



Early Brain and Biological Development and Addiction, UME

Podcast Series:

INTRODUCTION

- 1 The Neuro-
Developmental Pathway
Origins of Addiction

CORE CONCEPTS OF EARLY CHILD DEVELOPMENT

- 2 Brain Architecture and
Development
- 3 Early Experiences and
Gene Expression
- 4 Building Cognitive
Emotional and Social
Capacities
- 5 Positive, Tolerable and
Toxic Stress
- 6 Brain Plasticity and
Behavioural Change
- 7 Intervention and
Treatment in Children's
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ADDICTION

- 8 Different Kinds of
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- 9 Prevention, Intervention
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Addiction
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- 11 Chronic Disease
Management Model of
Addiction Treatment: A
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on AFMC.ca



PODCAST 10: Early Trauma in Addiction

STUDY GUIDE | Run time 17:09, Released September 2012

Podcast 10, *Early Trauma in Addiction*, highlights the link between childhood trauma and addictions and describes the many ways in which trauma can manifest in an individual. The podcast illustrates how traumatic events can lead to a sensitized nervous system, and how exposure to trauma damages the limbic system, resulting in altered memory and emotional memory. The podcast series has been designed to offer a quick introduction to the subject of early brain and biological development and its connection to addiction. In 10 to 15 minutes, each podcast links specific medical learning objectives with emerging research. Several podcasts also follow the story of Dr. Ray Baker, a physician who has struggled with addiction, to help illustrate the key concepts addressed.

The Association of Faculties of Medicine of Canada (AFMC) created the podcast series based on lectures from the Alberta Family Wellness Initiative, a knowledge mobilization initiative designed to translate scientific research into policy and practice. The lectures have been repurposed, with permission, for undergraduate medical education. Supplementary resources, including virtual patients and a Primer on the Neurobiology of Addiction, are also available on www.afmc.ca.

Learning Objectives:

Once you have listened to this podcast, you should be able to:

- Understand that many individuals diagnosed with addiction have a past that includes traumatic experiences
- Identify that early life trauma can have a lasting effect on an individual's ability to understand and regulate his or her emotions, leading to what's known as emotional over- and under-modulation
- Recognize that a traumatic event leads to a sensitized nervous system and painful emotional states, which can trigger destructive and self-destructive behaviours
- Explain how exposure to trauma damages the limbic system, resulting in altered memory and emotional memory
- Describe effective treatment strategies for people struggling with the emotional effects of exposure to toxic stress

Featured Subject Matter Experts:

This podcast features excerpts from the following lectures:

- [Process and Multiple Addictions](#)
Dr. Patrick Carnes, Executive Director, Gentle Path Program, Pin Grove Behavioral Center
- [Residual Effects of Early Life Stress into Adulthood: Biological Mechanisms](#)
Dr. Matthew Hill, Assistant Professor, University of Calgary
- [Adverse Childhood Experiences: Posttraumatic Stress Disorder and Beyond](#)
Dr. Ruth Lanius, Director of the Posttraumatic Stress Disorder Research Unit, University of Western Ontario
- [Women and Addiction](#)
Dr. Stephanie Covington, Co-director, Institute for Relational Development and the Center for Gender and Justice

Listeners are encouraged to learn more about the subject matter through their interactions with patients, research and by checking out the AFWI lecture series available at www.albertafamilywellness.org.



Key Learning Points:

- Many individuals diagnosed with addiction have a past that includes traumatic experiences
- Early life trauma can leave lasting effects on a person's ability to understand and regulate his or her emotions via emotional over- and under-modulation
- A traumatic event leads to a sensitized nervous system and painful emotional states that can trigger destructive and self-destructive behaviours
- Exposure to trauma damages the limbic system and leads to the altering of memory and emotional memory
- Intervention that focuses on increasing the emotional awareness of victims of trauma has demonstrated a positive outcome

Reflective Questions:

1. In what instances do you feel it would be appropriate or advisable to determine if a patient has a history of trauma?
2. How would your approach to your patient change if you became aware of a significant history of trauma?
3. How do you think practising physicians could make their services more sensitive to the needs of patients with a history of trauma?

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Preparing for your exams...

Medical Council of Canada (MCC) Objectives for the Qualifying Examination (excerpt):

103 ADDICTIONS/SUBSTANCE ABUSE Rationale: Addiction may be to substances or may be a process (behavioral) addiction. Alcohol and nicotine abuse are such common conditions that virtually every clinician is confronted with their complications. Addiction to prescription drugs and to other substances is prevalent in all communities and is a common cause of medical morbidity and mortality.

Causal conditions: 1. Substance use: a. Stimulants, b. Depressants, c. Other substance; 2. Process (behavioral) addictions (e.g., gambling); 3. Adverse childhood or traumatic experiences; 4. Epigenetic changes
Key objectives: Given a patient with an addiction or a substance abuse problem, the candidate will be able to identify the issue, potential consequences and the need to provide immediate and continuing support and intervention. (Source: [MCC Objectives for the Qualifying Examination: 103 Addictions/Substance Abuse](#))

CanMEDS-FMU Undergraduate Competencies from a Family Medicine Perspective

(excerpt):

2. THE FAMILY MEDICINE COMMUNICATOR

2.2. Demonstrates a willingness to become involved in the full range of difficulties which patients bring to their physicians and not just their biomedical problems.

2.5. The learner will be able to carry out a patient-centred interview that will include the following:

2.5.6. Explores four key aspects of patients' experiences of illness—their ideas about what is wrong (their explanatory model) and what it means to them, their feelings about their situation, how it is affecting their day-to-day function, and their expectations of the physician and healthcare team.

(Source: *CanMEDS-FMU Undergraduate Competencies from a Family Medicine Perspective: 2. The Family Medicine Communicator*)

TRAUMA, violence, victims, Nervous System, ADDICTION, shame, brain, limbic system, Memory, SELF-DESTRUCTIVE BEHAVIOUR, Emotional Memory, intervention, MENTAL HEALTH, over-modulation, Physical Health, under-modulation, emotions, ADVERSE CHILDHOOD EXPERIENCES