



## 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 Mental Health

#### ADDICTION

- 8 **Different Kinds of Addiction**
- 9 Prevention, Intervention and Treatment of Addiction
- 10 Early Trauma in Addiction
- 11 Chronic Disease Management Model of Addiction Treatment: A Healthcare System Response
- 12 Quality Improvement Strategies and Evaluation for Addiction Treatment Programs
- 13 Process Improvements in Healthcare Programs to Support Addiction Treatment

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on AFMC.ca



## PODCAST 8: Different Kinds of Addiction

STUDY GUIDE | Run time 22:38, Released September 2012

Podcast 8, *Different Kinds of Addiction*, offers a definition of addiction. It highlights the neurobiology and behaviour patterns common to both substance and process addiction. The podcast also addresses concurrent addiction and the consequences of associated interactions. 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. 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](http://www.afmc.ca).

### Learning Objectives:

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

- Identify the various types of addiction, substance-related addiction (e.g., cocaine, alcohol) and behavioural or process-related addiction (e.g., gambling, eating, sex)
- Recognize the common neurobiology across drug addictions, particularly how all types of addiction produce elevations in the neurotransmitter dopamine in the reward and motivation systems of the brain
- Describe the addiction model and how addictions create common behavioural patterns, including failure to resist impulses, engagement in risky behaviours and a detachment from social and emotional consequences
- Define multiple or concurrent addictions and understand how common "pleasure pathways" for alcohol, drugs, food, sex and gambling in the mesolimbic system are all mediated by dopamine and can lead to one type of addiction replacing another type of addiction

### Featured Subject Matter Experts:

This podcast features excerpts from the following lectures:

- [Drugless Addictions](#)  
*Dr. James Montgomery, Psychiatrist, Pine Grove Behavioral Health Center*
- [Neurobiology of Reward and Addiction](#)  
*Dr. Mark S. Gold, Chair of the Psychiatry Department, University of Florida College of Medicine, and McKnight Brain Institute*
- [Clinical Awareness Seminar in Sexual Addiction 1: Addiction and Sexuality](#)  
*Dr. Patrick Carnes, Executive Director, Gentle Path Program, Pine Grove Behavioral Health Center*

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](http://www.albertafamilywellness.org).

**ADDICTION**, substance addiction, **Chemical Addiction**, **ALCOHOL**, Process Addiction, tobacco, **Drugs**, **BEHAVIOURAL ADDICTION**, Gambling, food, **WORK**, sex, Internet, **Concurrent Addiction**



## Key Learning Points:

- All drugs of abuse increase the release of dopamine in a key structure of the reward system, the nucleus accumbens
- In the absence of dopamine-releasing drugs, the reward system of drug abusers is chronically under-stimulated and helps to drive many of the drug-seeking behaviours that are characteristic of addiction
- This neurochemistry is identical for both process and substance addictions
- Addictions often occur in combination with other process and chemical addictions: this is known as multiple addiction
- When multiple addictions are present there is a possibility that they may interact with each other

## Reflective Questions:

1. In your role as a medical student or practising physician, you may often be the first point of contact for people suffering from addiction. What steps would you take to ensure you are professional and respectful in approaching, engaging and relating to a patient with an addiction(s)?
2. How could you integrate what you have learned about process addictions when obtaining the personal history of your patient?
3. Reflect on a line of questioning that would allow you to explore the possibility that a patient presents with multiple addictions.

## Acknowledgements

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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):

#### 1. THE FAMILY MEDICINE EXPERT

1.1. The learner will be able to describe how illness presents differently in the family medicine setting compared to other specialist settings and demonstrate an approach to the diagnosis and management of undifferentiated patient problems that present to family physicians. (Source: *CanMEDS-FMU Undergraduate Competencies from a Family Medicine Perspective: 1. The Family Medicine Expert*)

#### 7. THE FAMILY MEDICINE PROFESSIONAL

7.1. The learner will demonstrate an understanding of the key components of a professional relationship.

7.1.2. The learner will be respectful to patients, their families, colleagues and other members of the health care team. (Source: *CanMEDS-FMU Undergraduate Competencies from a Family Medicine Perspective: 7. The Family Medicine Professional*)