Methods: cross-sectional study included ambulatory 682 postmenopausal women aged 48 to 62 (median 56; 25%–75%: 52.0 / 60.0). Inclusion criteria were: confirmed postmenopausal status and Kellgren stage 2 or 3 OA of the knee and/or hip joints fulfilling ARA criteria. Cognitive impairment (CI) was verified by MMSE scale (Mini Mental State Examination). For all patients expected individual risk of premature death and Charlson index were calculated.

Results: Median Charlson comorbidity index in women with OA was 4 (3 / 4). None of the patient had a comorbidity index of 0. The most frequent comorbidities were chronic heart failure (364 women (53.4%) and type 2 diabetes mellitus (180 women, 26.4%).

Charlson index increase was associated with decline of cognitive function (see table 1) with incline of quantity and severity of CI cases.

Abstract AB0960 – Table 1

Charlson Index	n	Age (Me, 25%–75%)	MMSE value	
			(Me, 25%–75%)	Lower limit
1	11	48 (45–49)	28 (28–29)	28
2	102	59 (47–55)	28 (27–29)	24
3	202	54 (51–57)	27 (26–29)	22
4	200	57 (53–60)	26 (25–28)	20
5	119	60 (57–65)	26 (24–27)	21

Conclusions:

- Hip and knee joints OA in postmenopausal women is associated with polymorbidity.
- Polymorbidity in OA patients is associated with cognitive impairment.

Disclosure of Interest: None declared

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AB0961

CARDIORESPIRATORY RESPONSE ACCORDING TO BODY WEIGHT SUPPORT AND GAIT VELOCITY VIA ANTI-GRAVITY TREADMILL AFTER BILATERAL TOTAL KNEE ARTHROPLASTY

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Background: Patients undergoing total knee arthroplasty (TKA) may benefit from early focused postoperative rehabilitation, and progressive weight-bearing activities, such as walking, are routinely recommended during rehabilitation to facilitate return to normal gait function. Not all patients are capable of full weight-bearing activity in the early postoperative period and assistive devices such as walkers, crutches, and canes, are routinely employed. The anti-gravity treadmill, consisting of a treadmill enclosed within an airtight chamber, applies air pressure to a patient's lower body to alter body weight support and can reduce the forces at the knee during weight bearing exercise. The anti-gravity treadmill could be a useful device for early postoperative rehabilitation of TKA, especially for those patients with reduced physical strength and cardiovascular fitness. However, so far, there have been no reported investigations of the physiologic cardiorespiratory responses via anti-gravity treadmill in patients following TKA.

Objectives: This study was conducted to investigate cardiorespiratory response according to body weight support and gait velocity elicited using an anti-gravity treadmill during walking and to find specific gait velocity and body weight support combinations early after bilateral TKA.

Methods: Twenty five patients who underwent a primary TKA were enrolled in this study. Subjects walked with 2.5 km/h and 3.5 km/h on an anti-gravity treadmill at 3 levels (50%, 75%, 100%) of body weight (BW). Each trial was performed for 2 min with at least 1 min rest between trials. For cardiorespiratory responses, oxygen consumption (VO_2), Heart rate, systolic (SBP) and diastolic blood pressure (DBP), respiratory exchange ratio (RER) and rate pulse product (RPP) were measured continuously with average values. The VO_2 , heart rate and RER were measured by using the K4b2 (Cosmed, Rome, Italy), which is a wireless cardiopulmonary diagnostic device, and the values of these exercise variables were defined as the averages of values recorded during the last 30 s of exercise. The RPP was calculated ((heart rate x SBP)/100). In addition, Borg's rating of perceived exertion scale (RPE) and visual analogue scale (VAS) of knee pain were recorded immediately after each condition.

Results: There were 20 females and 32 men, with the average age being 71.3 $\pm$ 5.4 years. In the two-way repeated measures ANOVA, VO_2 levels ($p < 0.01$), HR ($p < 0.01$), RPP ($p < 0.01$), RPE ($p < 0.01$), RER ($p < 0.01$) and VAS ($p < 0.01$) were significantly increased in proportion to 3 levels (50%, 75%, 100%) of BW. In the post-hoc analysis, all other conditions except comparison of RER values between 50% level of BW and 75% level of BW under a speed of 2.5 km/h and a speed of 3.5 km/h were statistically significant. Meanwhile, SBP ($p = 0.65$) and DBP ($p = 0.39$) were not influenced by difference of BW levels.

While walking with a speed of 3.5 km/h at same fraction of BW level, VO_2 ($p = 0.03$), RPE ($p < 0.01$) and RER ($p = 0.01$) values were statistically greater than 2.5 km/h. In the post-hoc analysis, all other conditions except comparison of RER values between a speed of 2.5 km/h and a speed of 3.5 km/h under 100% level of BW was statistically significant.

In addition, multiple linear regression analysis was performed to defining VO_2 as functions of gait speed and fraction of BW under each condition. Based on BW and gait velocity settings of the LBPP treadmill, the equations were $\text{VO}_2 = 1.46 v + 0.08 \text{ BW} + 3.13$ (adjusted $R^2 = 0.34$)

Conclusions: This study demonstrated that cardiorespiratory responses were variably computed by combination of weight support and gait velocity during anti-gravity treadmill walking, and these cardiorespiratory responses and knee pain were more significantly influenced by body weight support than gait velocity. These findings suggest that body weight support and gait speed should be considered for gait training program for cardiovascular fitness early after bilateral total knee arthroplasty.

Disclosure of Interest: None declared

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AB0962

IRISIN LEVELS ARE ASSOCIATED WITH EXERCISE, PAIN AND FUNCTION IN PATIENTS WITH KNEE OSTEOARTHRITIS

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Background: Muscle strengthening and aerobic exercise have been shown to improve joint pain and function in patients with knee osteoarthritis (OA). Irisin is a hormone-like myokine synthesized by skeletal muscle and its secretion appears to be related to physical activity in healthy people.

Objectives: To determine the levels of irisin synovial fluid and plasma and evaluate their association with exercise level and pain and function in patients with symptomatic knee OA.

Methods: Cross-sectional study with systematic inclusion of 108 symptomatic primary knee osteoarthritis patients (VAS > 4) with ultrasound-confirmed joint effusion. Age, physical exercise, knee osteoarthritis symptoms duration and different anthropometric measurements were collected. Radiographic severity was evaluated according to Kellgren-Lawrence scale. Physical exercise was categorised as never, occasional (less than 150 min per week) or regular (more than 150 min per week). Pain and disability were assessed by the Lequesne algo-functional questionnaire. Irisin was measured by ELISA in synovial fluid and plasma. Summary of clinical data and laboratory parameters and their association with Lequesne scale were performed using non-parametric methods. Medians and Spearman correlation (r) were used for continuous measures, and Mann-Whitney test was applied to categorical variables. This study was approved by the local ethics committee.

Results: Plasma and synovial irisin levels were strongly related ($r = 0.7$). Plasma and joint irisin levels showed an inversely significant association with the level of exercise in patients with symptomatic knee OA: no exercise 763.3 ng/mL, occasional exercise 631.8 ng/mL and regular exercise 523 ng/mL ($p < 0.01$). Patients with severe pain and disability (Lequesne algo-functional score > 11) had higher plasma (791.5 vs 680.4 ng/mL, $p < 0.05$) and synovial (711.4 vs 468.7 ng/mL, $p < 0.05$) irisin levels compared to patients with less disability and pain. No relationship was found between irisin concentration in plasma or synovial fluid and radiographic severity.

Conclusions: Irisin levels were associated with pain and function in patients with knee osteoarthritis. Irisin levels were negatively associated with exercise level in this population.

Disclosure of Interest: None declared

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AB0963

CALPROTECTIN AS A USEFUL MARKER OF INFLAMMATION IN KNEE OSTEOARTHRITIS

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Background: Low-grade synovial inflammation is known to be present in many patients with knee osteoarthritis and appears to have clinical and prognostic implications. Calprotectin seems to be more sensitive than CRP to detect minimal inflammatory activity in many inflammatory rheumatic diseases and could be a biomarker in osteoarthritis with inflammatory features.

Objectives: To determine the levels of synovial calprotectin in patients with knee osteoarthritis showing inflammatory traits and their relationship with clinical and ultrasonographic features and other proinflammatory markers.

Methods: Cross-sectional study with systematic inclusion of 108 symptomatic primary knee osteoarthritis patients (VAS > 4) with ultrasound-confirmed joint