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Inclusive Karate: a new perspective to decrease sedentary lifestyle and increase self-confidence in Down Syndrome – IKONS

PROJECT DESCRIPTION

Down Syndrome is the most frequent of chromosomal disorders in the world.

As regards Europe, a study demonstrated a tendency to an increase of all trisomies responsible for DS development. Children and adolescents with DS have a range of physical problems and impairments that may affect their motor development. In fact, individuals with DS show poor motor coordination (Startin et al., 2016), lower postural stability (Blomqvist et al., 2013), lower muscle strength (Angelopoulou et al., 1999; Blomqvist et al., 2013; Horvat et al., 1999) and lower cognitive functions (Amemiya, 1982, Ghezzi et al., 2014). As a consequence, their inclusion in daily and leisure activities, as physical activity, is by far lower (Temple et al., 2006; Hutzler, 2013).

Chronic exposure to a low level of physical activity can lead to the symptoms of the “metabolic syndrome”. Because of this, it seems clear that the possibility of implementing practices that can increase the level of physical activity in this population is of primary importance.

For example, the practice of martial arts has been observed that may lead to widespread benefits to bodily functions. In particular, the practice of martial arts has been shown to produce beneficial effects on reaction time (Olsen and Hopkins 2003), muscle strength (Chabeene et al., 2012), postural stability and to ameliorate motor coordination (Baharami et al., 2012). Besides, karate has been also demonstrated to have a positive impact on neuro-cognitive, motivational and social aspects.

IKONS intends to exploit the special role that sport can play for people with DS as an important contribution towards social cohesion and more integrated societies, supporting the ‘sport for all’ principle by increasing people with DS participation in sport at non competitive level and paying special attention to social inclusion in sports of disadvantaged groups.

To encourage disabled people to take part in sport and physical activity, the project objectives are:

- to promote and improve social inclusion of DS individuals through karate practice using a new approach;
- to improve physical conditions (motor skills, coordination, cognitive function), and satisfaction in activities of daily life in DS individuals through inclusive karate courses;



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- to train karate coaches in the participating countries providing them with specific skills concerning the approach to be used in order to standardize the project approach and make it transferable and replicable also in other contexts and countries;
- to organize multiplier sport events open to the public to inform them about the content of the project and of other topics as the importance of physical activity for the maintenance of health status; the benefits of exercise to a Down Syndrome population.

PROJECT ACTIVITIES

Analysis of the local contexts through online surveys for families of individuals with DS and for EU Karate Federations

To have a clearer framework of the real number of DS individuals and on their actual situation in the EU as regards physical activity and/or sport participation of this population, two online surveys will be created: one, specific for European Karate Federations and Clubs, to understand how many DS athletes are affiliated, how they deal with athletes with DS, and what type of activities/competitions they take part in; another one to understand how families of DS individuals and DS individuals perceive the inclusion of physical activity in their daily living, what barriers they find in practicing regular sport/activity and if their activities are inclusive.

Definition of the training protocol and organisation of a “Train the trainers” course in Hasselt (Belgium) and its replication in each project country

A dedicated approach of adapted karate for DS individuals at the moment is not yet validated in Europe.

The general idea of the adapted activity is brain stimulation through a more correct use of breathing, moving, and use of pictograms, colors, drawings and symbols that have been specifically ideated by IKF I-karate GLOBAL (Belgium). This system has been tested, validated and successfully implemented with children with autism spectrum disorders as well as differing physical and mental disabilities and cognitive impairment. We will further tailor this approach to DS individuals, validate its use in this population, and demonstrate the efficacy and utility of adapted inclusive karate training courses to stimulate their integration via inclusive karate as part of their personal development.

To foster spreading the method throughout the involved countries, we have chosen the Train the trainers (TtT) approach due to its numerous benefits for participants: instead of relying on one individual to go through a lengthy training process, we can build a team of instructors and enablers so national training initiatives can benefit first hand. At the same time, we'll provide our enablers with tools concerning not only what to teach, but how to teach, thus continuing, ideally infinitely, the training cascade effect. Finally, this approach guarantees the sustainability of the action because materials produced for 1 course can be used, adapted and replicated in a cascade effect without further costs.



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Pilot action to validate and test the effectiveness of inclusive Karate training in DS individuals: Longitudinal Study

A longitudinal study design will be adopted and carried out to assess the effectiveness of inclusive karate training by recruiting groups of novice karate practitioners in Italy, Belgium, Romania, Austria, and Hungary and testing them, before and after 43 weeks of training according to the adapted inclusive karate training programme created. Male and female individuals with DS (age range: 15-40 yrs old) will be recruited to assess the effectiveness of the adapted karate intervention on cognitive and motor functions. Individuals with any form of neuromuscular pathology, any injury in the head, upper or lower limb in the six months preceding the test will be excluded from the study.