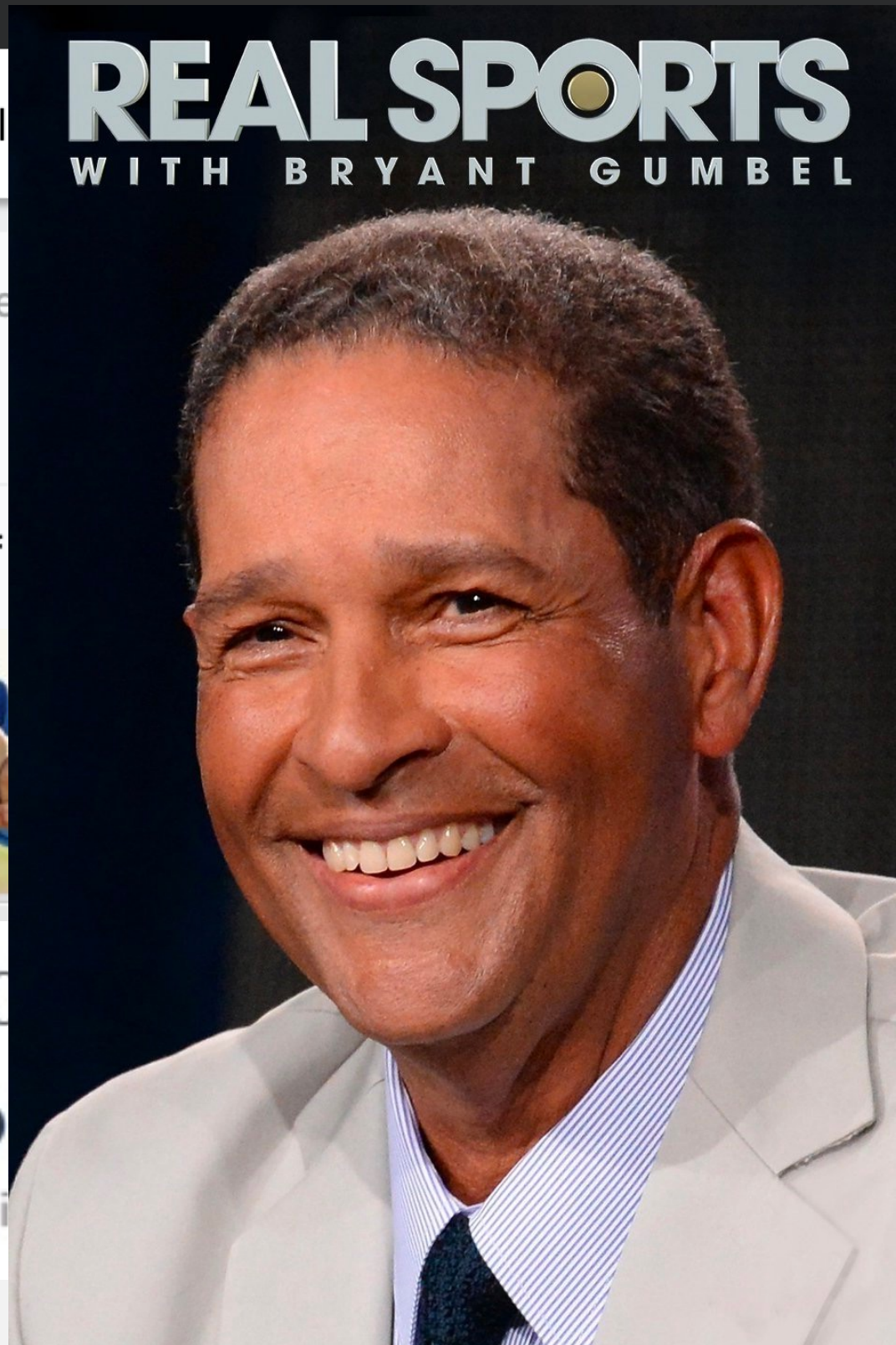
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MEDIA

'These kids are ticking time bombs':
The threat of youth basketball
105d - Baxter Holmes

The good, bad, and ugly of
Celtics opener



'These kids are ticking time bombs': The threat of youth basketball

WALL STREET JOURNAL
Guidelines for Youth
How Parents Can Set Age-Specific

The only be
e Injuries



INCREASE RISK OF OVERUSE INJURY WITH SPECIALIZATION (<12 YEARS OLD)

INCREASE OPPORTUNITIES FOR FREE PLAY, WARM UPS, FUN!!

TRAIN LESS HOURS/WEEK THEN A CHILD'S AGE



SOCCER

The New York Times

Youth Soccer Participation Has Fallen Significantly in America



Mean age

specialization: 9 y/o

SOCCER AND SPECIALIZATION

LABELLA ET AL.

Table 1: Participant Characteristics

	Total	Specialized	Non-Specialized	
	N	N (%)	N (%)	P Value
Total number of participants	2123	1320 (62.2)	803 (37.8)	n/a
Players Reporting at least 1 prior injury	697	420 (31.8)	277 (34.5)	0.20
Players reporting 1 prior injury	236	125 (20.2)	111 (27.8)	0.01
Players reporting 2 prior injuries	366	224 (36.1)	142 (35.6)	
Players reporting 3 or more injuries	417	271 (43.7)	146 (36.6)	
Players with Training ratio >2:1	950	588 (61.9)	362 (38.1)	0.95
	Mean±SD	Mean±SD	Mean±SD	P Value
Age, y	13.3±1.9	13.7±1.9	12.5±1.4	<.0001
Age of Specialization, y	9.2 ± 2.1	9.2 ± 2.1	n/a	n/a
Time Spent Training for Soccer, mo/y	10.6±1.2	10.8±0.9	10.3±1.5	<.0001
Weekly training volume ^a , h/wk	8.7±3.6	8.7±3.7	8.7±3.3	0.88
Free play ^b , h/wk	4.5±3.6	4.6±3.7	4.4±3.5	0.48
Total Physical activity ^c h/wk	14.0±5.6	14.6±5.9	13.2±4.8	<.0001
Training Ratio ^d	2.8±2.4	2.8±2.4	2.9±2.6	0.55

SOCCER AND SPECIALIZATION

- >2100 young athletes (soccer)
- The more injuries an athlete had, the more likely they were to be specialized in soccer (Odds ratio [OR], 1.27; 95% CI, 1.08-1.50, p=.003)
- This relationship disappears with adjusting for age and volume
- No performance data
 - LaBella et al.

Deliberate practice vs deliberate play

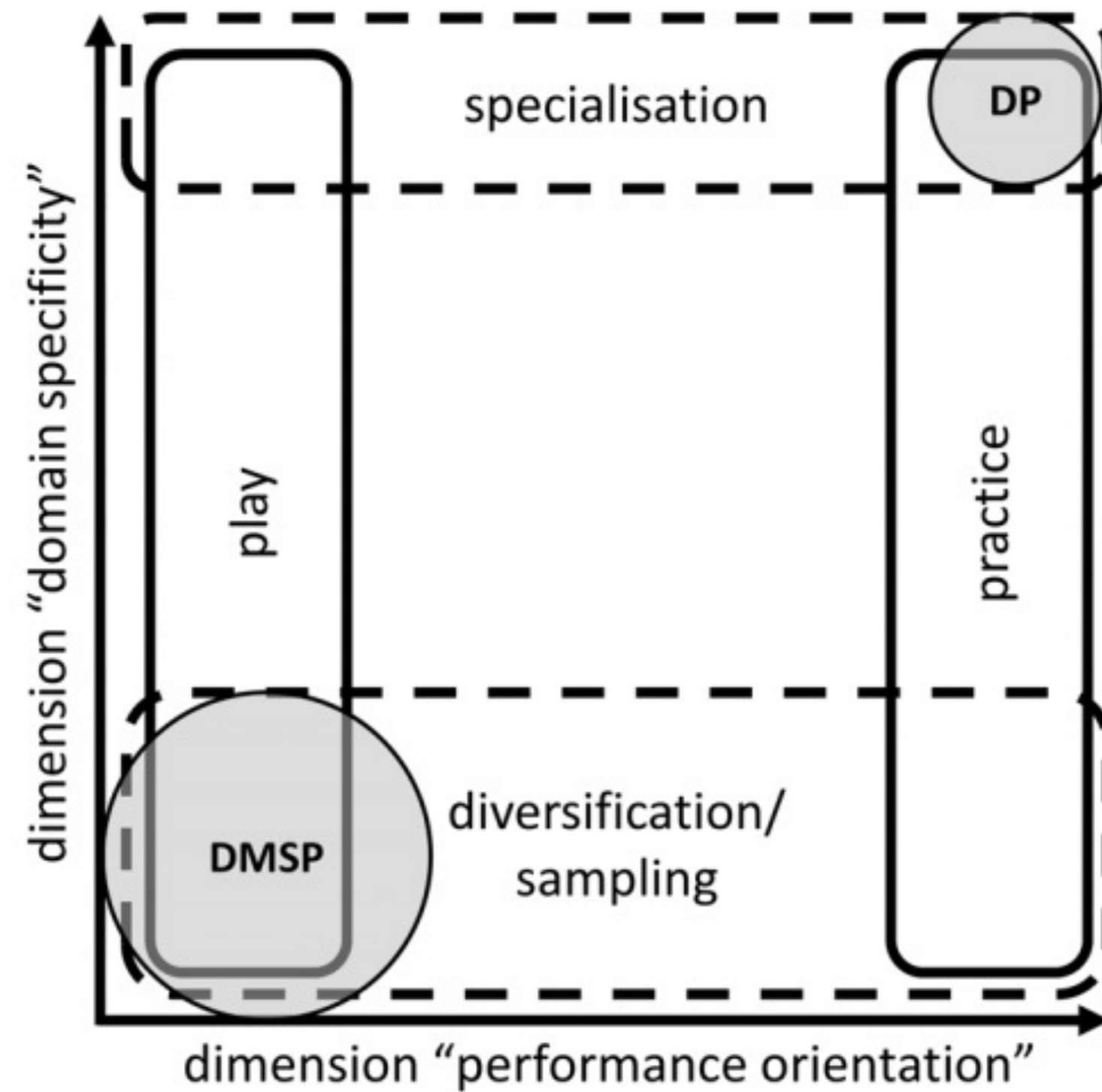


FIGURE 1 | The two-dimensional construct of domain specificity and performance orientation and each of its dichotomous counterparts. Deliberate practice framework (DP) and the elite performance through sampling pathway from the development model of sports participation (DMSP) are perceived as intersections of those dimensions.

“The Early Specialised Bird Catches the Worm!” – A Specialised Sampling Model in the Development of Football Talents

Roland Sieghartsleitner, Claudia Zuber, Marc Zibung and Achim Conzelmann*

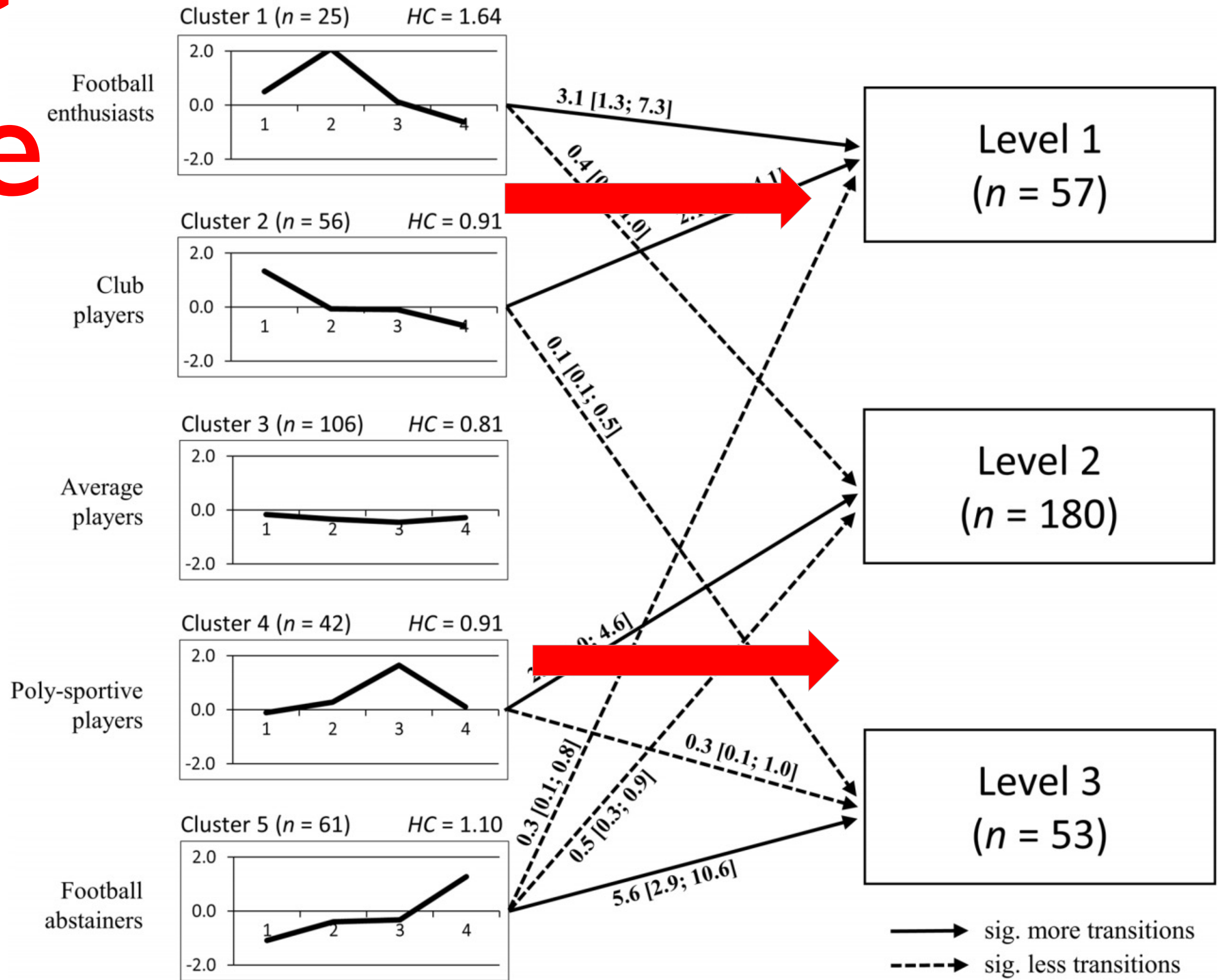
Institute of Sport Science, University of Bern, Bern, Switzerland

Most Deliberate practice and free play

**SPECIALIZED
SAMPLING**

Early sports participation (up to 12 years)

Youth football success level



Training the specialised youth athlete: a supportive classification model to keep them playing

Neeru Jayanthi ¹, Heather Saffel,² Tim Gabbett ^{3,4}

to capacity and impact an individual's ceiling. Although research relating to training youth athletes is scarce, well-established training principles offer practitioners the best evidence-based guide for progressing load to improve capacity and performance.

ADJUSTABLE HEALTHY TRAINING OF THE SPECIALISED YOUTH ATHLETE

Developmental Training Model for the Sport Specialized Youth Athlete: A Dynamic Strategy for Individualizing Load-Response During Maturation

Neeru Jayanthi, MD,^{*†‡||} Stacey Schley, MD,[‡] Sean P. Cumming, PhD,[§] Gregory D. Myer, PhD, CSCS*D,^{‡||¶#} Heather Saffel, MD,^{**} Tim Hartwig, PhD,^{††} and Tim J. Gabbett, PhD^{‡‡§§}

**Sport
specialization
+ workload**

**Biomechanical
deficits**



**Biologic
maturation**

**Training load
progressions**

SPORT
SPECIALIZATION
AND INTENSE
TRAINING



Health and Fitness Status of Parent-Child Dyads: Tennis-Only Athletes Versus Multisport Athletes in the Competitive Adolescent Population

Andrew Schneider, BA
Neeru Jayanthi, MD
Amy Luke, PhD
Amy Bohnert, PhD
Lara Dugas, PhD

PARENTS AND CHILDREN MEET ACSM EXERCISE GUIDELINES

- **“Health-Related Quality of Life and Parental Influence of Specialized Child Athletes: A Qualitative Evaluation”**
- Reasonably good quality of life measures and positive experiences(as well as their parents)
- Patel, Jayanthi 2017 Qualitative parent-child study
- **There is insufficient evidence to suggest that Early sports specialization leads to long term poor health related outcomes**

Young Athlete Injury Outcome Study (IOS): Expanded Health-Related Quality Of Life (HRQoL) Analysis After Injury

Rajiv Verma DO, FAAFP, CAQSM, RMSK

Primary Care Sports Medicine

NorthShore University Health System

Clinician Educator – University of Chicago Pritzker School of Medicine

Emory Primary Care Sports Medicine Fellow 2018-2019

American Medical Society for Sports Medicine Annual Meeting

April 16, 2021

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Results

Table 2: HRQoL by PROMIS Domain and Injury Type for Athletes

PROMIS Domain	Table 2: HRQoL by PROMIS Domain and Injury Type for Athletes						P (Injury)
	Acute		Concussion		Overuse		
	Model based statistics		Model based statistics		Model based statistics		
	N	Mean [95% CI]	N	Mean [95% CI]	N	Mean [95% CI]	
Pain Interference	111	50.4 [48.7, 52.0]	41	53.0 [50.3, 55.8]	183	51.7 [50.4, 53.0]	0.220
Peer Relationships	111	52.4 [50.6, 54.1]	41	51.6 [48.7, 54.5]	183	54.1 [52.8, 55.5]	0.144
Depression/Sadness	111	46.2 [44.5, 48.0]	41	48.1 [45.3, 51.0]	183	46.6 [45.2, 47.9]	0.535
Fatigue	111	46.1 [44.2, 48.1]	41	51.6 [48.4, 54.8]	182	46.3 [44.8, 47.8]	0.008
Anxiety/Fear	111	46.8 [45.0, 48.7]	41	49.2 [46.1, 52.2]	183	46.6 [45.2, 48.1]	0.324
Mobility	112	46.7 [44.9, 48.6]	41	49.4 [46.3, 52.4]	183	44.3 [42.9, 45.7]	0.005

Key Findings

- Athletes with overuse injuries had **worse mobility** than the general pediatric population
- Otherwise, there was **no significant difference in any HRQoL domain**, regardless of injury type, between injured athletes and the general pediatric population





BIOLOGIC MATURATION + BIOBANDING

Dr Sean Cumming (Bath University)

**An idiot's guide to Growth, Maturation
and Biobanding**



INJURY REDUCTION BY BIO BANDING

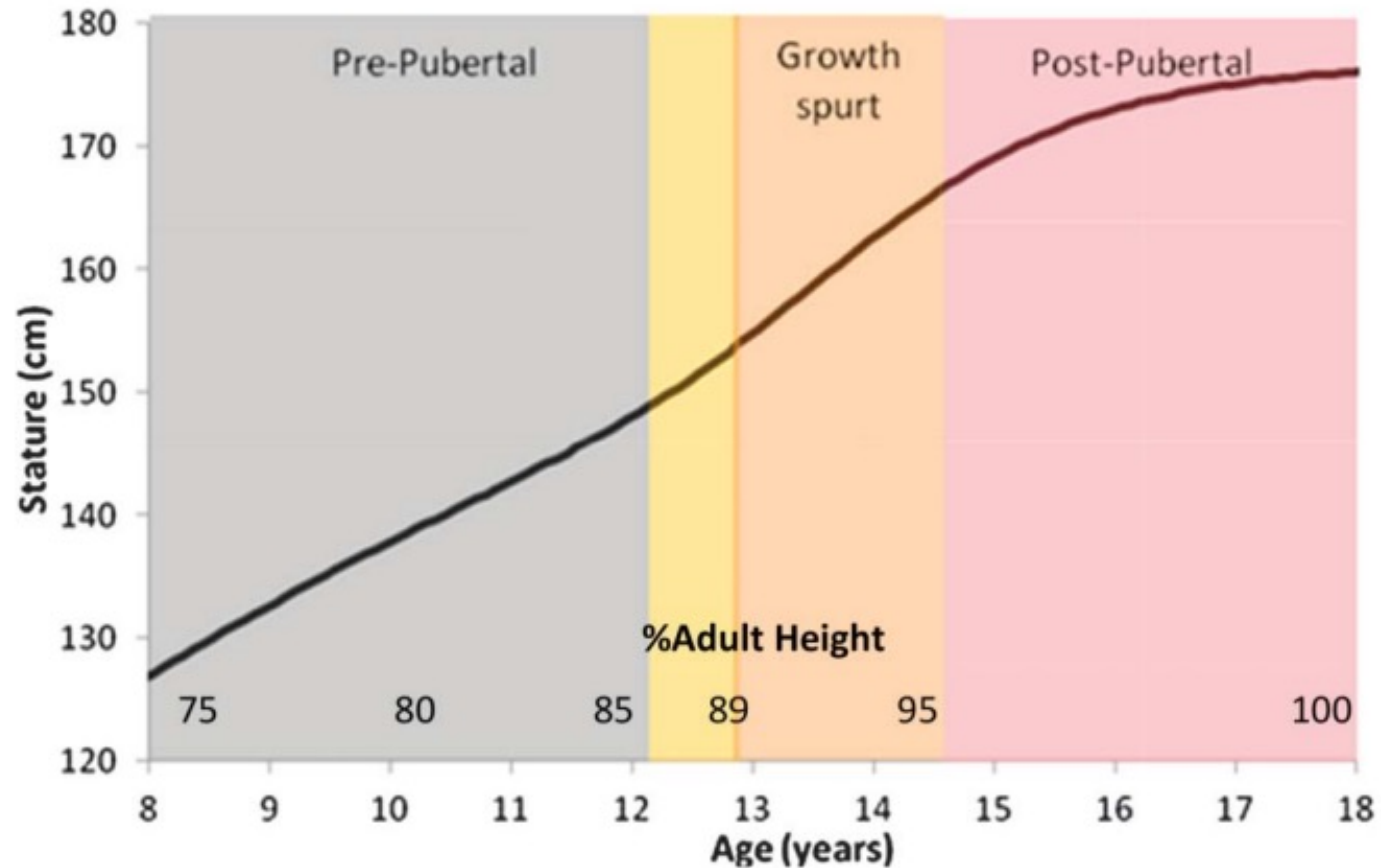


Figure 2. Bio-bands of maturity for an individual male based on cumulative growth and percentage of adult height.



BIOMECHANICAL DEFICITS

PHV → “Adolescent Awkwardness”



Sport Specialization and Coordination Differences in Multisport Adolescent Female Basketball, Soccer, and Volleyball Athletes

Christopher A. DiCesare, MS, CSCS*; **Alicia Montalvo, PhD, LAT, ATC, CSCS†;**
Kim D. Barber Foss, MS, ATC*; **Staci M. Thomas, MS*;**
Timothy E. Hewett, PhD‡; **Neeru A. Jayanthi, MD§;** **Gregory D. Myer, PhD***

*The SPORT Center, Division of Sports Medicine, Cincinnati Children's Hospital Medical Center, OH; †College of Health Solutions, Arizona State University, Phoenix; ‡Biomechanics Laboratories and Sports Medicine Research Center, Mayo Clinic, Minneapolis, MN; §School of Medicine, Emory University, Atlanta, GA

Training Changes during PHV

DECREASE:

- Significant acceleration and deceleration

MAINTAIN:


- Coordination and balance
- Core strength, and mobility,
- Re-training of fundamental and sports specific skills.

- Cumming et al.



WORKLOAD
MANAGEMENT
AND INJURY
PREVENTION;
W/ DR. TIM
GABBETT

Podcast #121

 MOVEMENT FIX

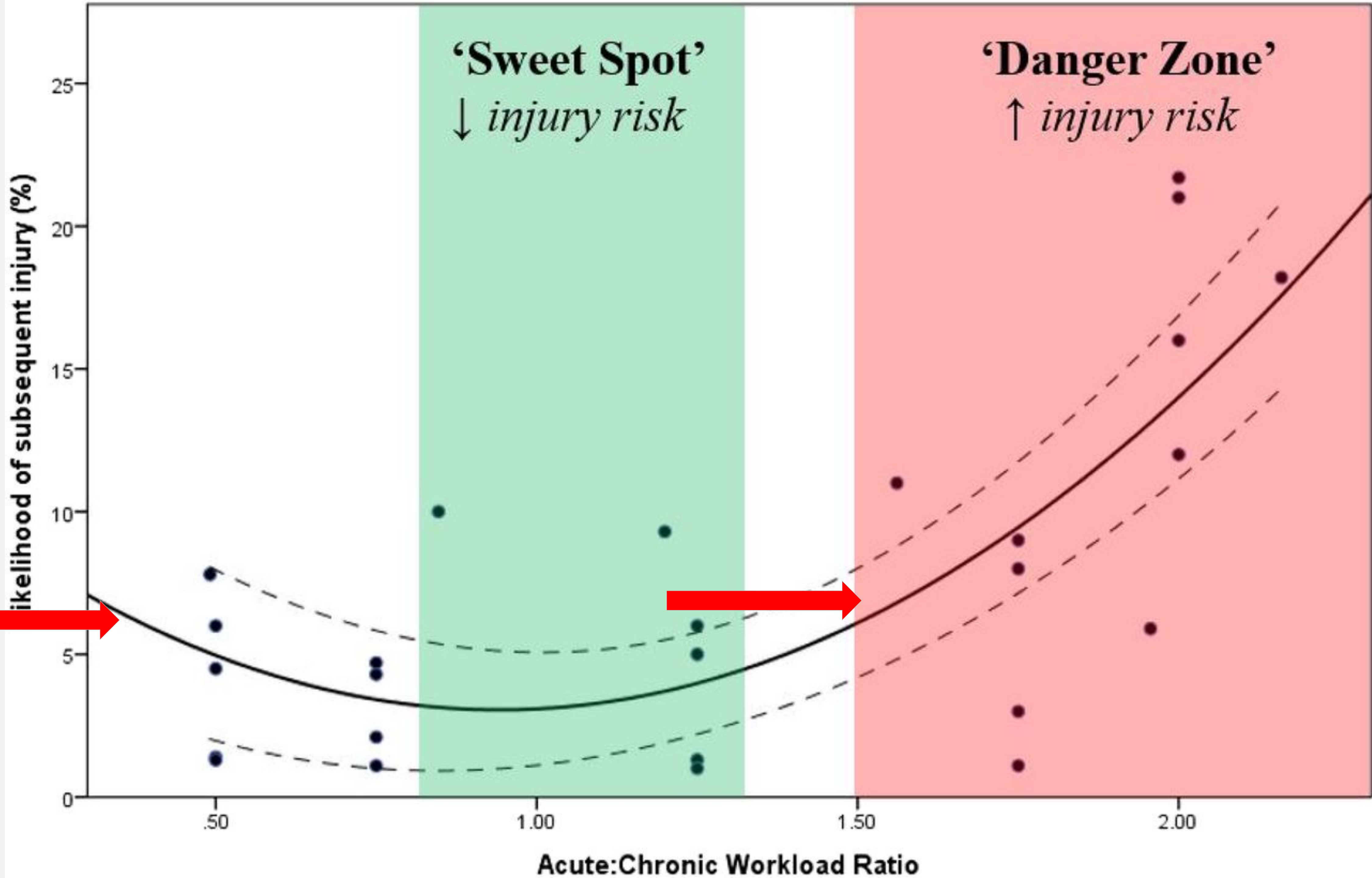


TRAINING LOAD
PROGRESSIONS

TRAINING ELITE YOUNG ATHLETES

I'm going to
train a lot...can
you still help
me?





Training plans and potential outcomes differ based on an athlete's 'floor' capacity

Figure 1: Young Specialized Athlete Training Models

Figure 1a: Load Tolerant

The youth athlete in Scenario 1 first follows Training Model A, and continues to increase load through Training Model C following a positive response.

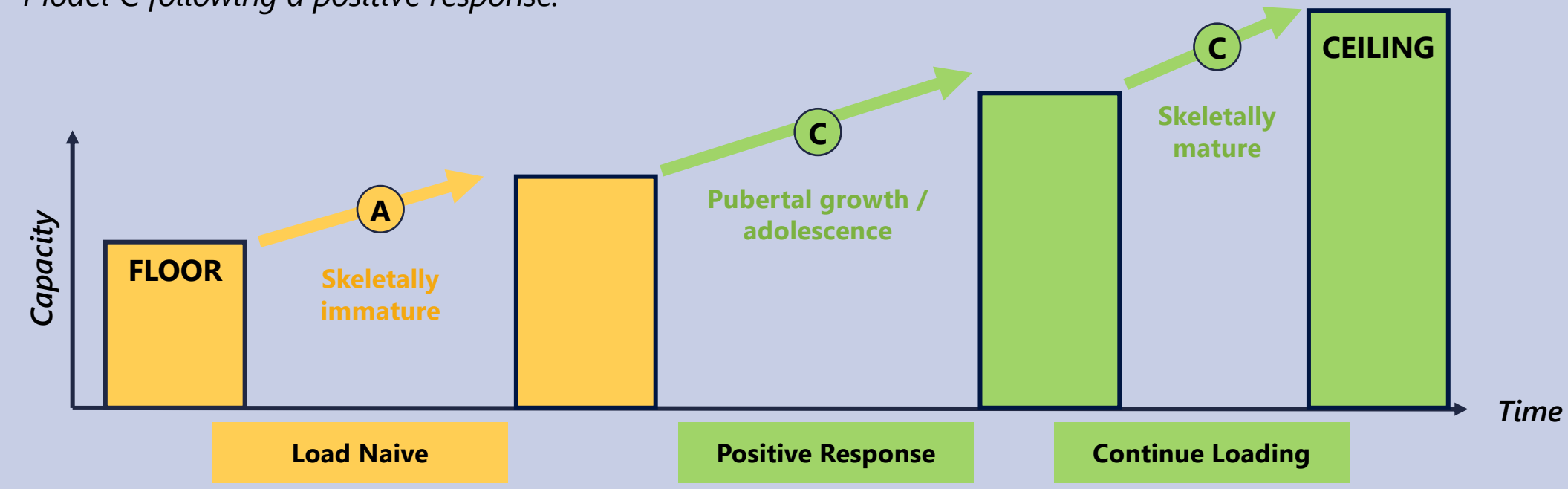


Figure 1b: Load Naive

The youth athlete in Scenario 1 first follows Training Model A, before suffering an injury and loading through Training Model B. Following recovery, the athlete loads through Training Model C.

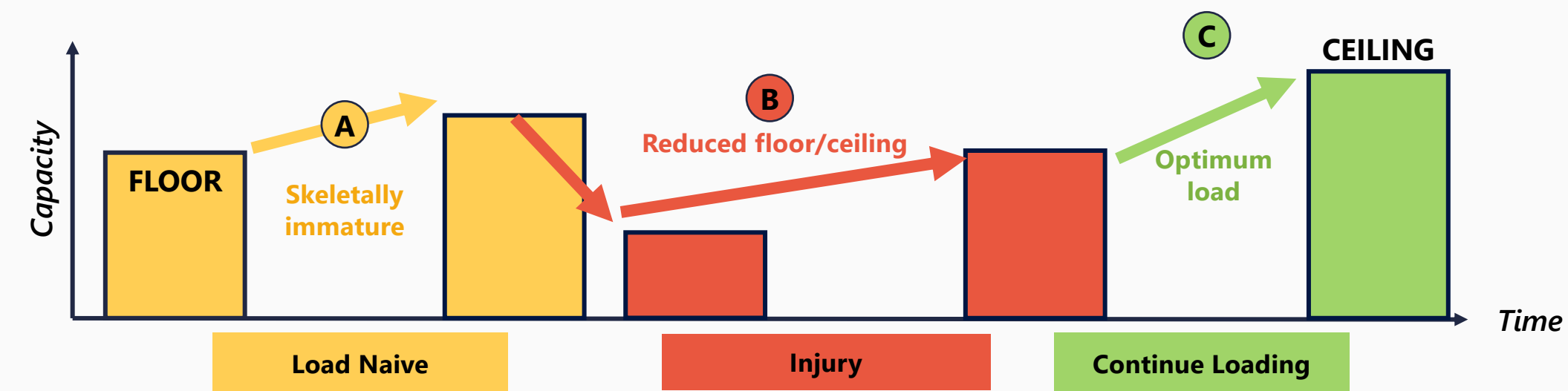
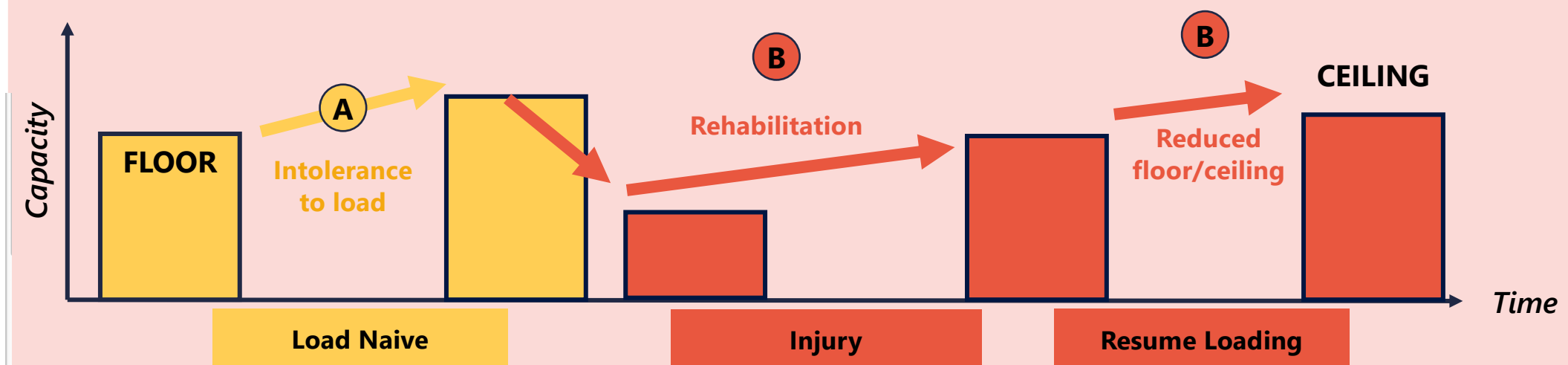


Figure 1c: Load Sensitive

The youth athlete in Scenario 1 first follows Training Model A, before suffering an injury and struggling to recover. The athlete continues to follow Training Model B.



LEGEND

A **Train your age**
Weekly training hours ≤ age

B **Injured athlete**
↓ training to a lowered floor/ceiling

C **Elite athlete**
↑ training to a higher floor/ceiling

Editorial

Training the specialised youth athlete: a supportive classification model to keep them playing

Neeru Jayanthi¹, Heather Saffel², Tim Gabbett^{3,4}

to capacity and impact an individual's ceiling. Although research relating to training youth athletes is scarce, well-established training principles offer practitioners the best evidence-based guide for progressing load to improve capacity and performance.

ADJUSTABLE HEALTHY TRAINING OF THE SPECIALISED YOUTH ATHLETE

B. J. Sports Med.: first published as

Moderate Risk Athlete: “Load Naïve”	Train + Compete with Caution
<p>Risk assessment per associated question sets:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Moderate degree of sports specialization: <input type="checkbox"/> Suspected or low-risk overuse injury <input type="checkbox"/> Workload hrs/week < age <input type="checkbox"/> Sports training ratio >2:1 <input type="checkbox"/> Competition:training ratio <1:1 <input type="checkbox"/> ACWR >1.5 <input type="checkbox"/> < 85% PPAH <input type="checkbox"/> Motor and coordination: Moderate risk 	<p>Action steps:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Increase frequency of serial monitoring <input type="checkbox"/> Moderate decrease in workload <input type="checkbox"/> Temporarily reduce ceiling <input type="checkbox"/> Return to sport with reduced/moderate rate of load progression <input type="checkbox"/> Call your sports medicine provider if persistent pain for 2 weeks or 1 week in high-risk area (low back, shoulder, elbow) <p>➤ Serial monitoring: weekly to monthly</p>
High Risk Athlete: “Load Sensitive”	STOP & ADAPT
<p>Risk assessment per associated question sets:</p> <ul style="list-style-type: none"> <input type="checkbox"/> High degree of sports specialization <input type="checkbox"/> Suspected or high-risk overuse injury <input type="checkbox"/> Workload hrs/week > age <input type="checkbox"/> Sports training ratio >2:1 <input type="checkbox"/> Competition:training ratio >1:1 <input type="checkbox"/> ACWR > 2.0 <input type="checkbox"/> 85-96% PPAH <input type="checkbox"/> Motor and coordination: High risk 	<p>Call your sports medicine provider and do the following:</p> <p>Action steps:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Significant decrease in workload <input type="checkbox"/> Reduce ceiling <input type="checkbox"/> Rehabilitate and treat <input type="checkbox"/> Return to sport with slow increase in workload by < 10% per week to ceiling <p>➤ Serial monitoring: daily to weekly</p>

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Neeru Jayanthi

@NeeruJayanthi

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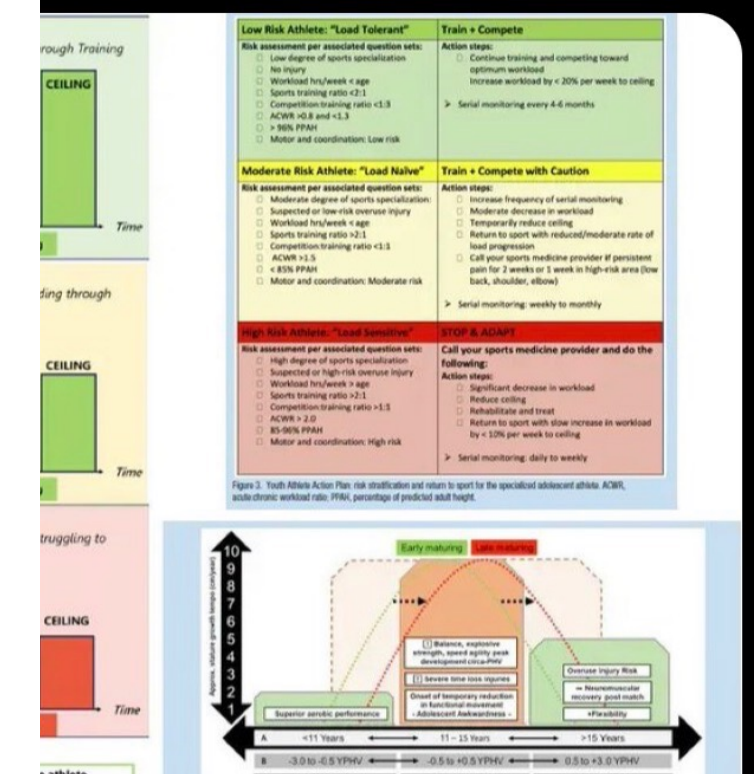


Joe Eisenmann PhD
@Joe_Eisenmann

Sat 8/20 10AM
 @ltadnetwork


Insights into the Developmental Training Model for the Sport

with Athlete: A
gy for Individualizing
During Maturation
r @NeeruJayanthi
y/3PIN9EZ



Tweet your reply



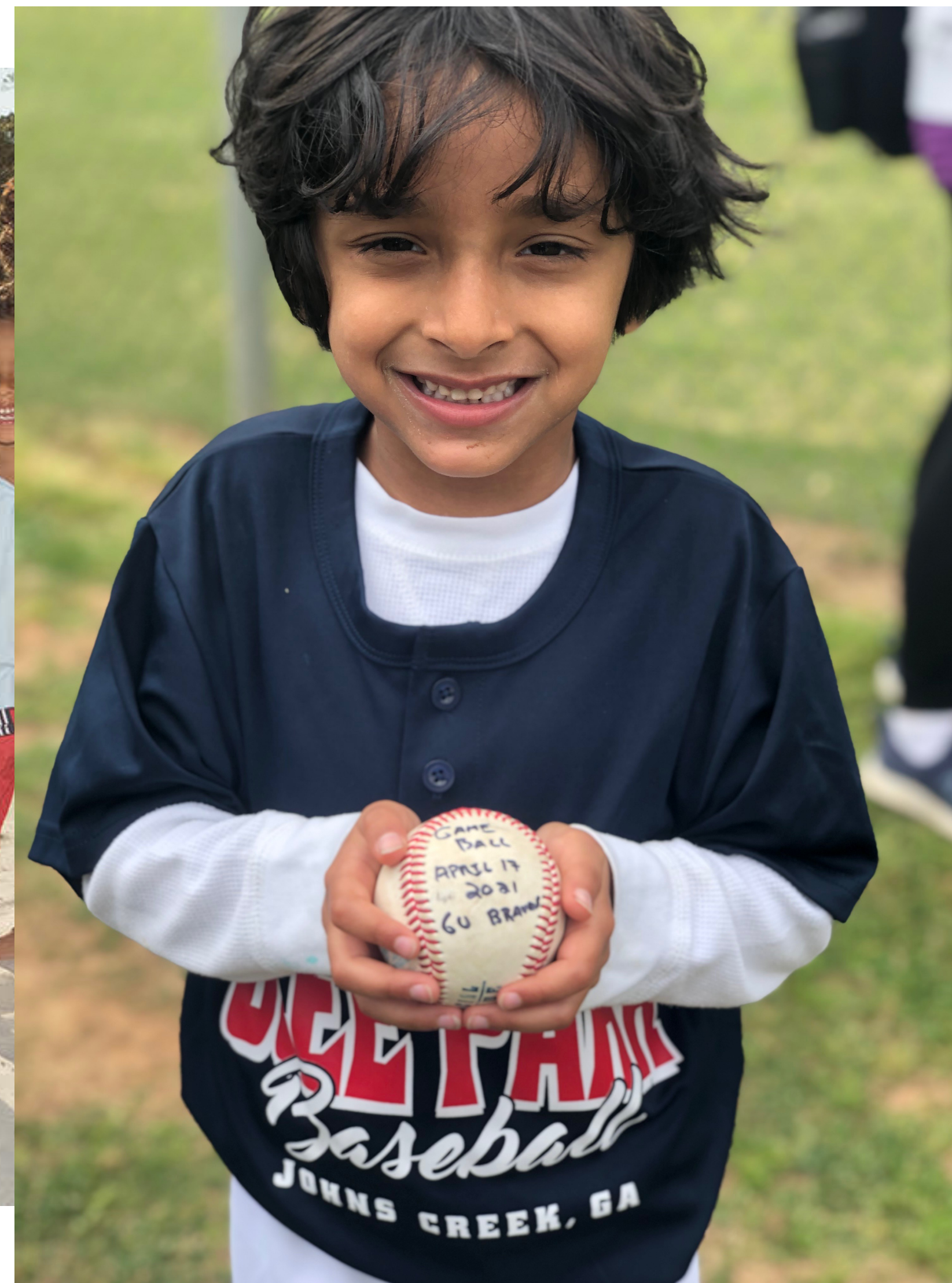


Young athlete specialized

Understand components of
training athletes

Include biologic maturation
and load progression

Let kids play...when they
can!



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