

Project promotes physical activities to people with diabetes

Research and community outreach activities partner to improve the health and quality of life of those who have been diagnosed.

By Camila Raposo

The practice of physical exercise is strongly recommended to people with diabetes or dyslipidemia (a group of disorders related to the increase of fat in the blood, including the elevation of cholesterol and triglycerides). Besides contributing to weight loss, to obesity prevention and musculature strengthening, physical activities can help control glucose levels, moderate the concentration of triglycerides and cholesterol, and minimize the resistance to insulin, among other benefits. However, it is important to emphasize that the exercises are not all the same, and that people usually respond in different ways to each type of training. Even the recommended amount of activities – 150 minutes per week, on its own, does not guarantee that you will achieve the desired goals. The intensity of the training, its modality, and even where it is practiced (on the street or on the pool, for example), are crucial for a good result.



Walking and jogging classes take place at the ESEFID's athletics track - Image: Gustavo Diehl/UFRGS

Seeking to study – and offer – the most effective exercises to control the diabetes type 2 and dyslipidemia, and contribute to improve the quality of life of those who suffer from these diseases, a group formed at UFRGS' School of Physical Education, Physiotherapy and Dance (Escola de Educação Física, Fisioterapia e Dança – ESEFID) is carrying out research and community outreach projects. Besides walking and jogging classes open to the community, several assessments analyze the benefits of different modalities of training, on land and aquatic, observed under specific physiological parameters.

The community outreach project is in its third year of operation, but the specific research projects which gave origin to the present program with this public started around 10 years ago, as stated by the activities' coordinator, Luiz Fernando Krueel. "First there was an undergraduate thesis, then two master's theses, and after that, two doctoral dissertations... Then, when we were at doctoral dissertations, we saw we had reached a good mastery of how to put together an effective service to assist our target audience," he comments.

Dynamics of the project

Currently, an average of 20 people are attending the walking and jogging classes that take place at the ESEFID's athletics track. The program is exclusive for people with diabetes type 2 and dyslipidemia. The first step to enroll is to take part of an interview with the project team, occasion when prior blood and urine tests should be submitted. Next, an effort electrocardiogram is performed. "This evaluation allows us to determine possible heart conditions, and how we are going to treat them in the following set of effort tests," explains Krueel.

"Then, we have them go through a period called pre-training, lasting from 4 to 8 weeks, so that they can get a rhythm – since they are normally sedentary – and add a new battery of tests which we will conduct," explains the professor. The next exams have the objective of establishing the physical capacities of the participants, in order to prescribe the most suitable training to each of them. "It is a completely individualized work. The service we set up to

make the individual prescriptions is first-ranking-world methodology – to the point our research and dissertations have become reference in training remodeling worldwide,” emphasizes Krueel.

From those tests, two training protocols are defined: a continuous one, with 45 minutes of activities at the same heart rate; and an interval training one, in which the intensity of the exercises are alternated during the training period. Each participant tries out both protocols – one each day –, in order to verify which one they are more responsive to. In the case of a diabetic participant, for example, after-exercise observation allows us to identify which protocol helped lower the blood glucose the most, and such protocol will be the one prescribed to the following classes.

“Currently, when we determine the training protocol, the participant comes to our laboratory, we collect blood samples – all services are included in the price they pay –, he/she undergoes a complete battery of blood tests, and then starts to train for 16 weeks. Sixteen weeks later, we re-evaluate the participant, test other 2 protocols – because then they are at a higher level of physical conditioning –, redo the whole battery of blood tests, and then he/she starts to train for another 16 weeks,” explains the researcher.

In addition to these 16-week macrocycles, every four weeks the participants have their load of activities increased, and every eight weeks the training protocol is re-assessed. The training upgrading is essential for its efficacy, since the physical conditioning of the participants tends to suffer alterations over time. “In order to make sure the exercise is really effective, it has to be re-evaluated for training progression on a regular basis. Numerous studies – including ours and other groups’ – have been indicating that lack of training progression compromises results. You have an initial improvement, then your body adapts to that load, and your rate of improvement begins to slow,” explains Krueel. “What we seek to achieve in our project is a prescription procedure in the most rigorous scientific way, according to the world literature, so that the participant undergoes a correct training intensity and volume,” he adds.

Better health and quality of life

Besides the evaluation of the physical conditioning and the periodic blood tests, the researchers also use questionnaires to verify if there are improvements on the level of quality of life of the participants. For Krueel, on the whole, the results have been rather positive. It is important to emphasize, however, that the pathologies are multifactorial. Physical exercise, when practiced in the appropriate measure, can greatly help the patients, but, if they do not change other habits, such as eating ones, or if they do not take their medication correctly, the improvement gets compromised.

Pedro Paulo Andrade de Araújo feels the benefits of the walking classes in the day-to-day life. He has been a participant of the community outreach project since its beginning. “After the class ends, we feel much better. But the best part is when I have to go out, and cross the street. I am 74 years old, and I have a good steady leg, capable of being compared to those of much younger people. Besides that, there is the extra interaction: being among the youngsters is the best part of it,” he declares.

He, who got to the project through a company which provided home care services for the CRT’s Association of Retirées (Associação dos Aposentados da CRT), says he has always liked physical exercise. “Before I joined the program, I used to walk in a disorganized way, but I always had the desire to do something more organized. And, you see, I really liked it. This is brilliant. You can’t find anything better. Here in Rio Grande do Sul at least, I don’t know anything better,” he emphasizes.

Water activities

Besides the on-land activities, the group also carries out a series of research practices related to pool exercises, such as water aerobics and aquatic jogging (also called deep water, the activity consists of running or walking in the deep pool, using a floating belt). “Actually, at first, our idea was to bring the on-water physical activity for our public for numerous reasons. And, originally, our research group was supposed to work only with water,” says Krueel, who decided for the initial implementation of the community outreach project on the athletics track, because of the lack of time availability at the ESEFID’s pool at the time. For the next semester, however, there is an opportunity to use the pool has been open for aquatic physical activities, aimed at the same target public.

The on-water exercises have a series of additional advantages, such as the reduction of impact on the joints, and the triggering of rather beneficial physical and hormonal alterations, especially for diabetics, dyslipidemic and hypertensive patients. As a result of the hydrostatic pressure, there is an increase of the volume of blood that goes to the heart and lungs, which implies a higher hemoglobin saturation and increased oxygen transport, allowing the patient to endure activities with higher intensities than the ones they would be able to on land.

An example of these benefits comes from the doctoral dissertation of Rochelle Rocha Costa. Elderly dyslipidemic women were divided in three groups: one which practiced aerobic water exercises, other which focused on strength

water exercises, and the control group, which undertook only relaxation sessions on the water. Besides the numerous positive effects observed in the two groups which practiced physical activities, even the participants of the control group, who were also hypertensive, had blood pressure decrease. In other words, it is possible to achieve improvements simply by immersion.

How to participate

Jogging and walking classes for people with diabetes type 2 or dyslipidemia take place at the ESEFID's athletics track (Felizardo Street, 750 – Jardim Botânico – Porto Alegre, RS) on Mondays, Wednesdays and Fridays, with a class from 5 p.m. to 6 p.m., and another from 6 p.m. to 7 p.m. Last applications for new participants took place in March 2019. The tuition is R\$ 130 and it includes classes and periodical health examinations. More information about new applications and the screening process (obligatory for the participation) can be found on ESEFID's site.

Translated by Laura Cristina Gay Reginin, under the supervision and translation revision of Professor Elizamari R. Becker (P.h.D.) – IL/UFRGS.

Universidade Federal do Rio Grande do Sul

Av. Paulo Gama, 110 - Bairro Farroupilha - Porto Alegre - Rio Grande do Sul
CEP: 90040-060 - Fone: +55 51 33086000

Directions 