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**ABSTRACTS**

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**N-PP082****Topic:** *AS03. NUTRITION/AS03e. Nutrition other***EXERCISE IN NERVOUS SYSTEM DISEASES IS POSITIVELY ASSOCIATED TO GROWTH**

Andrea Foppiani<sup>1</sup>, Ramona De Amicis<sup>2</sup>, Luca Cavaggioni<sup>3</sup>, Alberto Battezzati<sup>1</sup>, Alessandro Leone<sup>2</sup>, Massimiliano Tosin<sup>4</sup>, Francesca Fedeli<sup>5</sup>, Simona Bertoli<sup>3</sup>

<sup>1</sup>Clinical Nutrition Unit, Department of Endocrine and Metabolic Diseases, IRCCS Istituto Auxologico Italiano, 20145 Milan, Italy, Milan, Italy, <sup>2</sup>International Center for the Assessment of Nutritional Status and the Development of Dietary Intervention Strategies (ICANS-DIS), Department of Food, Environmental and Nutritional Sciences (DeFENS), University of Milan, Milan, Italy, <sup>3</sup>Obesity Unit - Laboratory of Nutrition and Obesity Research, Department of Endocrine and Metabolic Diseases, IRCCS Istituto Auxologico Italiano, 20145, Milan, Milan, Italy, <sup>4</sup>Polha Varese non-profit association, Varese, Italy, <sup>5</sup>Fightthestroke Foundation ETS, Milan, Italy

**Objectives and Study:** Patients with nervous system diseases (PwNSDs) suffer from muscle weakness and fatigue, leading to high prevalence of physical inactivity and lower physical fitness [1]. Nutritional derangements are also highly prevalent[2], and the interplay between them, the reduced physical function, and the primary disorder, often manifest as reduced growth rates, with low weight, height, and body mass index (BMI) compared to healthy peers [3]. Exercise is now being prescribed to PwNSDs, in order to improve motor function and body composition.

**Methods:** We conducted a survey in PwNSDs involved in swimming and report data on their growth status and prevalence of gastrointestinal disorders. A total of 13 patients (8 (62%) females, aged 12.00 (9.00, 13.00) years) completed the survey. Of these, 4 (31%) were affected by a central NSDs, while 9 (69%) by a peripheral NSDs. Many (5 (38%)) were born preterm, and median BMI z-score was below the norm -0.31 (-0.52, 0.58).

**Results:** Their training frequency was 3.00 (2.00, 4.00) days/week, for 1.50 (1.00, 2.00) hours per session. Older patient could sustain an higher training volume (+0.68 (95% CI 0.16, 1.2; p=0.015)), and an higher training volume was associated with a better BMI z-score (+0.28 (95% CI 0.05, 0.51; p=0.024)). While in our sample an higher training volume did not reduce probability of being affected by swallowing, feeding, or constipation problems, the prevalence for these symptoms were lower than those found in the literature (5 (38%), 4 (31%), 3 (23%) respectively).

**Conclusions:** In conclusion, this data confirms the benefit of physical activity for PwNSDs, possibly highlighting a dose-response effect for growth parameters, and a threshold effect for gastrointestinal symptoms.

**Contact e-mail address:**