

**FEEDING ASSESSMENT OF CHILDREN WITH
NEUROLOGICAL DISORDERS WHO FOLLOW
UP IN PEDIATRIC NEUROLOGY CLINIC IN
AIN SHAMS UNIVERSITY**

Thesis

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in Pediatrics*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿وَأَنْزَلَ اللَّهُ عَلَيْكَ الْكِتَابَ وَالْحِكْمَةَ وَعَلَّمَكَ مَا لَمْ
تَكُن تَعْلَمُ وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا﴾

□□ صدق الله العظيم

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List of Abbreviations

AAN	American Academy of Neurology
AED	anti-epileptic drug
ARP	anti reflux procedure
BMI	Body mass index
CDC	ddd
CDG	congenital disorders of glycosylation
CMS	congenital myasthenic syndrome
CP	Cerebral palsy
CT	Computerized tomography
DMD	Duchenne muscular dystrophy
EEG	electroencephalographic
FTT	Failure to thrive
FVC	forced vital capacity
GERD	gastro-esophageal reflux disease
GI	Gastrointestinal
GMFCS	Gross motor function classification system
IGEs	idiopathic generalized epilepsies
ILAE	International League against Epilepsy
IQ	intelligence quotient
IV	Intravenous
JMG	juvenile myasthenia gravis
MD	Muscular dystrophies
MG	myasthenia gravis
MRI	magnetic resonance imaging
MRS	Magnetic resonance spectroscopy

List of Abbreviations (Cont...)

MRT	magnetic resonance tomography
mTOR	mammalian target of rapamycin
ND	neurodegenerative diseases
NMJ	neuromuscular junction
OPG	optic pathway glioma
PET	Positron emission tomography
RDA	Recommended dietary allowance
RDI	Recommended dietary intake
REE	Recommended energy expenditure
RNS	repetitive stimulation test
SMA	Spinal muscular atrophy
SPECTA	Single photon emission computerized tomography
TS	Tuberous sclerosis
VNS	Vagus Nerve Stimulation
WHO	World Health Organization

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ABSTRACT

Introduction: Children with cognitive and adaptive disabilities are at increased risk for developing feeding difficulties and secondary nutritional deficiencies. Problems such as poor oral-motor coordination, swallowing dysfunction, gastro esophageal reflux, and aversive feeding behaviors comprise significant obstacles to growth. **Aim of the work:** To assess the feeding pattern inneurologically impaired children and its effect on their growth. A cross-sectional study **Place of the study:** Pediatric Neurology Clinic and Outpatients Clinic, Children's Hospital, Faculty of Medicine, Ain Shams University. **Subjects:** 302 children aged from 6 months to 16 years divided into two groups **Group A (cases):** One hundred fifty one children with neurological disorders recruited from the Pediatric Neurology Clinic. **Results:** The current study showed that children with neurological disorders have longer feeding duration, cannot feed themselves yet, feeding problems are common (common problems are difficult swallowing followed by gagging then limited volume), lower frequency of bowel habits. Also, children with neurological disorders have impeded daily caloric intake required for their energy needs, resulting in a decrease of linear growth and a serious risk of malnutrition. Micro nutrients deficiency is common in younger children with neurological disorders. **Conclusion:** Nutritional assessments by height or length, weight, and BMI or weight-for-length may be sufficient to document adequate growth and nutrient intakes. Alternative anthropometric indices such as mid upper arm circumference, triceps skinfold thickness, can be used to evaluate nutritional status when accurate weight and height measurements are difficult to obtain. **Recommendations:** The results from this study suggest that Nutritional assessments may be performed at least annually in the older child with neurological disorders, and more frequently in the infant and toddler; height or length, weight, and BMI or weight-for-length may be sufficient to document adequate growth and nutrient intakes. Alternative anthropometric indices such as mid upper arm circumference, triceps skinfold thickness, can be used to evaluate nutritional status when accurate weight and height measurements are difficult to obtain. However further larger studies are needed to confirm the results.

Key words: cognitive, adaptive, disabilities, nutritional, neurological disorders, bowel, swallowing dysfunction

INTRODUCTION

At birth, the neural circuitry involved in co-ordinating sucking, swallowing and breathing is generally well developed. If swallowing is abnormal, it can not only lead to a decreased intake of milk, resulting in decreased nutrition, but potentially life threatening aspiration of milk into the lungs, leading to choking, respiratory or pulmonary complications (*Ramritu et al., 2003*).

Children with cognitive and adaptive disabilities are at increased risk for developing feeding difficulties and secondary nutritional deficiencies. Problems such as poor oral-motor coordination, swallowing dysfunction, gastro esophageal reflux, and aversive feeding behaviors comprise significant obstacles to growth (*Sullivan et al., 2000*).

The reasons for malnutrition are not only due to poor nutritional status such as inadequate intake, increased losses, altered metabolism and oromotor dysfunction but also non nutritional factors such as specific syndromes, endocrine dysfunction, immobility, spasticity (*Yakut et al., 2006*).

The incidence and the severity of malnutrition in neurological impaired children increase with the duration and the severity of neurological impairment (*Stevenson et al., 1994*).