

# PEDIATRIC EXECUTIVE FUNCTION

THE IMPACT OF DEFICITS ACROSS THE LIFESPAN  
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## LEARNING OBJECTIVES

The participants will:

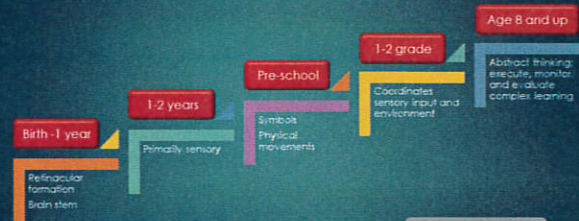
- obtain basic knowledge regarding pediatric executive function
- understand the impact of executive function deficits across the lifespan
- be able to discuss management of pediatric clients in the school, home, and community environments

## EXECUTIVE FUNCTION

- Higher-level brain activity
- Used to plan, problem solve, monitor, and modify actions
- Not automatic or instinct
- Generate new, novel motor output
- Responds to external demands

(Diamond, 2014; Katz, 2005; Reynolds & Horton, 2008)

## 5 STAGES OF EF DEVELOPMENT



## EF DEVELOPMENT

- 5-8 years old - EF develop quickly
- 9 years old – 30 years old, maybe 40 years old
  - EF continue to develop
  - Slower pace of development

(Best et al., 2011; Reynolds & Horton, 2008; Slomke et al., 2002)

## WHAT IS EXECUTIVE FUNCTION?

### Needed for:

- Decision-making
- Planning
- Inhibition
- Sequencing
- Monitor and modify

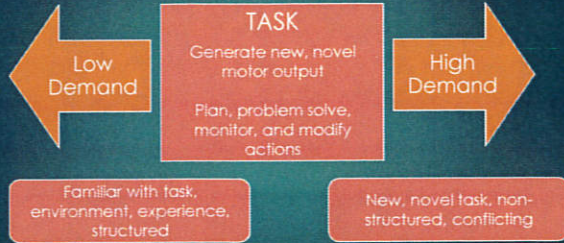
### Made up of:

- Attention
- Mental flexibility
- Working memory
- Problem Solving

(Joeman et al., 2010; Reynolds & Horton, 2008)



## ADULTS AND EXECUTIVE FUNCTION



## EXECUTIVE FUNCTION CHALLENGED

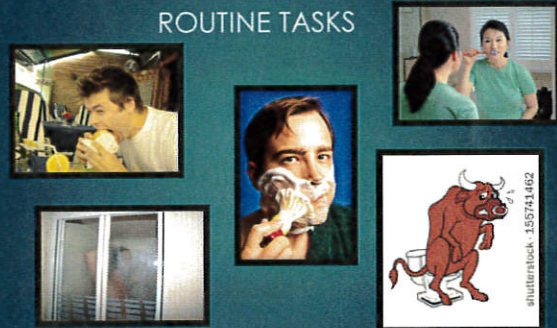
"Real-world performance, which involves novel situations and spontaneous problem solving, often requires multitasking, adaptive solutions and occurs in environments that may not be supportive."

Berg et al., 2012, p. 434

## ADULT TASKS



## ROUTINE TASKS



## HIGH DEMAND TASKS



## KIDS





## WHAT DO KIDS DO?

- BADLs
- Pet Care
- Financial Management
- Shopping
- Home maintenance
- Education
- Work: paid and unpaid
- Play
- Leisure
- Social Participation

(AOTA, 2014)

## EF IMPACT ON ASPECTS OF LIFE

1. School readiness
2. School success
3. Social Skills
4. Adulthood – success in life
5. Quality of life – mental and physical health

## SCHOOL READINESS

- | <u>EF</u>   | <u>Impact on Education</u>  |
|---|---|
| <ul style="list-style-type: none"><li>• Decreased inhibition</li><li>• Attention skills</li></ul> | <ul style="list-style-type: none"><li>• Correlated with decreased early math and reading ability</li><li>• Math and reading - predictors of later achievement</li></ul> |

Blair & Razza, 2007; Duncan et al., 2007

## SCHOOL SUCCESS

- | <u>EF Deficit</u>   | <u>Impact on Education</u>   |
|---|--|
| <ul style="list-style-type: none"><li>• Inhibition</li><li>• Working memory</li></ul> | <ul style="list-style-type: none"><li>• Reading, math, English, and science performance</li><li>• Word math problems</li></ul> |

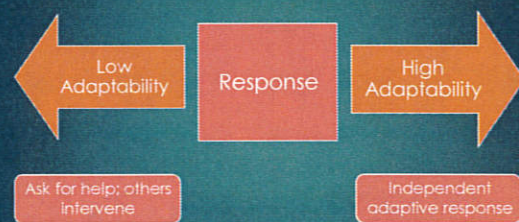
Bert et al., 2011; Borella et al., 2010; Gathercole et al., 2004

## SKILLS FOR SCHOOL SUCCESS

- Plan
- Self-monitoring
- Cognitive flexibility
- Impulse control

Bert et al., 2011

## COMPENSATORY STRATEGY



## IMPAIRED SOCIAL SKILLS

- Regulating behavior
- Reading social cues
- Increased demands with age

Bornine et al., 2002

## ADULTHOOD

Decreased perception of marital harmony  
with adults who also have decreased EF

Eskin et al., 2004

## QUALITY OF LIFE

- Intervention to increase executive function or components of EF
- Increased Quality of Life scores
- Adults with ADHD and women

Brown & Landgraf, 2010; Davis et al., 2010

## QUESTIONS



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