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The Benefits of Nordic Walking for People with Diabetes

Walking is one of the most ancient activities of humans and offers a multitude of general health benefits. As supported by various studies and meta-analyses, the way in which walking is performed can be therapeutic: a planned practice could prevent diabetes or, if already diagnosed, reduce the risk of chronic complications related to it (1). Despite this, 54.6% of people with type 2 diabetes mellitus walk less than they need to on a weekly basis, tending toward more sedentary lifestyles. This lack of adherence to health recommendations requires a deep analysis of each situation, which is often associated with multiple and complex causes. These may be sociocultural, metropolitan (2), or related to some type of pain or difficulty in movement when performing the activity (3,4). It has been shown, for example, that a person with balance problems and a fear of falling walks less and, when they do, adopts a more conservative walking style: steps are shorter, speed is slower, there is more space between the feet, and there is also a longer double-support time (it is harder to lift one foot). In these cases, rigidity of the locomotor system is observed due to the co-activation of agonist and antagonist muscles. This reduces joint mobility, which in turn negatively affects the necessary adaptability.

For health care professionals, it is essential to understand the reasons that discourage the practice of certain beneficial activities and work on them, as one of the most crucial challenges in promoting public health is improving people's lifestyle habits.

On the other hand, it could be appealing to have **alternative**, innovative, and safe recommendations that spark the interest of those attending consultations and that can affect their **functionality and quality of life**. Walking is a considerably common and automated activity, but it is susceptible to being reviewed and modified. A sport variant, and potentially motivating, of walking is Nordic walking. It originated in Finland during the summer, when cross-country skiers could not enjoy the snow but needed to maintain their physical condition. To do this, they kept using **poles** and walked on plains and slopes, exercising while waiting for the cold. **In Spain, Nordic walking has been considered a sport by the Consejo Superior de Deportes (Spanish National Sports Council) since 2015**.

Nordic walking is simple enough to resemble regular walking and technical enough to require supervised training that fosters safe learning. Learning this new way of walking encourages a process of de-automation, in which attention and proprioception, among other factors, play fundamental roles. This is particularly interesting considering that, both in diabetes and advanced ages, there can be some deterioration of the nervous system in its sensory aspect (more noticeable in the hands, feet, and lower legs), as well as of strength and cognitive functions through changes in the central nervous system. Exercise increases oxygen consumption and heart rate even in people with previously sedentary habits, which has a positive impact on cardiovascular health. It also leads to a sense of well-being due to the release of endogenous opioids. Despite being a sport and requiring technique, Nordic walking is **accessible** for most of the population and can be adapted to their characteristics and needs successfully. The sense of **self-efficacy** is linked to satisfaction, and both seem to be behind the good adherence that Nordic walking tends to receive from people of all ages (5), and specifically, according to scientific literature, from people with diabetes (6).

Although Nordic walking carries few risks vs other sports, to enjoy it responsibly, realistically, and appropriately, it is advisable to consult a specialized doctor or nurse to learn how to reduce the risk of hypo or hyperglycemia. Moreover, the RECORD guide warns that before engaging in sports, an exercise test might be necessary for people with diabetes older than 35 years, those over 25 years old with type 2 diabetes for more than 10 years, or those with type 1 diabetes for more than 15 years. This also applies if there are microvascular complications, peripheral artery disease, »

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THE INTENSITY OF THE ACTIVITY CAN BE LIGHT, MODERATE, OR HIGH, AND THE TECHNIQUE TO BE PERFORMED IS DEFINED BY:
A) Encouraging an upright body posture.
B) Using two specific poles with grips for both hands. These serve for propulsion and notably involve the trunk and upper limbs.
C) To use the poles, the arm movement must be generous and coordinated with a longer stride, using a marked cross-body movement pattern.
D) On the other hand, there is an especially active function of the ankle and foot.
E) The use of the hands is also active, opening and closing alternately for control of the pole, facilitating venous and lymphatic drainage.
F) The angle of the poles on the surface will vary depending on speed and elevation changes.

THE SPECIFIC BENEFITS OF NORDIC WALKING REACH EVEN FURTHER THAN WHAT TRADITIONAL WALKING CAN OFFER

» cardiovascular risk factors, or autonomic neuropathy (7). For considerations regarding exercise practice to reduce health risks, another article previously published in this same journal can be consulted (https://www.revistadiabetes.org/estilos-de-vida/que-variables-tienen-que-controlar-las-personas-con-diabetes-para-realizar-ejercicios-seguros-y-eficaces/).

A personalized study of the initial health of those wishing to begin an activity should not be an obstacle if the many advantages of practice are considered. The specific benefits of Nordic walking have even more reach than those of regular walking: according to electromyography measurements, during Nordic walking, the body is used in a more complete manner than walking in terms of strength and endurance (including core, triceps, biceps brachii, and deltoid muscles in the arms; vastus lateralis, gastrocnemius, and tibialis anterior in the legs). Even applying the same effort, speed increases by 1 km/h when comparing Nordic to regular walking. Also, with the same effort, 50 more meters of elevation can be climbed; the range of joint mobility provided by Nordic walking is the opposite of the rigidity that accompanies regular walking when there are balance problems. Additionally, the extra support through the two poles is related to improved **dynamic balance** and **coordination**, with striking results, even in people with various conditions. Thanks to the use of poles, Nordic walking seems to improve **peripheral vascular disease** in its early stages, as well as the well-known »

» **intermittent claudication** (8). Depending on the speed and technique used, **the load on different regions of the feet and ankles seems to be lower**, potentially reducing the incidence of skin injuries during Nordic walking and even when walking after using the poles (9). It increases insulin sensitivity and improves **glycemic control**. The technical aspects of Nordic walking make it so that, although the perceived effort is not higher, the intensity of work and metabolic expenditure **increase with its practice, which affects weight loss and improves body composition** (10).

In general, training programs are scarce and are discontinued when hospital interventions end, as constant supervision would be excessively costly. People with diabetes, regardless of age or body mass index, could benefit from Nordic walking. The ideal scenario is to conduct a time-limited training program to acquire a healthy initial knowledge. It involves programming the volume and intensity of exercises so that they are adapted to each person, ensuring a satisfactory feeling. After this, it should be evaluated how to continue practicing the exercise: with more independence (though with periodic supervision from health care professionals), or with specialized help for perfecting technique for enjoyment or even for achieving more demanding goals. It is worth mentioning that there are national and international competitions in this sport, for which there are regulations and referees. In any case, when learning Nordic walking through a structured and supervised intervention, it is possible to enjoy autonomy to exercise outdoors. Practicing this sport allows for walking and enjoying the surroundings, whether urban or natural, socializing with companions if desired, while improving health and creating minimal environmental impact. D

CONCLUSIONS

Performing a motivating activity routinely and consistently over time is not easy. Nordic walking could be an interesting alternative since most of the population can access it, it can be done while enjoying the landscape and conversing with companions, though it also allows for physical and technical improvement to aspire to the competitive sports arena if desired. The benefits it provides for people with diabetes are promising and lead to higher metabolic expenditure than regular walking without requiring more effort in execution.

To achieve adherence to therapeutic recommendations on physical exercise, it may help if they provide a sense of self-efficacy after an achievable challenge. Perhaps a well-designed training program, at least initially supervised, could help extend the popularity of Nordic walking to more reluctant population sectors.

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