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**Effects of regular physical exercise on the levels of flexibility of diabetics type 2**

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**Introduction:** Collagen is the main protein responsible for resistance to flexibility, and in connective tissue disorders of glucose metabolism in the diabetic can produce a superglycolization of specific collagens, thus reducing levels of flexibility.

**Objective:** To verify the effects of regular physical exercise on the flexibility levels of type 2 diabetics.

**Method:** Characterized as a quasi-experimental study. The sample was non-probabilistic; 11 female subjects with type 2 diabetes, with a mean age of  $66.5 \pm 1.6$  years, participated in the study. The training protocol was composed of resistance and aerobic training, the flexibility assessment was performed before and after the intervention that lasted 6 weeks. To assess flexibility, a Tera Flex 1.8 digital flexometer was used by Tera Science. For the comparison of the means of the variables, a variance analysis was used with repeated measures, and multiple comparisons using Fisher's least significant difference method and Wilcoxon's nonparametric test. For all tests a significance level was adopted  $p < 0.05$ .

**Results:** There was an increase from  $87.7 \pm 12.5$  to  $102.4 \pm 14.6$  ( $p = 0.003$ ), in the thoracic joint amplitude of the diabetics evaluated.

**Conclusion:** The training protocol used in this study showed a significant increase in the levels of flexibilities of type 2 diabetics, of this sample.

**A125**

**Effects of resistance training on signs and symptoms of distal diabetic polyneuropathy in type 2 diabetic patients: pilot study**

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**Introduction:** The distal peripheral polyneuropathy (DPP) is one of the main Diabetes complications and physical exercise can be an alternative to minimize the signs and symptoms.

**Objective:** Assessment of resistance training effects on signs and symptoms of DPP on type 2 diabetic patients.

**Methods:** Randomized controlled trial with 10 diabetic patients (7 women and 3 men  $58.8 \pm 3.8$  years;  $71.9 \pm 9.1$  kg;  $158 \pm 5.5$  cm;  $15.6 \pm 10.6$  years of DM2 diagnostic) with DDP diagnosed by the DDP diagnostic scale (DDPDS). They were randomized in two groups, the control group (n = 4) received education sessions about diabetes, and the exercise group (n = 6) besides the education sessions, followed a moderate exercise training for upper and lower limbs 3 times a week, during 12 weeks. The DDPDS provided the Neuropathy Symptom Score (NSS) and the Neuropathy Disability Score (NDS) of each individual. The tactile sensibility was evaluated with the Semmes-Weinstein monofilament (10 g). After the Kolmogorov-Smirnov normality test, the paired t test was used for intragroup comparisons. For the intergroup comparison, the t test was used for independent samples both on pre and post intervention phases.

**Results:** The results showed significant improvements on the NDS, on both intragroup comparison of the exercise group ( $p < 0.01$ ) and intergroup comparison on the post-intervention moment. The other parameters assessed did not show significant difference.

**Conclusion:** The resistance training was effective on the improvement of the Neuropathy Disability Score of type 2 diabetic patients with distal diabetic polyneuropathy.

**A126**

**Effects of the nutritional transition in women with pregestational diabetes**

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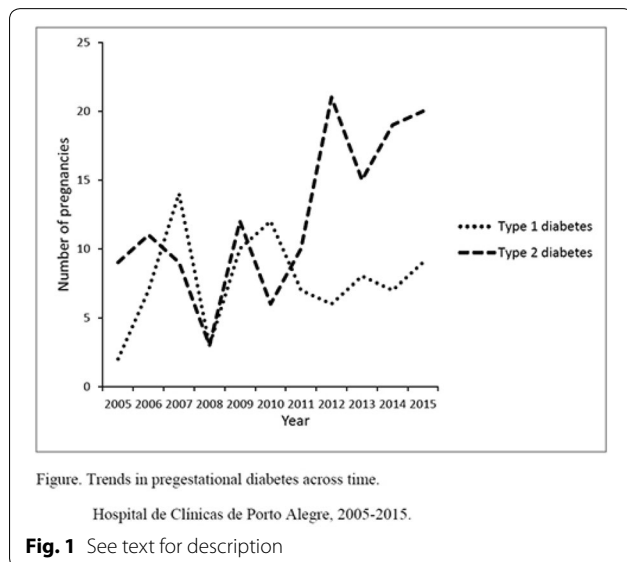
**Introduction:** Pregestational diabetes is associated with adverse outcomes for the mother and the newborn. This may further depend on the epoch women were treated, due to changes in standards of care and maternal clinical characteristics. Our objective was to study characteristics of pregnant diabetic women across two periods of time.

**Methods:** We evaluated 220 women, 85 with type 1 diabetes (DM) and 135 with type 2 DM, attended at a specialized prenatal care. Clinical characteristics as weight, body mass index (BMI), preeclampsia, cesarean section and newborn outcomes were evaluated. Epoch of care was stratified in two periods: from 2005 until 2010 (period 1) and after 2010 (period 2). Analyses were performed applying the Student's t test and the Chi square test in SPSS version 18.

**Results:** Type 1 DM was more frequent in period 1 (56.5% vs. 43.5%), but was surpassed by type 2 DM in period 2 (63.0% vs 37.0%) ( $p = 0.005$ ). The Figure presents the number of patients with type 1 and type 2 diabetes taking prenatal care at each year. Previous macrosomia (8.2% vs. 20.5%,  $p = 0.011$ ) and previous preeclampsia (PE) (9.2% vs 21.3%;  $p = 0.015$ ), as well as pregestational BMI  $\geq 25$  kg/m<sup>2</sup> (59.1% vs 78%,  $p = 0.003$ ) were more frequent in period 2. There was

a trend to a lower diagnosis of PE (37.0% vs 24.8%;  $p = 0.055$ ) in the second period. We stratified data of the two periods according to type of diabetes: in women with type 2 diabetes, previous PE and macrosomia were more frequent and pfamily history of diabetes, less frequent, in the second period. Conversely, women with type 1 diabetes presented higher pre-pregnancy weight and higher A1c test in the second period.

**Conclusion:** Nowadays, women of reproductive age are frequently diagnosed as having type 2 diabetes, in parallel to the escalating rates of obesity; even those with type 1 DM presented higher pre-gestational weight in the second period. The effects of nutritional transition are also reflected in women with pre-gestational diabetes (Fig. 1).



#### A127

##### Effects of the physical training in different intensities on the balance of elderly with type 2 diabetes

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**Introduction:** In diabetes mellitus, changes in skeletal muscle, associated with age muscle mass loss, contribute to a decrease of muscle strength, balance and control.

**Objective:** To investigate the effects of physical training after 3 months of intervention in the balance of elderly with type 2 diabetes.

**Method:** Characterized as quase-experimental. Twenty-four elderly with type 2 diabetes were enrolled in a supervised physical exercise

program. Two groups of moderate intensity ( $n = 11$ ) and high intensity ( $n = 13$ ) were organized. The physical training protocol was composed of aerobic and strength training. The strength group was divided into moderate intensity of 20–25 repetitions and high intensity of 8–15 repetitions, both with 1' interval. The aerobic group, which used the treadmill, used the protocol with 10' in the moderate intensity, scale 13 on the Subjective Effort Perception, and 5' for high intensity, in the scale 15. For balance evaluation we used the sit and stand test. Multiple comparisons were made using Fisher's least significant difference method. Nonparametric Kruskal-Wallis test was also performed and a significance level of  $p < 0.05$  was used for all tests.

**Results:** There was an improvement in the balance at moderate intensity (pre  $4.9 \pm 2.0$  versus post  $6.2 \pm 2.2$   $p = 0.04$ ) and at high intensity (pre  $3.7 \pm 2.6$  vs. post  $5.0 \pm 2.6$   $p = 0.03$ ).

**Conclusion:** The physical training used in this study was effective in improving the balance of elderly with type 2 diabetes.

#### A128

##### Efficacy and safety across the final dose ranges in patients with T2DM receiving insulin glargine/lixisenatide fixed-ratio combination in the LixiLan-L trial

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In the 30-week LixiLan-L trial, LixiLan, a novel titratable fixed-ratio combination of insulin glargine (Gla-100) and GLP-1RA lixisenatide, showed superior glycemic control over Gla-100 alone, both optimized to FPG 80–100 mg/dL (maximum 60 U/day), in patients with T2DM inadequately controlled on basal insulin  $\pm \leq 2$  oral drugs. In this post hoc analysis, safety and efficacy of LixiLan were evaluated in final dose categories of Gla-100 (both groups) and lixisenatide (LixiLan group). At week 30 (study end), reductions in HbA1c and proportions of responders achieving HbA1c  $< 7\%$  were similar across dose categories. Across all dose levels, LixiLan induced body weight loss or prevented weight gain. Incidence of documented symptomatic hypoglycemia (SMPG  $\leq 70$  mg/dL) was numerically higher in patients receiving final Gla-100 dose  $< 30$  U vs. those receiving  $\geq 30$  U. This is also shown by final lixisenatide dose level. Incidence of nausea was low in the LixiLan group (Table), potentially due to slow increase of lixisenatide component in the combination. Efficacy and safety of LixiLan were generally consistent across final dose categories of its Gla-100 and lixisenatide components and consistent with overall treatment groups. These results support clinically based dose titration of a fixed-ratio combination of insulin glargine and lixisenatide. Study code: NCT02058160. This is an ENCORE abstract previously presented at ADA2016. Funding and editorial support provided by Sanofi (Fig. 1).