
Learning Objectives

MedBridge

Medical Complexity Part One: Defining Frailty and Age-Related Changes

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Course Objectives

- Develop an understanding of what “frailty” encompasses from a systems approach and understand the implications of frailty on functional outcomes.
- Describe screening and therapeutic interventions that address prevention of frailty in the elderly.
- Develop an understanding of how to evaluate and prescribe exercise and activities that enhance functional capabilities in the frailest of frail elderly patients.
- Develop an understanding of how multi-pharmacy and poor nutrition impact functional outcomes in the elderly.
- Develop an advanced knowledge of the anatomic, physiologic, and functional mechanisms of aging that influence frailty in the elderly.
- Develop an understanding of the principles of geriatric rehabilitation related to screening, assessment of risk factors and interventions for frailty
- Develop an understanding of the use of complementary therapies and the integration of these therapies into traditional rehabilitation programs to enhance function in the frail elderly.

Chapter 1: Defining Frailty in the Elderly & Aging Changes Leading to Frailty

- Understand the definition of frailty, specifically the biologic syndrome
- Understand the specific physiologic and anatomic systems negatively impacted by frailty
- Understand how function is impacted in the presence of frailty and the potential negative outcomes as frailty persists
- List the symptoms and signs associated with this clinical syndrome
- List the intrinsic and extrinsic factors that influence frailty
- Appreciate the myriad of system interaction that leads to frailty
- Identify the screening tools, specifically the Frailty Wheel, and how this can be used to expose potential frailty
- Understand the process of assessing the older adult and presence of frailty using the case study presented
- List the bodily systems that are impacted by aging

- Appreciate the role of inactivity in aging and frailty
- Appreciate that activity can bolster the stress response and slow the aging process

Chapter 2: Age Related Changes in Muscle Strength

- Understand the basic physiology of aging muscle with respect to normal aging and inactivity
- Appreciate how the Krebs cycle is connected to the syndrome of sarcopenia
- List the signs and symptoms of sarcopenia
- Differentiate the 3 different muscle fiber types: Type I, IIA, IIB
- Understand how aging affects muscle fiber and the functional implications related to muscle change with inactivity
- Describe how muscle endurance is impacted by aging
- Describe how muscle changes with aging, and how successful aging with activity as a cornerstone can improve functional strength and balance
- Appreciate how aging affects endurance, and how inactivity results in the decreased ability to meet the requisite energy demands
- List the changes that occur with body composition in the aging adult
- Appreciate the inter-relationship of the physiology of aging muscle, and how decreased activity and poor nutrition/hydration lead to decreased muscle strength and ultimately frailty

Chapter 3: Flexibility

- Understand the function of the fibroblast and its constituents, collagen and elastin
- Appreciate the concept of cross-linking fibers and how collagen and elastin contribute to tissue changes, contracture, and decreased flexibility and posture
- Understand the role of glycoproteins and its function in optimal fluid dynamics and hydration
- Understand the role of hyaluronic acid and its function in decreasing tissue friction
- Understand the role of contractile proteins as “trash removers” and the implications in conditions such as frozen shoulder
- Understand fibrinogen and its vital role in blood clotting, as well as its role in restriction of tissue and adhesion
- Understand the role of contracted tissue on posture and the implications for balance, ADL, and increased fall risk
- Understand the role of compression by way of movement, as well as the role of hydration in cartilage health and joint lubrication
- Appreciate how decreased activity level and poor nutrition and hydration adversely interact with a maladaptive physiologic system, that lead to frailty

Chapter 4: Bone Mass

- Understand the interplay of bone formation and loss in aging, and the anatomical and functional considerations of osteoporosis
- Understand how nutrition, endocrine status, and exercise contribute to bone mass
- Understand the contribution of blood and fluids of the body and the connection to bone mass
- Appreciate how decreased activity level and poor nutrition contribute to the cascade of decline in bone mass that leads to frailty