

tendinopathies remains scientifically controversial, particularly due to the diversity of products that go by the name of ‘PRP.’ Recently, the viscoelastic properties of hyaluronic acid (HA) on liquid connective tissue have been proposed for the treatment of tendinopathies. Some fundamental studies show encouraging results on hyaluronic acid’s ability to promote tendon gliding and reduce adhesion as well as to improve tendon architectural organisation. Some observations also support its use in a clinical setting to improve pain and function.

## NS8

### BIOMARKER DISCOVERY

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The pleiotropic effects of vitamin D, specifically its extra-skeletal effects, remains controversial, despite an abundance of existing literature. Through biomarker discovery using 3D LC-nESI-FTMS quantitative proteomics, we revealed the different signature proteins activated by vitamin D that is influenced by sex and vitamin D status. The present study included vitamin D deficient Saudi adults recruited from several centers. The first phase is the biomarker discovery phase through profiling of pooled serum proteomes (males=31; females=28) and identified 2472 reproducible proteins, among which 248 exhibited significant modulation between men and women that mapped pathways associated with several key metabolic pathways including vitamin D function.

## NS9

### VITAMIN D BIOMARKER DISCOVERY

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The present study is the vitamin D biomarker discovery using the same depletion-free quantitative proteomics among vitamin D deficient subjects (males=26; females=24) that achieved vitamin D correction after 12-month vitamin D correction. The most significant biomarkers identified included those from the coagulation pathway, lipids, apolipoproteins, inflammatory markers, insulin growth factors and other proteins. Differentially expressed proteins were subjected to in silico bioinformatics assessment using principal component analysis, hierarchical clustering and Metacore™ pathway analysis. These identified proteins were also sexually-dimorphic.

These sex-mediated effects should be factored in the design and interpretation of vitamin D observational/interventional studies testing cardiometabolic outcomes.

## NS10

### VALIDATION

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The biomarker validation phase involved 35 most significantly modulated signature proteins using enzyme-linked immunosorbent assays from 259 vitamin D deficient participants stratified according to response to 6-month vitamin D supplementation [Responders: (25(OH)D >50nmol/l, N=162 (70 males; 92 females); Non-responders: 25(OH)D <50nmol/l, N=97 (27 males; 70 females)]. The last phase confirmed the associations of the identified biomarkers only among those whose vitamin D status responded to vitamin D status correction. Our series of studies confirm the importance of vitamin D in human metabolism at the proteomic level and the significant expression of major clinical biomarkers and their respective metabolic pathways depending on vitamin D supplementation response.

## NS11

### THE RADIOLOGICAL EVALUATION OF MUSCLE MASS IN OLDER PEOPLE

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The loss of muscle mass in older people is one of the key mechanisms leading to sarcopenia. Therefore the evaluation of muscle mass is of remarkable importance in the evaluation of sarcopenic patient. In this presentation, we will discuss the importance to assess muscle mass in older people. In particular, we will deal with the most relevant tools used for assessing body composition in the diagnosis of sarcopenia including DXA, BIA, magnetic resonance, echography and CT. A particular focus will be given to the pitfalls and the current issues in assessing muscle mass in the elderly.

## NS12

### PHYSICAL PERFORMANCE IN OLDER PEOPLE: ACTUAL EVIDENCE

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Together with the evaluation of the muscle mass, physical performance assessment is of extreme importance in

the diagnosis of sarcopenia in older people. Recent guidelines of sarcopenia have modified the indications for assessing physical performance and muscle strength in older people. Moreover, some tests for evaluating physical performance (such as gait speed, TUG, SPPB) are of common use, whilst we have other new tests that are less known, but that seem to have an important prognostic value. In this presentation, we will discuss the use of these tests, with a focus of their use in older people and the actual issues and perspectives regarding this topic.

### NS13

#### THE DIAGNOSIS OF SARCOPENIA IN OLDER PEOPLE: BETWEEN RESEARCH AND CLINICAL PRACTICE

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Sarcopenia is becoming a new geriatric giant due to its high prevalence and to the negative outcomes associated with this condition. In these years, sarcopenia was introduced in the new classification of medical conditions, i.e. in the ICD 10 classification. However, sarcopenia is often assessed in academic centers, whilst its assessment in usual care is still limited. In this presentation, we will summarize the main findings of the two previous presentations and we will discuss how to improve the diagnosis of sarcopenia in older people, as standard evaluation, in daily practice.

### NS14

#### BONE MASS AND FRACTURE RISK DURING PREGNANCY AND LACTATION

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The prevalence of osteoporosis is less than 2% in women younger than 50 years, while between the ages of 20 and 40 years, the prevalence is only 1.2%. Physiological changes during puerperal-pregnancy cycle could lead to a rare disease: the pregnancy- and lactation-associated osteoporosis (PLO). This rare disorder could affect young women during pregnancy, postpartum period, or while breastfeeding.

During pregnancy, major modifications of the calcium metabolism and bone mineral status of the mother occur, in order to meet the needs of the fetus for optimal growth of its skeleton and its mineralization. Fragility fractures have been described, but this occurs infrequently. It is possible that there is underdiagnosis as a result of the overlapping symptomatology with the frequent aches affecting normal pregnancies. Factors that may overlap maternal metabolic adaptations may have hormonal etiology, nutritional deficiency, mechanical changes, pharmacological association, renal disturbance, connective tissue disorders, other non-specified genetic disorders and idiopathic osteoporosis. Perhaps identification of this at-risk group may lead to effective interventions to reduce bone fracture risk in later life.

There are no established diagnostic criteria for PLO. However, a diagnosis can be easily obtained by an accurate medical interview, physical examination, imaging studies, and laboratory data, including bone mineral density measurement after delivery. This disease should be suspected when a woman presents with severe back pain in the late stages of pregnancy or the early postpartum period. An accurate and prompt diagnosis helps with appropriate treatment and prevents the progression of the disease.

There are no solid clinical practice guidelines for the management of this condition and treatment strategy remains controversial. Clinical judgment must be used to balance the potential benefit and risks of treatment that is being considered. The suggested treatment strategy includes optimize calcium and vitamin D intake, load reduction and analgesia. Cessation of lactation seems to be the major classical treatment in the reports. There is much uncertainty about whether pharmacological bone-specific therapy should be used for osteoporosis that presents during pregnancy or lactation. The temptation to prescribe anti-osteoporosis medications for pregnancy or lactation-induced osteoporosis needs to be tempered with the realization that BMD normally increases during the 6 to 12 months after weaning, with apparent recovery of the prior level of BMD and bone strength. Given the concerns about long-term safety, clinicians should carefully consider whether to commit a young woman to long-term treatment with these agents, especially since there is no clearly defined endpoint for treatment.

For avoiding post-pregnant osteoporosis and decrease in bone mass during pregnancy or lactation period, it is necessary to obtain sufficient bone mass before, during the growth period and maintain bone mass in adulthood. In addition to the prevention of post-pregnant osteoporosis, to avoid future osteoporosis and fragility fractures of older age, it is necessary to promote young women to take measures such as adequate nutrition intake and exercise habits, considering bone health.