

ESSENTIALS OF NEUROTOXIN TREATMENT

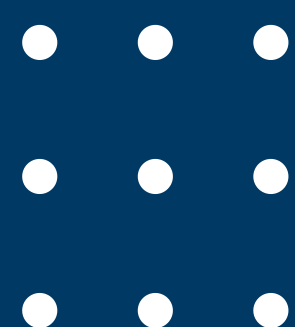
CBAM Aesthetic Mastery Series



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ABOUT AUTHORS



Dr. Reza Akef is a highly experienced and respected cosmetic physician, with over 15 years of experience in teaching and practicing cosmetic medicine. He is currently the Assistant Professor at McMaster University and the Chairman of the Canadian Board of Aesthetic Medicine (CBAM), where he shares his knowledge and expertise with other healthcare professionals to provide the best care for their patients.

Dr. Akef is board certified by the College of Family Physicians of Canada in both Family and Emergency Medicine. Additionally, he is deeply involved in interventional pain practice cooperation for the treatment of Migraines, chronic pain, TMJ, Myofascial pain, and Fibromyalgia. He is a leading cosmetic physician and an internationally recognized specialist in non-surgical cosmetic procedures.

Dr. Akef is dedicated to understanding his clients' concerns and creating personalized treatment plans that meet their needs and goals. He is committed to thoughtfully and strategically creating individualized combinations of leading, safe treatments that exceed client expectations. He is also the founder of Angel Gloss spa in Toronto, an established, leading destination for non-surgical cosmetic procedures for individuals seeking leading physicians with proven experience, the latest technology, and cutting-edge techniques.

Dr. Akef is actively involved in multiple training courses, webinars, and conferences all around the world, including prestigious international conferences such as IMCAS, AMWC, and Dubai Derma. He participates as a speaker at these events and is always looking to stay up to date with the latest developments in the field of cosmetic medicine.

Mohsen Talani is the Director of CBAM. He has over 18 years of experience teaching anatomy in Canada and internationally to students and healthcare practitioners in different fields of medicine such as physicians, dentists, nurses, chiropractors, and physiotherapists.

After graduating from medical school at a young age, he became a medical doctor in his home country, Iran, and practiced in the field of emergency medicine. While pursuing his Master's thesis in neuroscience at McGill University, he discovered his passion for teaching. Since then, he has been working in the field of medical science education, with a focus on anatomy.

He strongly believes that with the rapidly growing aesthetic industry, all practitioners should have a profound knowledge of skin basics, fat compartments, muscles, blood vessels, and nerves, in order to provide safe and effective care to clients and prevent or minimize post-treatment complications linked to lack of anatomy knowledge.

He is currently training healthcare practitioners who seek to have a deep knowledge of anatomy. He incorporates fun, innovative, and easy-to-understand methods of teaching in all of his classes, guest lectures, and presentations. Additionally, he supervises the cadaver lab dissections and hands-on practicals.



TABLE OF CONTENTS

THE EVOLUTION OF BOTULINUM TOXIN IN AESTHETIC MEDICINE

Botulinum Formulations	7
Differences Between Botulinum Toxin Formulations in Cosmetic Applications	9
Contraindications	11
Reconstitution of Botulinum Toxin	13
Equipment for Botulinum Toxin Injections	16
General Steps for Botulinum Toxin Injections	17
Complications	18
Basic Anatomy in Facial Aesthetics	19

UPPER FACE

Horizontal Frontal Lines	26
Frown Lines/Glabellae Rhytides	30
Periorbital Wrinkles: Crows Feet/Lateral Canthal Lines	32
Periorbital Wrinkles: Lower Eyelid	35
Brow Lift	39

MID FACE

Dorsolateral Nasal Rhytides/Bunny Lines	45
Correction of Drooping Nose Tip	52
Nasolabial Fold and Smile Variations	54

TABLE OF CONTENTS

LOWER FACE

Marionette Line/Melomental Folds	64
Perioral Rhytides	68
Chin	74

EXTRA FACIAL COSMETIC

Neck	78
Axillary Primary Hyperhidrosis	89
Palmar Primary Hyperhidrosis	94

CHAPTER 1:

THE EVOLUTION OF BOTULINUM TOXIN IN AESTHETIC MEDICINE



The Evolution of Botulinum Toxin in Aesthetic Medicine

The evolution and development of botulinum toxin in medicine is both fascinating and somewhat surprising. In just a few decades, a substance known for causing potentially fatal diseases has become one of the most widely used treatments for aesthetic enhancement around the world. To summarize this transformation in one sentence: a toxin responsible for a deadly condition is now deliberately employed to enhance beauty.

Origin of Botulinum Toxin

Botulinum toxin is produced by the bacterium *Clostridium botulinum*, an anaerobic, Gram-positive, spore-forming, rod-shaped bacterium. Even the smallest quantities of this toxin can be fatal. It operates by blocking the neuromuscular junction, the site where nerve cells communicate with muscles, preventing the release of acetylcholine—the neurotransmitter responsible for muscle contraction. As a result, the postsynaptic neuron is inhibited, leading to muscle relaxation.

The toxin is a peptide that consists of two chains: a light chain and a heavy chain. Once the toxin enters the presynaptic neuron via endocytosis, the light chain inhibits the exocytosis of acetylcholine by inactivating the SNARE complex. This structural alteration of the SNARE complex prevents the release of acetylcholine, thus halting muscle contraction and causing muscle relaxation. This process is referred to as chemo denervation.

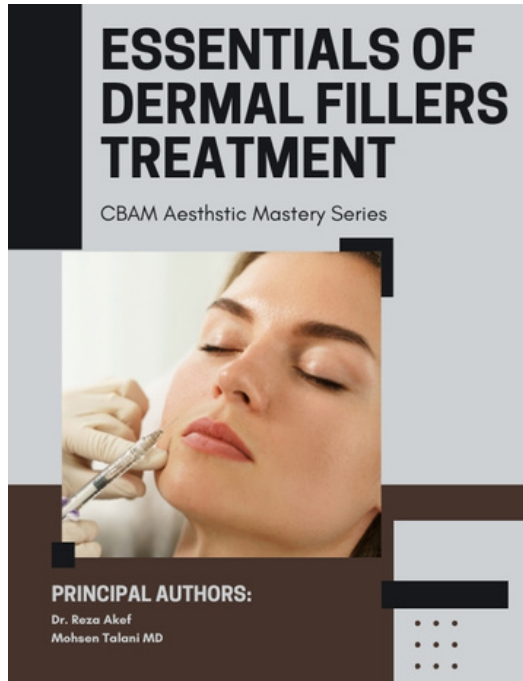
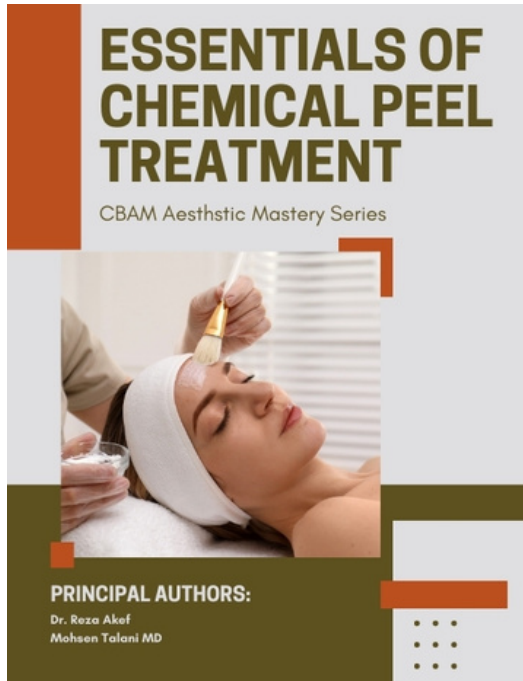
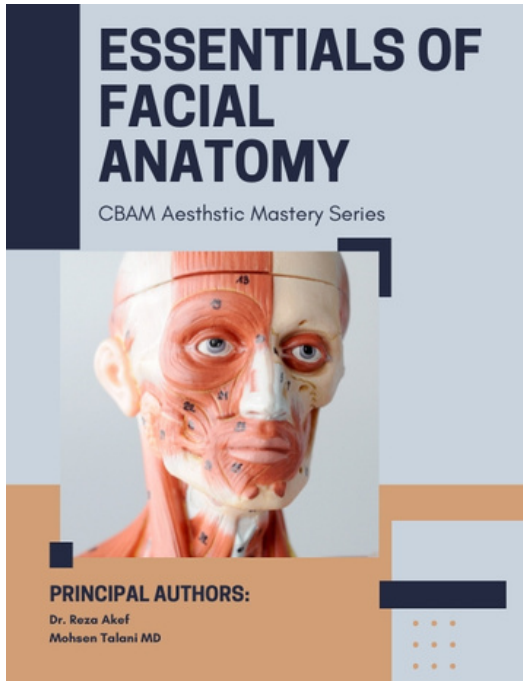
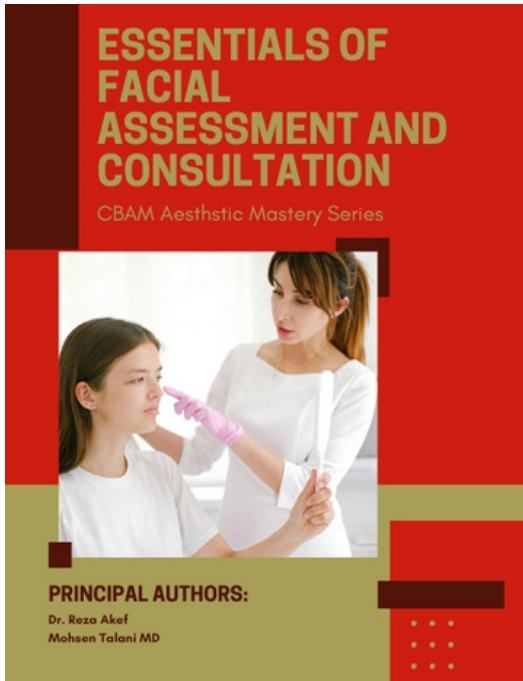
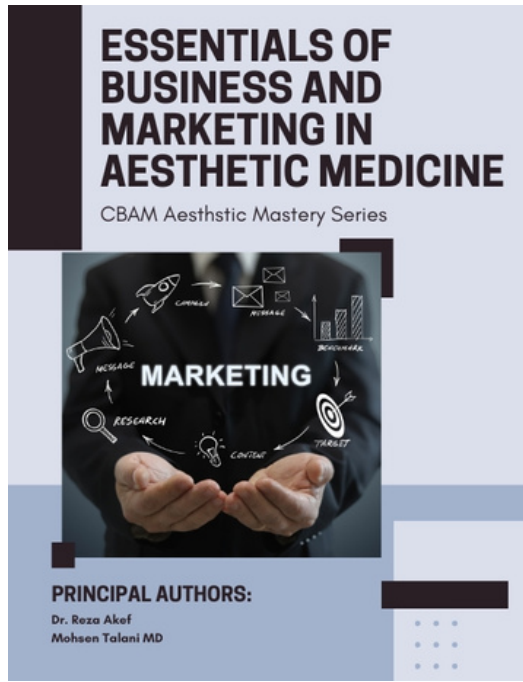
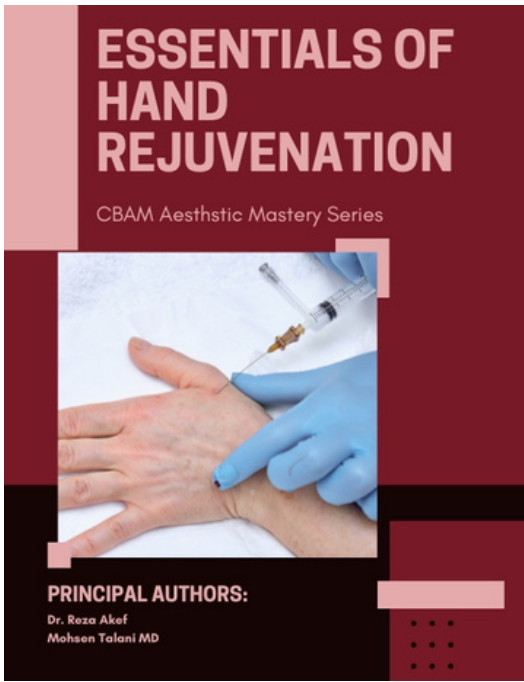
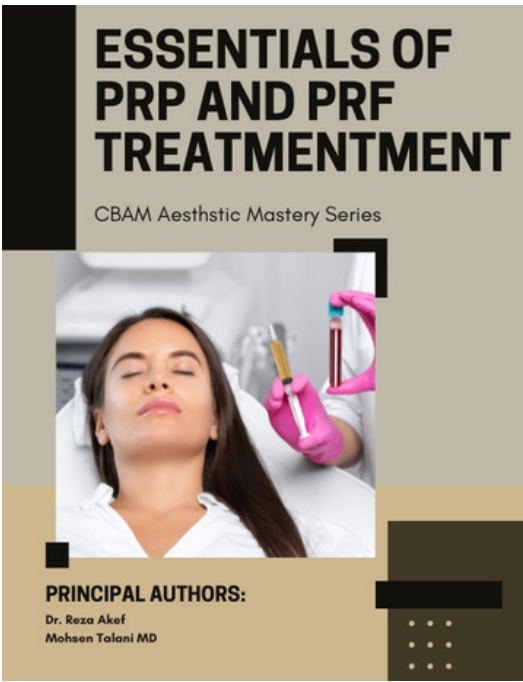
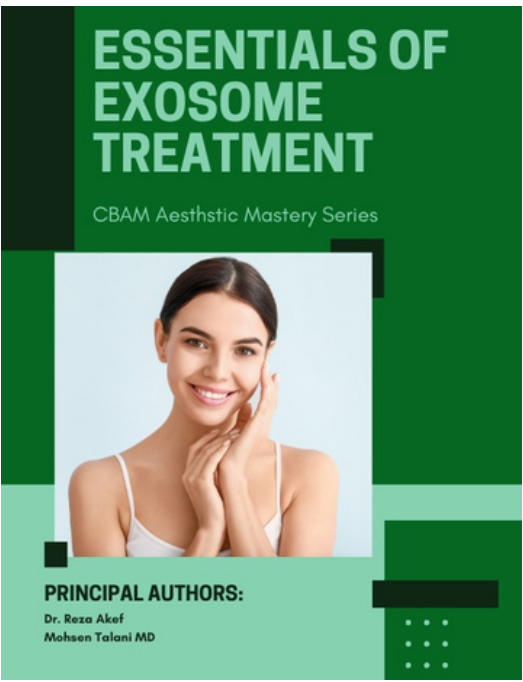
Types of Botulinum Toxin

Botulinum toxin is classified into seven distinct serotypes, identified as A, B, C1, D, E, F, and G, based on the different strains of *Clostridium botulinum*. Of these, only serotypes A and B have recognized medical applications, with type A being the most widely used in aesthetic medicine.

The Initial Medical Applications

The early medical applications of botulinum toxin were focused on treating hyperkinetic muscle disorders such as strabismus (crossed eyes) and blepharospasm (involuntary eye twitching). As these treatments evolved,

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