An Introduction

Physical Medicine
and Rehabilitation
Basics

• Physical Medicine and Rehabilitation
  – PM&R
• related terminology
  – physiatry / physiatrist \((fiz\cdot zee\cdot AT\cdot trist)\)
  – rehabilitation medicine
"Branch of medicine emphasizing prevention, diagnosis, and treatment of disorders – particularly related to nerves, muscles, and bones – that may produce temporary or permanent impairment."

- American Academy of PM&R
A Physiatrist...

• Specializes in clinical and diagnostic use of physical agents and exercises to provide physiotherapy for physical, mental, and occupational rehabilitation of patient

• Examines patient, utilizing electrodiagnosis and other diagnostic procedures to determine need for and extent of therapy.

- Webster’s Online Dictionary 2009
Another Laymen’s Definition

"A branch of medicine which aims to enhance and restore **functional ability** and **quality of life** to those with physical impairments or disabilities."

- Wikipedia.org

Physiatrists are sometimes referred to as

“Muscle doctors”
Quick Clarification

• Impairment
  - anatomical or physiological dysfunction

• Disability
  - unable to perform a human activity

• Handicap
  - unable to meet a societal role
ICF Terms

*In the context of health:*

**Body functions** are the physiological functions of body systems (including psychological functions).

**Impairments** are problems in body function or structure such as a significant deviation or loss.

**Activity** is the execution of a task or action by an individual.

**Participation** is involvement in a life situation.

**Activity limitations** are difficulties an individual may have in executing activities.
Timeline

defined: principles formulated during post WWI

consolidated & expanded: post-WWII

established: approved as med specialty in 1947

evolved: in 1955 more than 21,200 cases of polio are reported. The polio epidemic dominated the attention of PM&R physicians and rehabilitation institutions expanded from institutions Dedicated to the treatment of polio
Evaluation

History (include focus on function), physical exam, and imaging
Evaluation

electromyography

nerve conduction study
Problems

- Amputation
- Aphasia
- Cognitive Impairment
- Depression
- Dysphagia
- Gait Dysfunction
- Heterotopic Ossification
- Hypoventilation
- Malnutrition
- Neurogenic Bladder
- Pain
- Paralysis and Paresis
- Radiculopathy
- Skin Breakdown
- Spasticity
- Weak Muscles
Solutions
Problems

- Amputation
- Aphasia
- Cognitive Impairment
- Depression
- Dysphagia
- Gait Dysfunction
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- Weak Muscles
Solutions

Orthoses

Malnutrition
Neurogenic Bladder
Pain
Paralysis and Paresis
Radiculopathy

Skin Breakdown
Spasticity
Weak Muscles
Solutions

Amputation
Aphasia
Cognitive Impairment
Depression
Dysphagia
Gait Dysfunction
Heterotopic Ossification
Hypoventilation

Thickening Mix
Electrical Stimulation
Spasticity
Weak Muscles
Solutions

Amputation
Aphasia
Cognitive Impairment
Depression
Dysphagia

Gait Dysfunction
Heterotopic Ossification
Hypoventilation

Gait Training
Skin Breakdown
Spasticity
Weak Muscles
Solutions

- Amputation
- Aphasia
- Malnutrition
- Neurogenic Bladder
- Manual Therapy
- Pain and Paresis
- Botox
- Baclofen Pump
- Spasticity
- Weak Muscles
- Dysphagia
- Gait Dysfunction
- Heterotopic Ossification
- Hypoventilation
- Depression
- Cognitive Impairment
- Weak Muscles
- Spasticity
- Weak Muscles
- Mediation
Solutions

- Water Therapy
- Heat/Cold
- Transcutaneous Electrical Nerve Stimulation
- Medication Control

- Malnutrition
- Neurogenic Bladder
- **Pain**
- Paralysis and Paresis
- Radiculopathy
- Skin Breakdown
- Spasticity
- Weak Muscles
Solutions

Amputation
Aphasia
Cognitive Impairment
Depression
Dysphagia
Gait Dysfunction
Heterotopic Ossification
Hypoventilation

Prostheses
Goal

- Overall Functional Enhancement -

Maximize

- Independence
- Dignity
- Quality of Life

physical
psychological
social
vocational
educational
Task at Hand

1. Optimize Function
2. Relieve Pain
3. Prevent & Manage Complications
4. Coordinate Care

and above all,

5. Educate and Empower Patients
Practice Settings

**Inpatient**
- Acute Care Hospitals
- Long Term Acute Care Hospitals
- Inpatient Rehabilitation Units of Acute Care Hospitals
- Skilled Nursing Homes with Subacute Rehabilitation Programs

**And/Or**

**Outpatient**
- Hospital Clinic
- Acute Rehab Clinic
- Private Office
- Nursing Homes
Sample Inpatient Experience

- Brain Injury
- Burn
- Cancer
- Cardiac
- Neurologic Disorder
- Orthopedic
- Pediatric
- Polytrauma
- Pulmonary
- Spinal Cord Injury
- Stroke
- Transplant
Sample Outpatient Experience

- Amputee
- Arthritis
- Cerebral Palsy
- Fibromyalgia
- EMG & NCS
- Musculoskeletal
- Ortho-Rehab
- Pain
- Pediatric
- Spasticity
- Spina Bifida
- Spine
- Stroke
- Wound Care
Interdisciplinary Teams

Medical Professionals

- Critical Care
- General Surgery
- Geriatrics
- Internal Medicine
- Orthopedics
- Oncology

- Neurology
- Neurosurgery
- Pediatrics
- Psychiatry
- Rheumatology
- Urology
Interdisciplinary Teams

Allied Health Professionals

- Dietician
- Music Therapist
- Occupational Therapist
- Pet Therapist
- Physical Therapist
- Prosthetist / Orthotist
- Psychologist
- Recreational Therapist
- Rehabilitation Nurse
- Respiratory Therapist
- Speech & Language
- Social Worker
- Vocational Counselor
Fellowships

Electrodiagnostic Medicine
Hospice and Palliative Medicine*
Interventional Spine
Neuromuscular Medicine*
Pain Medicine*
Rheumatology

* denotes sub-specializations certified by ABPMR
Fellowships

Pediatric Rehabilitation Medicine*
Spinal Cord Injury Medicine*
Sports Medicine*
Stroke
Brain Injury Medicine*

* denotes sub-specializations certified by ABPMR
Lots of Work Ahead

- Aging Population
- Decreasing Injury Mortality
- High Healthcare Costs
- New Applications
- Innovative Technology

- Regeneration/Stem Cell Advances
- Artificial Intelligence
- Robotics & Computer Science
Additional Resources

Association of Academic Physiatrists
www.physiatry.org

American Academy of Physical Medicine & Rehabilitation
www.aapmr.org

American Congress of Rehabilitation Medicine
www.acrm.org

American Board of Physical Medicine & Rehabilitation
www.abpmr.org
Additional Resources

Journals

American Journal of Physical Medicine & Rehabilitation
www.ajpmr.org

Archives of Physical Medicine and Rehabilitation
www.archives-pmr.org

PM&R
www.pmrjournal.org
Thank you!

These slides were adapted from a presentation by Jiaxin Tran, MD, New Jersey Medical School - UMDNJ