either sex. Future studies should elucidate possible mechanisms of actions.

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The impact of menopausal status on cardiac responses to exercise training and lower body negative pressure

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Introduction: Training status and sex hormones influence the cardiovascular response to orthostatic stress. The aim of this study was to investigate the impact of menopausal status on left ventricular (LV) function and rotational mechanics in response to exercise training and lower body negative pressure (LBNP).

Methods: Twenty-five healthy untrained middle-aged women (age 45–58 years; 11 pre-menopausal [Pre-M], 14 post-menopausal [Post-M]) completed 12 weeks of exercise training (3 sessions/week consisting of 4 × 4 min intervals at 90–95% maximum heart rate). Blood volume was assessed via CO-rebreathing, and maximal aerobic capacity was measured on an upright cycle ergometer before and after exercise training. LV function was assessed via echocardiography at 0, −15 and −30 mmHg LBNP.

Results and Discussion: Peak power output and maximal aerobic capacity increased after exercise training ($P < 0.01$), but this increase was greater in pre- than post-menopausal women (mean ± SD; Pre-M before 147 ± 29 vs. after 179 ± 28, Post-M before 145 ± 26 vs. after 169 ± 24 W; Pre-M before 29 ± 5 vs. after 37 ± 5, Post-M before 29 ± 6 vs. after 34 ± 5 mL/min/kg; respectively, both $P < 0.05$). Blood volume increased after exercise training in pre- and post-menopausal women ($P = 0.04$), resulting in a smaller decrease in end-diastolic volume during LBNP (LBNP × training $P = 0.06$). This enhanced LV filling after exercise training was further evidenced by higher peak trans-mitral filling velocities in early diastole both at rest and during LBNP (training $P < 0.01$). Cardiac output in pre-menopausal women during LBNP was underpinned by higher heart rates and greater peak twist, systolic twisting velocity and basal rotational mechanics, compared with post-menopausal women (menopause interactions $P < 0.1$).

Conclusion: Pre-menopausal women show a greater aerobic adaptability to exercise training than post-menopausal women, and rely more on acute cardiac responses to cope with low levels of orthostatic stress.

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Testosterone, anastrozole and venous thrombosis

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Background: Some studies have shown that testosterone (T) therapy is associated with an increase in venous thrombotic events, particularly in men at high risk. This may be due to aromatization of T and subsequent estrogen induced thrombophilia.

Subcutaneous (SC) T implants bypass the liver and do not adversely affect the clotting system. However, T increases renal erythropoietin and stimulates the bone marrow increasing erythrocyte production. Elevated Estradiol (E2) is also associated with an increase in hematocrit (Hct) in men.

Methods: 344 adult male patients were accrued March 2013-2017 to an IRB approved chart review study investigating the occurrence of cardiac and prostate events in men treated with SC T, or T combined with anastrozole (A) in the implant. A is prescribed to prevent excess aromatization to E2.

Serum T and E2 levels were measured 4 weeks after insertion and/or at the end of the cycle when the patient became symptomatic. Hb and Hct were monitored. Mean age at first insert was 52.9 ± 9.8 y. Mean age at the time of analysis was 57.7 ± 10.5 y. Mean length of therapy at the time of analysis was 4.8 ± 3.1 years, range 0.17- **11.6 y**.

Results: 98.5% (339/344) of men treated during this time period received A in combination with T. Mean T dose was 1878 ± 263 mg. Mean SC A dose was 14.8 ± 3.9 mg with the majority of men receiving 16 mg. Mean 4 week T level on therapy was 1235 ± 313 ng/dl. Mean E2 at week 4 was 16.45 ± 11.73 pg/ml. Mean T level when symptoms returned was 586 ± 248 ng/dl. Mean E2 was 18.65 ± 11.78 pg/ml. Mean Hb on therapy was 16.3 ± 1.33 and mean Hct was 48.5 ± 4.0.

There have been no episodes of venous thrombosis or thromboembolic events in 344 men treated with T + A implants in over 1600 person-years of therapy. This compares favorably to an expected annual incidence of 149/100 000 (1.5/1000) for males age 55-59 y.

Conclusion: SC T + A implant therapy does not increase and may lower the occurrence of venous thrombotic events.

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Objective measures of activity in the elderly: Distribution and associations with demographic and health factors

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Background: Little is known about the distribution of activity over the 24-hour spectrum in late old age and its association with demographic and health factors. We aimed to evaluate the distribution of physical activity (PA), sedentary behavior and sleep and associated factors in the elderly population.

Methods: Our study included 1210 participants (51.9% women) aged 70-94 years (mean age 77.5 years, standard deviation (SD): 5.0) from the population-based Rotterdam Study. Participants wore a triaxial accelerometer (GeneActiv) around the wrist for 7 days, between July 2014 and June 2016. We examined if PA, sedentary behavior and sleep differed by age, sex, body mass index (BMI), smoking status, alcohol consumption, education, season, functional capacity, marital status, presence of chronic disease and use of sleep medication.

Results: Mean total PA, expressed in milli-gravity(mg) units, was slightly higher for women (20.3, SD: 5.6) than for men (19.3, SD: 5.2, $p < .01$). Mean (SD) daily duration spent in sedentary behavior and light and moderate-to-vigorous PA was 13.3 (1.5) h/d, 147.5 (31.5) minutes/d and 75.0 (25.5) minutes/d, respectively, among women; and 13.8 (1.6) h/d, 140.5 (31.1) min/d and 71.5 (24.5)

min/d, respectively, among men. Women spent on average 6.7 (SD: 1.1) h/d sleeping and men 6.6 (1.4) h/d. Across increasing categories of age and BMI and in participants with chronic disease and disability, time spent in light and moderate-to-vigorous PA was decreased. Sedentary time increased with higher age and across higher strata of BMI.

Conclusions: PA and sedentary behavior in the elderly differed by sex, age, BMI, prevalence of chronic disease and disability, whereas there were no clear patterns for sleep. On average, our participants spent up to 79.5% of their time awake being sedentary and 7-8% in moderate-to-vigorous PA. Replacing sedentary behavior with light PA would be a good starting point for those with the lowest level of PA.

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Perimenopausal women's attitude toward the transition and decisions about menopausal hormone therapy (MHT): Study of influencing factors using The Health Belief Model (HBM)

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Introduction: Discrepancies between age-dependent benefits of Menopausal Hormone Therapy (MHT) for control of menopause symptoms and the information reaching women concerned have been subject of recurrent debate. Apparently women are mostly misinformed and deprived of appropriate treatments. The present study used the Health Belief Model (HBM) to explore factors influencing health behaviour e.g. perceived susceptibility, severity, risk and benefits, barriers and need for medication.

Aim: To assess menopause symptoms in women aged 40-60, attitude to the transition and treatment of bother

Methods: An internet survey offered to 115 random women in urban Zuid-Holland covered aspects of menopause, possible treatments and the Greene Climacteric Scale (GCS) to screen symptoms.

Results: 85 women met inclusion criteria. Average age was 51 yrs, 57% had normal BMI, 18% smoked, 62% were employed. 81% had bothersome symptoms (av.20.4; SD13.4) limiting social functioning and work. 77% claim to be well informed about menopause, 24% expect a positive experience, 57% expect no control over associated changes. 64% had no treatment. 45% find treatment unnecessary. 89% knew efficacy of MHT, 23% knew benefits and 40% knew risks. For 48% risks of MHT outweigh benefits. 69% find homeopathic remedies less harmful than MHT

Conclusion: Awareness of presence and impact of menopause symptoms on work and social life seemed insufficient. Women's attitude toward menopause was negative and determined by lack of accurate knowledge, negative expectations and feeling of no control. Misinformation, expected self-limiting course and perceived risk to benefit balance constitute barriers limiting search for effective help. Despite presence of susceptibility and severity of symptoms decisions about treatments are absent or insufficiently deliberated. Further study and more concerted efforts to bridge knowledge gaps and highlight benefits of appropriate management of the menopause transition are needed.

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Poster Session

LBS01

How treating women with VVA saves costs

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Women with VVA often suffer from associated comorbidities, leading to increased utilization of healthcare resources. To determine if treating VVA leads to savings in costs, we undertook a retrospective analysis of the US claims-based MarketScan® Research Database.

We identified a cohort suffering from VVA and an age matched control cohort. A diagnosis of VVA is associated with a 30.75% higher increase in median costs compared to the control cohort due to an increase in medication use, comorbidities and resource utilization, many of which are associated with VVA.

We then split the VVA cohort in those treated vs. untreated. Despite a 38% increase in medication costs, not treating VVA patients resulted in a 10.27% higher relative increase in overall median costs compared to the untreated VVA cohort. Although these costs were specific to the US healthcare system, more than 2/3 of the top 30 events with the greatest difference in improvement from baseline in the treated vs. untreated cohort were biologically plausibly related to VVA treatment (urinary infection, frequency, dysuria, cervical screening, cystocele, etc.) and would lead to cost savings in any healthcare system.

We also looked if treatment with oestrogens or ospemifene made a difference. Although medication costs doubled in the ospemifene cohort (cf. with 37% increase for oestrogen), the greater reduction in this cohort in comorbidities and resource utilizations meant that there was no difference in cost savings between the two cohorts. Among the comorbidities and resource utilizations that showed the highest decrease in the treatment cohorts compared to no treatment, 20 of the top 30 were the same in both treatment cohorts but with greater reductions in the ospemifene cohort.

In VVA patients with a history of breast cancer, non-treatment resulted in a 40.84% higher relative increase in median costs vs. no treatment due to a lower increase in costs for co-morbidities and resource utilizations.

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LBS02

Illness perception in overweight and obesity and impact on bio-functional age

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Introduction: Obesity is pandemic. Yet, the success of most weight loss programs is poor.

The aim of the study was to assess illness perception in overweight/obese people and its impact on bio-functional age