

HEALTH LITERACY MODULE

Musculoskeletal System in Old Age

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Musculoskeletal disorders

- **Musculoskeletal disorders are common problems affecting the elderly**
- **With age, musculoskeletal tissues show increased bone fragility, loss of cartilage resilience, reduced ligament elasticity, loss of muscular strength, and fat redistribution decreasing the ability of the tissues to carry out their normal functions.**
- **The loss of mobility and physical independence resulting from arthropathies and fractures can be particularly devastating in this population, not just physically and psychologically, but also in terms of increased mortality rates.**

Osteoporosis

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Definition

- **Low-impact falls, even from standing height, are the most common cause of injury in geriatric patients.**
- **Fractures are frequent in the elderly and result mainly from the effects of falls and osteoporosis.**
- **Osteoporosis, which is characterized by qualitatively normal, but quantitatively deficient bone, leads to bone fragility and increased risk of fractures.**

Risk factors

- **Unchangeable risks:** Gender, Age, Race, Family history, Body frame size.
- **Hormone levels:** Sex hormones, Thyroid problems, Other glands (overactive parathyroid and adrenal glands)
- **Dietary factors:** Low calcium intake, Eating disorder, Gastrointestinal surgery.
- **Steroids and other medications**
- **Medical conditions:** Celiac disease, Inflammatory bowel disease, Kidney or liver disease, Cancer, Multiple myeloma, Rheumatoid arthritis
- **Lifestyle choices:** Sedentary lifestyle, Excessive alcohol consumption, Tobacco use(?)

Prevalence and diagnosis

- **The general prevalence of osteoporosis in women is approximately 50% at the age of 85 years, while in men the prevalence is about 20% at that age.**
- **Due to its precision, the most widely used quantitative technique is dual energy X-ray absorptiometry, which makes it possible to diagnose osteoporosis early, predict the risk of fracture, determine therapeutic intervention, and monitor response to treatment.**

Treatment and supplementation

- There is a wider variety of osteoporosis treatment options than ever before.
- The type of treatment you are prescribed will depend on your individual risk profile.
- This includes the risk for a specific type of fracture (spine versus hip), other medical conditions, or medications you may take.
- Treatments have been shown to reduce the risk of hip fracture by up to 40%, vertebral fractures by 30-70% and, with some medications, reduce the risk for non-vertebral fractures by 15-20%.
- In addition to drug therapy, calcium and vitamin D supplements can be prescribed to ensure maximum effectiveness of your medication.
- Strengthening exercise

Osteoarthritis

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Osteoarthritis

- Frequency increases with age
- Develops with abnormal loading, repair can not afford destruction
- Slow progress
- Causes pain and stiffness
- Social and economic burden is high (9.6% for men over 60, 18% for women)

Which joints?

- Knees
- Hands
- Hip
- Spine

Neck vertebrae

Lumbar vertebrae

Risk factors

- Age
- Gender
- Inherited
- Obesity
- Bone density
- Muscle strength
- Joint structure
- Incorrect sequence
- Instability
- Joint use
- Trauma

Problems

- Pain
- Stiffness
- Movement restriction
- Swelling
- Deformity
- Sound from the joint
- t A feeling of disbelief in the space in the joint
- Weakness
- Loss of function
- Concern

Diagnosis

- **Complaints and examination findings**
- **Imaging methods**
 - **X-Ray**
 - **Magnetic resonance**
 - **Laboratory tests**

Treatment

- **Non-drug treatments (training, weight loss, exercise, orthosis:walking sticks, crutches, knee pads , insoles and shoes....**
- **Physiotherapy, hydrotherapy, spa**
- **Drug treatments(analgesic.....intra-articular applications: hyaluronic acid, PRP, cortisol..... glucosamine glycan)**
- **Surgery (Prosthesis)**

Sarcopenia

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Definition and prevalence

- Sarcopenia is a condition characterized by loss of skeletal muscle mass and function.
- Although it is primarily a disease of the elderly, its development may be associated with conditions that are not exclusively seen in older persons.
- One of the most important public health concerns since it can result in functional decline, physical disability, falling, increased hospitalization and health care cost, poor quality of life, and death
- The prevalence in 60–70-year-olds is reported as 5–13%, while the prevalence ranges from 11 to 50% in people >80 years.
- The loss in muscle mass may be associated with increased body fat so that despite normal weight there is marked weakness, this is a condition called **sarcopenic obesity**.

Classification and risk factors

- **Primary or age-related sarcopenia and secondary sarcopenia. Primary sarcopenia is diagnosed when no other specific cause is evident.**
- **Secondary sarcopenia is considered when factors other than aging are evident, especially systemic diseases such as malignancy or organ failure.**
- **Many factors have been identified to contribute to sarcopenia: Age, sex, physical inactivity, other comorbidities, malnutrition, drugs**

Prevention and Treatment

- The main treatments are safe, effective and attractive resistance training programs
- Daily protein intake of at least 1-1.2g per kg body weight (the amount of protein ingestion is more important than potential timing effects)
- Additional treatments such vitamin D might be useful.
- Drug treatments such as creatin, testosterone, β -agonists or myostatin inhibitors can potentially be used for some subjects with sarcopenia.

References

1-Hazzard's Geriatric Medicine and Gerontology, Seventh Edition 7th Edition, McGraw Hill Medical Books.

2- Current Diagnosis and Treatment: Geriatrics, 3/e (Current Geriatric Diagnosis and Treatment) 3rd Edition



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