



**THE STATE  
OF REHABILITATION  
IN ETHIOPIA:  
PROSPECTS AND DEVELOPMENTS**

# THE STATE OF REHABILITATION IN ETHIOPIA:

## PROSPECTS and DEVELOPMENTS

*Italian Cultural Institute, Addis Ababa, April 5, 2024*

With the High Patronage of **H.E. Agostino Palese** Ambassador of Italy in Ethiopia  
Supported by **Dr. Antonio Loiacono** President of GSI Italia (Group for International Solidarity)  
Chairman: **Dr. Silvano Lolli** Consultant for GSI activities in Ethiopia

## PROGRAM

### 9,30 1. MAP OF REHABILITATION AND PHYSIOTHERAPIC SERVICES IN GOVERNMENT AND PRIVATE HEALTH FACILITIES

**Getachew Azeze Eriku**, Lecturer of Physiotherapy, University of Gondar

**Belaynew Adugna**, Masters in Physiotherapy, Masters of Public Health, Senior Atlantic Fellow, Bahir Dar University

### 9,50 2. CLINICAL CASES: STATISTICS AND TREATMENTS GIVEN

**Wintana Mekonnen**, Tikur Anbessa Specialized Hospital Physiotherapy Unit, head

### 10,10 3. SURGERY-ORTHOPEDIC POST-TRAUMATIC REHABILITATION (RUPTURES, AMPUTATIONS). MAP OF THE HOSPITALS WHERE THEY ARE PERFORMED

**Biruk L. Wamisho**, Professor of Orthopaedics & Trauma Surgery, Chair of Department, SOM, CHS, Addis Ababa University (AAU), Consultant Orthopaedic Surgeon, Black-Lion Hospital (TASH)

### 10,30 4. REHABILITATION IN THE FUNCTIONAL DISABILITIES (GYM, PRODUCTION OF THE PROSTHESIES) MAHLET FEKADU

**Tikur Anbessa** Specialized Hospital Physical Rehabilitation Center, head

### 10,50 5. THE WHO GUIDELINES OF REHABILITATION

**Tamrat Kifle Hailemariam**, WHO national professional officer for rehabilitation in Addis

11,10 - 11,30 COFFEE BREAK

### 11,30 6. CURRENT AND ONCOMING PROGRAMS OF THE ETHIOPIAN MOH CONCERNING THE DEVELOPMENT OF THE REHABILITATION ACTIVITIES

**Ermias Mulatu Ameya**, head, Specialty and Rehabilitation services Desk at the Medical Services Lead Executive Office of the Ministry of Health

### 11,50 7. REHABILITATION: MODELS OF ORGANIZATION IN ITALY AND WHAT COULD BE DONE IN ETHIOPIA

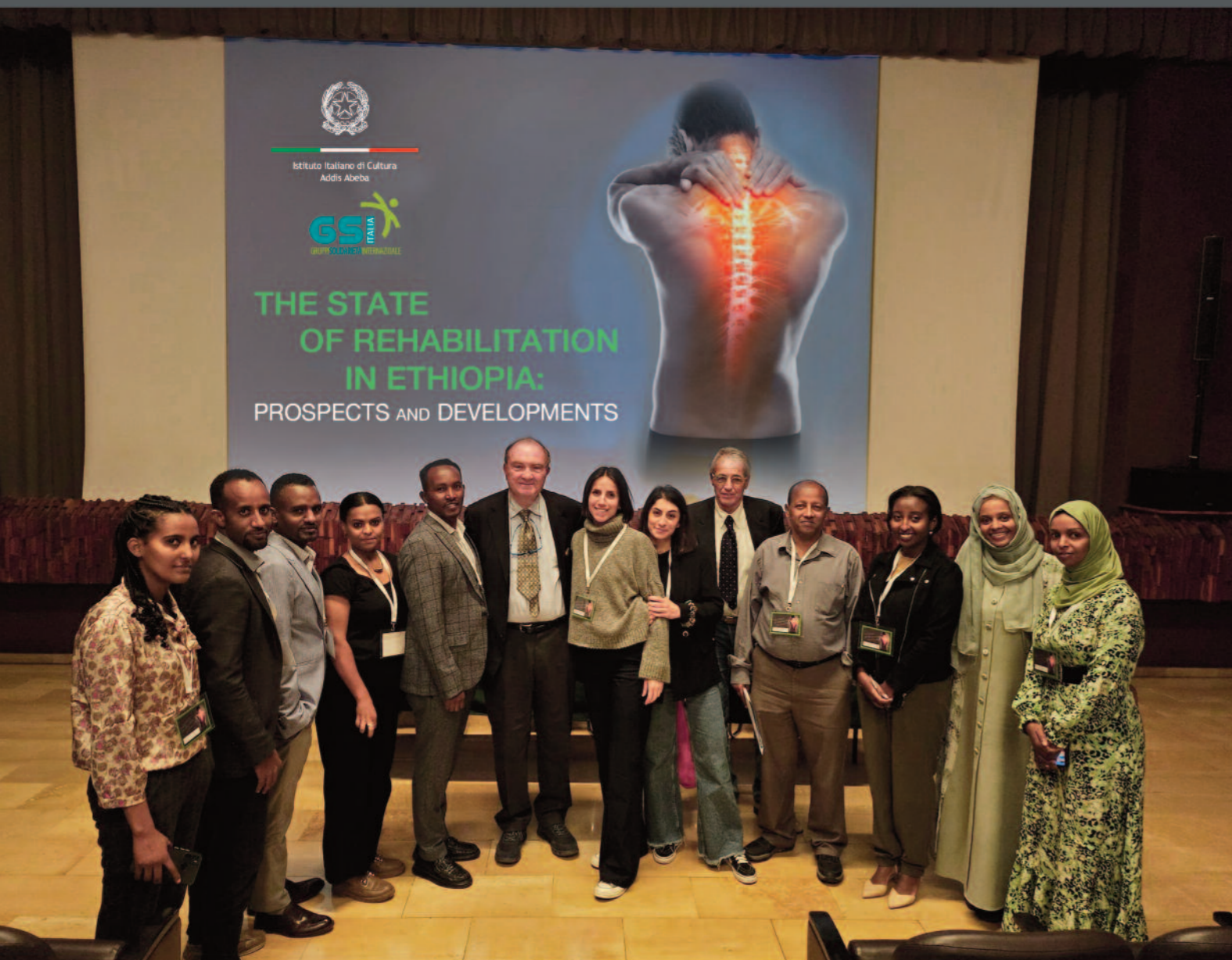
**Marco Franceschini**, Full Professor Physical Medicine and Rehabilitation - San Raffaele University, Rome, Research Director of Neuro-Rehabilitation Units - IRCCS San Raffaele Rome

### 12,10 8. SPEECH REHABILITATION (LOGOPAEDIA) IN CHILDREN

**Federica Orlandoni**, Master's degree in "Scienze Riabilitative delle Professioni Sanitarie" at the University of Medicine in Perugia

**Marianna Innocenti**, Master's degree in "Scienze Riabilitative delle Professioni Sanitarie" at the University of Medicine in Perugia

12,45 - 13,15 CONFERENCE DEBATE



Conference speakers





# REHABILITATION SERVICES IN ETHIOPIA: CURRENT SITUATION, REQUIREMENTS AND CHALLENGES

**Getachew Azeze** Lecturer of physiotherapy, University of Gondar

## Outlines

- Introduction to rehabilitation service
- Benefits of rehabilitation services
- Current situation of rehabilitation services in Ethiopia
- Requirements of enhancing rehabilitation services
- Challenges faced in providing rehabilitation service

## Rehabilitation services

- Rehabilitation is a fundamental health service for people with a wide range of health conditions, throughout all stages of the life course and during all phases of acute, sub-acute, and long-term care.
- Rehabilitation plays a crucial role in optimizing functioning and reduce disability
- Improve independence and quality of life
- Rehabilitation may be needed by anyone with a health condition who experiences difficulties in mobility, vision, hearing, speech, swallow or cognition
- Access to rehabilitation is vital for achieving UHC and sustainable development
- To support this the WHO recommends strengthening the health system and integrating rehabilitation

## Benefits of rehabilitation

- Reduce the impact of a broad range of health conditions (diseases, illnesses or injuries)
- It complements other health interventions, such as medical and surgical interventions
  - To facilitate recovery and achieve the best outcome possible
- To prevent, reduce or manage complications
- Rehabilitation is an investment with cost benefits for both individuals and society
  - Reduce costly hospitalization, and length of stay, prevent re-admissions
  - Enable individuals to engage in or return to work, promoting independence at home
  - Minimize the need for financial or caregiver support
- Despite the importance of rehabilitation, access remains inadequate in Ethiopia

## Current situation of rehabilitation services in Ethiopia

### In Ethiopia, there is an increase of

- Incidence of injuries and trauma due to wars, violent and work- related injuries
- Chronic non communicable disease (shift from communicable to non communicable)
- Aging (life expectancy)

### Increase the burden of disability in the country

- Increase the needs of disability

### The alarming disparity between the public and private sectors across healthcare sectors in the country

### Lead inequitable access to healthcare, those who can afford private care some of the best available care

- In Africa, only an estimated 1% to 2% of people needing rehabilitation gain access to service
- On average, many African countries have fewer than 0.5 rehabilitation professionals per 10,000 people
- Approximately 50 % of people with disabilities are unable to afford care
- According to the evidence from the Ethiopian physiotherapy association and world confederation of physiotherapy in 2022
  - Number of practicing physiotherapist per 10, 000 population in 2022 is 0.05 which lower than the Average number of practicing physiotherapist per 10, 000 in Africa in 2022 is 0.23
  - In 2022, Ethiopia had 0.21 entry-level education programs per 5 million population, lower than the African average of 0.47.

## Higher education institutions

HEI	Programs and services
UOG	Physiotherapy and occupational therapy
BDU	Physiotherapy
MU	Physiotherapy
JU	Physiotherapy
Military force university	Physiotherapy

## Rehabilitation services in public hospitals

- In addition to the higher education hospitals, also referral hospitals but not limited, the
  - Black Lion (AA)
  - St. Paul (AA)
  - Felege Hiwot Referral Hospital (Amhara)
  - Dessie Referral Hospital (Amhara)
  - Debre Birhan Referral Hospital (Amhara), and
  - Debre Markos (Amhara), but the services are limited to physiotherapy services.

## Rehabilitation services in centers

Physical rehabilitation centers	Service
1. Arba minch - 2. Asella	- Prosthesis
3. Asossa - 4. Bahir dar	- Orthosis
5. Black lion - 6. Cure hospital	- Wheelchairs and supportive seating
7. Dessie - 8. Dire Dawa	- Walking, postural and functional aids
9. EPOS - 10. Hawassa	- Orthopedic surgery (for children), cure hospital
11. Jijiga - 12. Mekele	
13. Menagesha - 14. Nekemete	

## Challenges in providing rehabilitation service

- Lack of trained rehabilitation professionals/specialists
  - There is a significant gap between the requirements and the available service
- Rehabilitation services are not well integrated into the healthcare system
  - The services are limited in referral hospitals , NGOs and private clinics
- Only physiotherapy services are available in those hospitals that are providing rehabilitation service
- The services are mainly concentrated in Addis Ababa both in public and private organizations
- The number of students produced from higher education institutions per year is not sufficient to meet the country's needs
- Many existing programs are substandard due to infrastructure
- The assistive technology provision is donor driven and does not meet the needs of the users



Atlantic Fellows | FOR HEALTH EQUITY

## MAPPING ACTION OF PHYSIOTHERAPY FACILITIES IN ETHIOPIA

Belaynew Adugna, MPT, MPH - Senior Atlantic Fellow Bahir Dar University

### Outline

- Rational
- Introduction
- Actors involved
- Drivers of rehabilitation

### Why rehabilitation today?

- Disability is a probability for all but possibility for some
- Disability Vs Poverty is a vicious circle
- Triple-burden (may be more)
- Beyond survival (improved maternal and child mortality)
- Universal health coverage (without rehabilitation)
- It is time to shift from "Intention to Action" in rehabilitation
- No single driver stands by itself in reality

### Introduction

- Physiotherapy plays a crucial role in **restoring** and enhancing the physical function and **mobility** of individuals who have experienced injuries, illnesses, or disabilities.
- Importance of physiotherapy rehabilitation:
  - Restoration of Functionality
  - Pain Management
  - Prevention of further injury
  - Enhancing Independence
  - Rehabilitation Across Age Groups
  - Post-Surgical Recovery
  - Chronic Disease Management

## Increasing rehabilitation demand

- Rehabilitation is one of the **fundamental** health services people need at least once during their **lifetime**.
- In Ethiopia, there is a rapid increase on the demand for rehabilitation services in an **increasing rate**
  - The **rise** in the prevalence of **NCD** and **sensory impairments**
  - The burden from **neglected tropical diseases**
  - The surge in **RTA**
  - The **aging** population
  - The **congenital anomalies** and
  - The **injuries** and **disabilities** associated with the recent **civil war** in many parts of the country are anticipated to **escalate the rehabilitation need** in the country.

## Entities involved

Here are various entities involved in Ethiopia:

- Ministry of Health
- Hospitals (secondary and above) both private and government
- Universities (4 in the country)
- Physical Rehabilitation Centers (13 PRC + EPOS)
- Physiotherapy specialty clinics (majority in Addis)
- NGOs (most of them are under MOLSA)
- Professional associations

## Professionals involved

Here are various professionals involved in Ethiopia:

- **Physiotherapists**
  - It has 40 years of professional walk but we have a long way to hit the health equity of the nation
  - As of now we have 4 universities in the country producing nearly 100 PTs in a year
  - Keeping all factors constant, we need 1,200 years for population to PT proportion
- **Occupational Therapists** (only 1 university and 5 OTs in the country)
- **Chiropractors** (very few from abroad)
- **Speech-Language Pathologists** (AAU has currently started training)
- **P&O and Assistive Technology Specialists** (currently no training)
- **Others** (Orthopedic surgeons, Neurosurgeons, Neurologists, Plastic surgeons...)
- **Traditional healers** (with their own advantage and disadvantages)

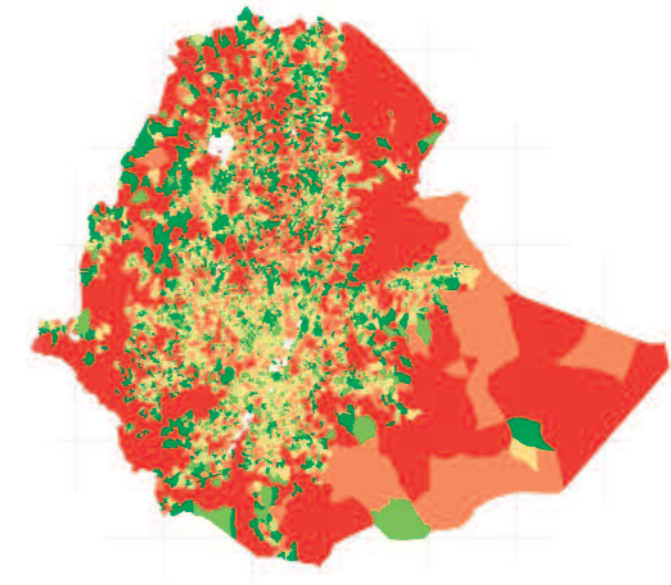
## Drivers of rehabilitation

### Accessibility

- Health facilities
  - In sub-Saharan Africa, at least one-sixth of the population lives more than 2 h away from a public hospital. (Falchetta et.al. 2020)
  - In Ethiopia, approximately 18% of the country did not have access to a public health care facility within a 2 h walk. (Hendrix et al. 2023)
- Physiotherapy accessibility is more than a **day**
- Assistive devices
- Professionals
- Health bureau structure

### Access Score Quintile

- No Access
- Very Poor Access
- Poor Access
- Moderate Access
- Good Access
- Best Access



*Sample patients in my o.p.d.*

*What is your suggestion on the root cause of this condition?*

Education! Poverty! Accessibility !





Accessibility?  
Education?  
Poverty?

History of Surafel. A SCI pt. from Demebecha visited 11 hospitals and clinics seeking for help before he reached to me.



Poverty?

- Poverty (27 % in 2021) (World bank)
- Education/ Awareness
- Access

Temesgen a bullet injury patient with bed sore. Referred to advanced surgery but couldn't afford



Infrastructure? Poverty? Access?



"Kareza" a traditional ambulance in Ethiopia

Challenges of Rehabilitation Facilities

1. Limited focus for rehabilitation (*intention to action*)
2. Limited Access to Services (*leading to disparities in healthcare access*)
3. Workforce Shortages (*missing rehab professionals*)
4. Financial Constraints (*zero plan, zero budget and zero report*)
5. Technological Barriers
6. Lack of multidisciplinary team approach (*lead to fragmented care*)
7. Patient Compliance and Adherence

Opportunities for Improvement or Expansion:

- Telehealth Services: (*broader audience, underserved areas, remote consultations and follow-ups*)
- Training and Workforce Development
- Public-Private Partnerships (*create synergies to address financial constraints*)
- Utilizing Technology (*virtual reality can enhance the efficiency and effectiveness*)
- Patient-Centric Approaches (*improve patient compliance and satisfaction*)
- Integration with Primary Care (*seamless continuum of care*)

Future Trends

- Emerging trends in physiotherapy are **not emerging in Ethiopia**
  1. Telehealth and Virtual Rehabilitation
  2. Wearable Technology
  3. Virtual Reality (VR) and Augmented Reality (AR)
  4. Robotics-Assisted Rehabilitation
  5. Biofeedback and Neurofeedback
  6. Home-Based Rehabilitation Programs

## Recommendations (STARS assessment)

- Establish strong rehabilitation and AT leadership and planning
- Ensure adequate financing for rehabilitation and AT in each level of the health system
- Improve the number, type, and quality of rehabilitation professionals to expand availability of services
- Improve health facilities infrastructure and availability of rehabilitation equipment
- Improve rehabilitation documentation, reporting and review to measure performance
- Expand access and coverage of rehabilitation and AT services
- Improve the acceptability of rehabilitation services by the community, general health workers, and political leaders
- Improve the quality of rehabilitation and AT services
- Utilize the momentum and attention towards rehabilitating the casualties of the conflict

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## PHYSIOTHERAPY PRACTICES IN TIKUR ANBESSA HOSPITAL: A COMPREHENSIVE OVERVIEW

Dr. Wintana Mekonnen, Tikur Anbessa Specialized Hospital Physiotherapy Unit, head

### Background of PT Education in Ethiopia

- Initiated in the 1960s by foreign Physiotherapists(PT)
- First formal Bachelor of Science (Bsc) degree introduced in 2002 at University of Gondar
- Master of Science (Msc) programs launched in 2009 and 2016 at University of Gondar and Mekelle University
- Doctor of physiotherapy (DPT )program initiated in 2014 at Addis Ababa University

### Physiotherapy practice in Ethiopia

- The PT profession in Ethiopia is relatively new
- Approximately 700 BSc, 42 MSc, and 16 DPTs
- Insufficient numbers for a population of 127,500,000
- Number of PTs per 1,000,000 population = 5.5

### Practice at TASH

- Facility with 680 beds, offering 45 subspecialties and specialties
- Estimated annual population served: 5 million
- Last year saw 831,685 outpatients and admitted 19,762 inpatients, totaling 8,330,447 patients

### Physiotherapy in Tikur Anbessa Specialized Hospital (TASH)

- Established new outpatient rehabilitation services in 2007
- Well-equipped outpatient physiotherapy center
- Initially had 23 physiotherapists, currently has 13 (5 DPTs and 8 BSc)



### Physiotherapy practice at TASH

- Primarily outpatient services
- New patients last year: 2,061 adults and 687 pediatric
- Total new patients: 2,748
- Follow-up patients seen: 20,610 adults and 6,870 pediatric
- Total follow-up patients seen: 27,480
- No inpatients

### Common Patients' Cases Seen at PT OPD

- Musculoskeletal (55%), Neurology (18%), Pediatric (25%), and Others (2%)
- Musculoskeletal cases: LBP, Knee OA, Neck pain, Shoulder pain
- Neurology cases: Stroke, GBS, TBI, MS, SCI
- Pediatric cases: CP, Torticollis, Down syndrome, Elbow stiffness
- Other cases : vestibular, Hemophilia, Rheumatoid

### Challenges of Physiotherapy Practice at TASH

- Lack of multidisciplinary team (MDT) collaboration
- Inadequate number of PTs
- Limited Continuing Professional Development (CPD) opportunities
- Absence of specialty areas and educational career pathways
- No documented national standards or guidelines for practice
- Insufficient functional equipment for electrotherapy and exercise therapy

### Recommendations for Improvement

- Increase the number of physiotherapists
- Provide CPD opportunities for skill enhancement
- Introduce specialty areas within physiotherapy practice
- Implement a multidisciplinary team approach for comprehensive care
- Enhance technology integration for improved patient outcomes
- Emphasize adherence to quality standards, research, and innovation in practice
- Open physiotherapy school

## REHABILITATION 2030

Tamrat Kifle Hailemariam, WHO national professional officer for rehabilitation in Addis

### WHO Resolution, Initiative and Technical Tools on rehabilitation

The 76th World Health Assembly (WHA) resolution on rehabilitation.



**Recommendations:** Strengthening rehabilitation in health systems



**The Rehabilitation 2030 initiative** was launched in February 2017 and introduced a 'call for action', rallying stakeholder towards concerted and coordinated global action to scale up rehabilitation. In order to achieve this, 10 priority areas for action were identified:

1. Creating strong leadership and political support
2. Strengthening rehabilitation planning and implementation
3. Improving integration of rehabilitation into the health sector and strengthening intersectoral links.
4. Incorporating rehabilitation in UHC.

### Ethiopia's Achievements

#### Integration of rehabilitation into health sector:

Rehabilitation services included in MOHs health service strengthening guidelines, standards and roadmaps such as 10-year national specialty and sub specialty roadmaps, Regulatory standards for health facilities, Ethiopian health service improvement guideline and Health service transformation plan 2.

#### Creation of leadership structure:

The leadership structure for rehabilitation services has been established at the national level in Ethiopia. This initiative has received strong support from the Prime Minister, who has endorsed the creation of the Ethiopian Prosthesis and Orthosis Service. Additionally, a significant number of regions across Ethiopia have also developed their own structures for rehabilitation service coordination.

#### Development & Implementation of National Strategy:

A five year national rehabilitation and assistive technology strategic plan (2021-2025) developed and cascaded to two regions. Currently in year four of implementation.

#### Integration of rehabilitation into PHC:

The Technical Working Group (TWG) responsible for the integration of rehabilitation into primary



5. Building comprehensive rehabilitation service delivery models.
6. Developing a strong multidisciplinary rehabilitation workforce.
7. Expanding financing for rehabilitation.
8. Collecting information relevant to rehabilitation
9. Building research capacity and expanding the availability of robust evidence for rehabilitation.
10. Establishing and strengthening networks and partnerships in rehabilitation

health care is currently in the process of selecting interventions from the basic packages of interventions for primary health care developed by the World Health Organization (WHO). This collaborative effort aims to identify and incorporate appropriate rehabilitation interventions into the existing primary health care framework. By leveraging the expertise and guidance provided by the WHO, the TWG is working towards ensuring that rehabilitation services are seamlessly integrated into primary health care settings, thereby improving access to comprehensive and inclusive care for individuals in need.

**National guidelines on rehabilitation service delivery:**

A comprehensive guideline has been developed to provide recommendations for rehabilitation service providers. This guideline emphasizes the importance of offering a comprehensive range of rehabilitation services, including physical, mental, sensory, and cognitive rehabilitation. By following these guidelines, service providers are encouraged to deliver holistic care that addresses the diverse needs of individuals requiring rehabilitation.



**Rehabilitation Guide for Action (RGA)** is a resource which leads governments through a four-phase process of (1) situation assessment; (2) strategic planning; (3) development of monitoring, evaluation and review processes; and (4) implementation of the strategic plan.

The five-year national rehabilitation and assistive technology strategy has been developed following the four phases indicated in the 'Rehabilitation in Health System Guide for Action,' and it is currently under implementation. The strategy contains five strategic objectives focused on improving access to comprehensive rehabilitation and assistive technology, enhancing rehabilitation workforce, improving the rehabilitation work with stakeholders and partners.

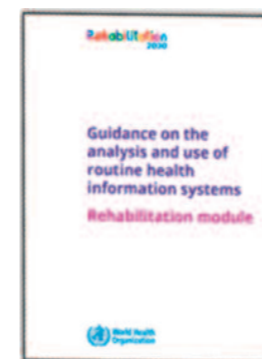
**Policy brief** outlines the evidence for rehabilitation in emergencies and the need for greater preparedness of rehabilitation services. It shows how existing guidelines support the integration of rehabilitation in emergencies and sets out the steps that decision-makers can take to better integrate rehabilitation into health emergency preparedness and response.

A concept note has been developed on the integration of rehabilitation in health emergency preparedness, readiness, response, and resilience. It was discussed between the WHO country office and the existing Emergency Medical Team, and points were agreed upon. An action plan has been developed.



**The Guide for rehabilitation workforce evaluation (GROWE)** is a set of resources that can be used to support workforce planning and development in countries.

The rehabilitation human resource projection at the Ministry of Health (MOH) includes rehabilitation workforce projection and the development of a curriculum to educate professionals in prosthesis and orthosis. Support has been provided for these initiatives.



**DHIS2 Rehabilitation module** supports the integration of rehabilitation into health facility reporting and the analysis of collected data through a standard set of indicators and considerations for their interpretation and use

Country selected six indicators for integration into routine health information systems. The selected rehabilitation indicators have been included in DHIS2. Training has been provided for rehabilitation personnel, as well as data encoders and analysts, on how to use the DHIS2 platform. Data collection is underway with intention to expand to other facilities in the near future.



### The Package of Interventions for Rehabilitation (PIR)

outlines the most essential interventions for rehabilitation for 20 health conditions that have high prevalence and high levels of

associated disability across seven disease areas.

Currently, the Ethiopian Ministry of Health, in collaboration with the WHO country office, is working on the integration of rehabilitation into primary health care. This involves utilizing the package of interventions for rehabilitation and contextualizing it to the country's human resource and health facilities readiness situation.



### Rehabilitation in Health Financing

resource addresses the knowledge gap in; revenue collection, pooling & purchasing practices by considering the unique features of rehabilitation. Further,

it offers practical ways of exploring current practices for financing of rehabilitation services, framing major challenges and opportunities, and offering guidance to decision-makers engaged in strengthening rehabilitation within health systems.

An annual budget has been allocated for the National Rehabilitation Coordinating Team, demonstrating the commitment to ensuring effective coordination and implementation of rehabilitation services at the national level. Furthermore, regional bureau finances are also allocating budgets for rehabilitation centers in their respective regions, highlighting the decentralization of resources and the recognition of the importance of regional support for rehabilitation initiatives. The Additionally, the Ministry of Health (MOH) is actively collaborating with the Ministry of Finance to facilitate the duty-free importation of assistive technologies. This joint effort aims to reduce barriers and make assistive technologies more accessible for individuals in need.

## MODEL: REHABILITATION IN ITALY PROSPECTIVES FOR ACTIVITIES IN ETHIOPIA

Marco Franceschini IRCCS San Raffaele Roma - Università San Raffaele Roma



### Road Map

- Rehabilitation: General Concepts
- Rehabilitation setting in Italy
- Rehabilitation: Critical Point in Ethiopian Model

### Rehabilitation: General Concepts

#### Mission of rehabilitation

Process of solving problems and education during which the patient with disabilities is brought to reach the best possible level of life on the physical, functional, social and emotional level with the least possible restriction of his operating choices even within the limits of his impairment and the quantity and quality of available resources.



## Physical and Medicine Rehabilitation - Centrality of the patient

### Medical Model

The classical and traditional medical model of medicine bases its action on a concept of the disease that can be represented as follows:

Etiology → Pathology → Symptomatology

### Criticality of the medical model

- Reduction of the person to his pathology and his deficit
- It excludes the relational dimension from the existential experience of the person in his interaction in his own life contexts

### International Classification of Impairment, Disabilities and Handicaps (ICIDH)

- Introduces the consequence of a pathological or chronic state
- Illness → Impairment → Disability → Handicap
- The damage to the functions of an organ caused by an illness produces disabilities in the person

### ICIDH example



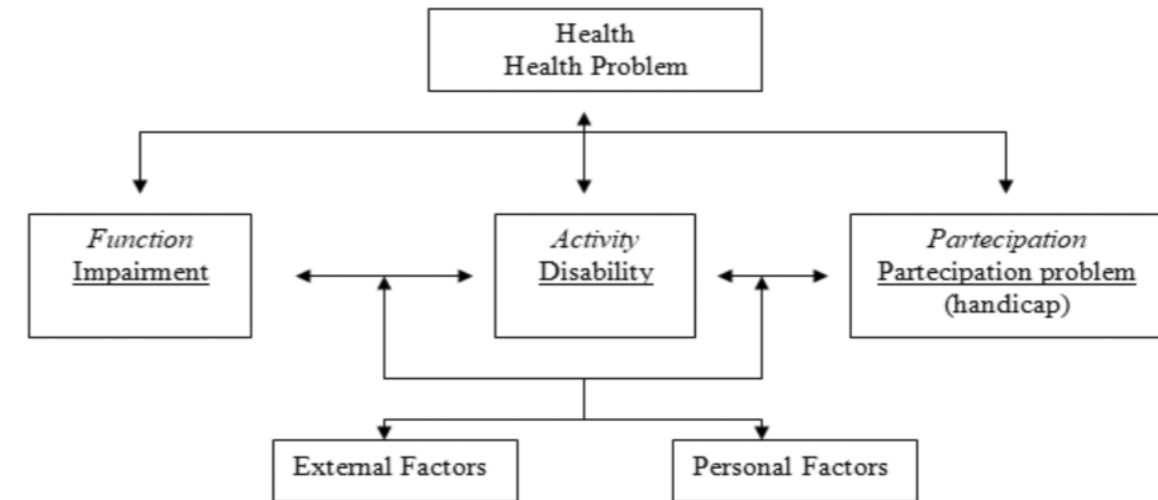
Impairment

Disability

Handicap

Example: a person with amputation (impairment) who is not able to walk independently (disability) succeeds by using a wheelchair to make movements. The use of the aid has in fact reduced the disability (obviously not the impairment) but if the subject meets, in the path that leads him in social environments, barriers and limitations the same cannot relate and therefore this involves handicap.

## International Classification of Functioning, Disability and Health



### Rehabilitation Process

- Rehabilitation takes place as a **continuous and global** process from acute phase to return home:
  - develop or restore the person's ability to perform a normal activity and the widest independence and optimal participation in social and economic life.
- It includes two principles:
  - The active participation of the person concerned in their rehabilitation
  - The duty of society to adapt to the specific needs of disabled people

### Rehabilitation setting in Italy

### Chronological phases of rehabilitation

- In a chronological sense, the first stage of rehabilitation takes place at the same time as the impairment occurs and, therefore, either in the acute phase of illness or in the ascertainment of a congenital or chronic pathology.
- The second stage of rehabilitation starts as soon as the acute phase of the illness has passed, as a result of the disabilities remaining. It concerns the post-acute phase and concerns both hospital and non-hospital rehabilitation facilities, regardless of their legal status (public or private)
- The third stage of rehabilitation requires less systematic health interventions and, therefore, also practicable in terms of outpatient treatment, aimed at maintaining functional autonomy achieved by the subject and prevention of possible further involutions.

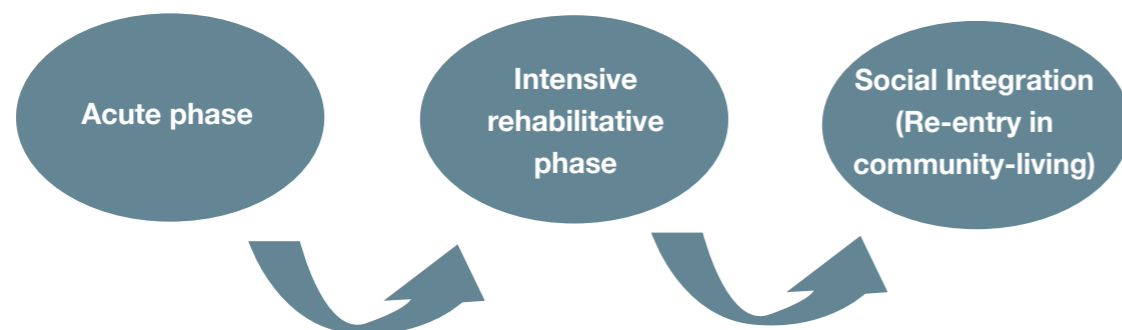
## Organizational Levels

- First-level rehabilitation facilities (extensive rehabilitation)
  - Assisted Healthcare Facilities
  - Long-term hospital facilities
  - Residential structures
  - Outpatient facilities
- Second-level rehabilitation facilities (intensive rehabilitation)
  - Hospital facilities
  - Rehabilitation hospitals
  - Extra hospital units
- Third level rehabilitation facilities (intensive specialty rehabilitation)
  - Spinal Cord Unit
  - Unit for the rehabilitation of severe brain-injured patients

**Emergency Department: early rehabilitative presence**

**Intensive and early Rehabilitative assessment and treatment**

## Early process – Continuity - Globality



## Multidisciplinary Team

**Overlapping Neuro-Surgery/Orthopedic/Intensive-Care Culture with Rehabilitative Philosophy**

### Team

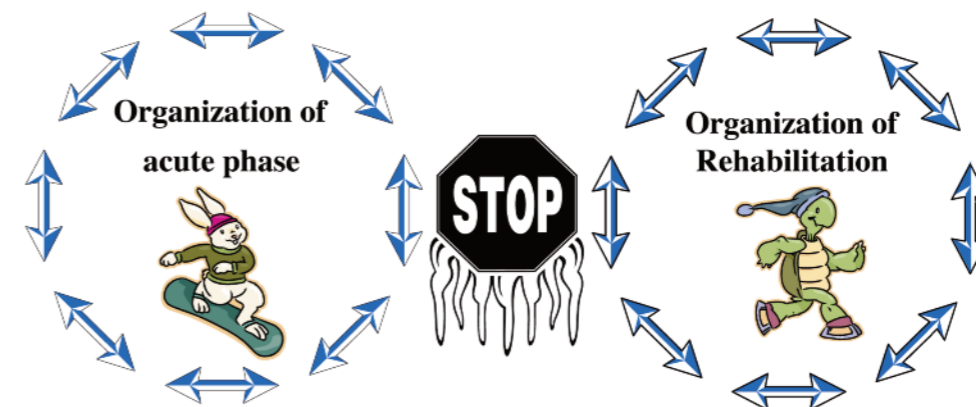
- |                             |                          |
|-----------------------------|--------------------------|
| ● Neuro-Surgeon             | ● Physiatrist            |
| ● Orthopedic                | ● Physiotherapist        |
| ● Intensive Care Specialist | ● Speech Therapist       |
| ● Neurologist               | ● Occupational Therapist |
| ● Head Nurses               | ● Social Worker          |
| ● Nurses                    | ● Psychologist           |
|                             | ● Caregiver              |

## Critical Aspects

### Criticism

- Early rehabilitative presence by the Rehabilitative Team as soon as possible after the admission in hospital (max 48h./96h.)
- Treatment beginning at the bed of the patient
- In the case where it is not strict rehabilitative indication it needs to activate a rehabilitative nursing
- Early transfer to specialist rehabilitation facilities when necessary
- Differently the treatment in some patients could be activated as outpatients

### Risks





## Fundamental aspect

- Correct and homogeneous assessment of the patient
  - Needs the right rehabilitative diagnosis and prognosis  
*The best choice for the clinical aspect of each patient*
- Precise system of control for the organization in all phases

### Central role of the Rehabilitative Team:

#### Early Management of Patients

#### Critical Point in the System of Ethiopian Model

### What do we mean by early management of patients?

- To evaluate patient early after the admission in Hospital
  - Maximum 48/96 h. from admission
  - Daily presence in the next few days
- To include the participation of the eventual different components of the rehabilitative team.
  - Constant interaction with the team during acute phase

### New model

- To coordinate all the steps in acute phase
- To conduct the rehabilitative process in every phase



### Objectives

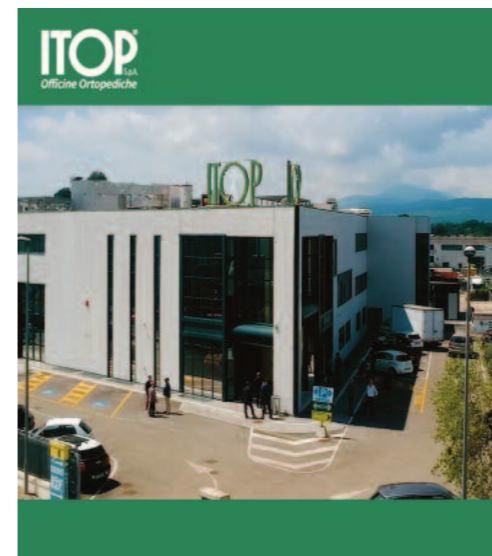
- Prevention of motor and joint complications (Secondary Impairment )
- Prevention of pressure sores
- .....
- As same time the treatment for the recovery of primary impairment (strictly connected to the pathological event) must begin



An essential aspect to guarantee this would be the presence within the Acute Hospital of an area, even a small one, with dedicated beds for Rehabilitation (Rehabilitation Unit)

### Conclusions and Future Developments

#### Amputation and Rehabilitation: Preparation of a Prosthesis



#### Production process



#### PATIENT INFO

Age

Weight (Kg)

Gender  M  F

Amputation Level  TF  TT

Amputation Side  R  L

Foot length (cm)

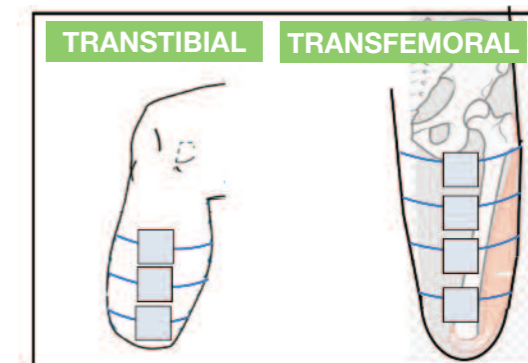
Ischio- floor (cm)

Knee - floor (cm)

Stump lenght (cm)

(from ischio TF/form kneeTT)

#### MEASUREMENT



**TRANSTIBIAL**



**TRANSFEMORA**



**Continuous training for teachers of the degree Course in Addis Ababa (Lions Hospital)**

- Intensive training by a high level centre in Italy
- Presence of an expert physiotherapist at the Lions Hospital for at least 3 months to support the physiotherapists teaching the course during the practical lessons



**REHABILITATION IN HEALTH SYSTEM: SPEECH AND LANGUAGE THERAPY**

Federica Orlandoni Master's degree in "Scienze Riabilitative delle Professioni Sanitarie" at the University of Medicine in Perugia, UNIVPM (Università degli Studi di Perugia)

**Abstract**

This dissertation examines the crucial role of speech and language therapy in health system rehabilitation, highlighting its multidisciplinary nature and alignment with the International Classification of Functioning, Disability, and Health (ICF) framework. It analyses health conditions, contextual factors, and the diverse domains of speech-language pathology service delivery. Additionally, it explores the broader impact of speech therapy beyond traditional perspectives. Through the examination of the TOM approach (a kind of speech and language therapy) incorporating individual experiences and case studies, it underscores its significance in enhancing vital functions and overall quality of life. Finally, the dissertation reflects on the challenges and future opportunities within speech and language therapy in rehabilitation.

**Introduction**

The introduction provides an overview of the importance of rehabilitation in health systems and introduces speech and language therapy as a focal point. It highlights the interdisciplinary nature of speech therapy and its essential role in rehabilitation. The speech and language pathology, as a discipline, is included within the International Classification of Functioning, Disability, and Health (ICF), a comprehensive health classification system established by the World Health Organization (WHO, 2014). This system offers a standardized language and framework for describing functioning and health. The ICF framework is valuable in delineating the breadth of the speech-language pathologist's (SLP) role in preventing, assessing, and rehabilitating communication and swallowing disorders, as well as advancing scientific investigation in these areas. The framework consists of two components: health conditions and contextual factors. Speech and language therapy, integral to the ICF framework, involves prevention, assessment, treatment, and education regarding communication and swallowing disorders. The WHO endorsed ICF model provides a comprehensive classification system for describing individual's functioning and health. This dissertation examines the integration of speech and language therapy within the ICF framework, highlighting its significance in health rehabilitation.



The framework encompasses health conditions and contextual factors.

Health Conditions:

- Body Functions and Structures: these involve the anatomy and physiology of the human body. Examples in speech-language pathology include craniofacial anomalies, vocal fold paralysis, cerebral palsy, stuttering, and language impairment.
- Activity and Participation: activity refers to the execution of a task or action, while participation denotes involvement in life situations. Examples in speech-language pathology encompass difficulties with safe swallowing for independent feeding, active participation in class, understanding medical prescriptions, and accessing the general education curriculum.

Contextual Factors:

- Environmental Factors: these encompass the physical, social, and attitudinal environments in which individuals live and conduct their lives. Examples in speech-language pathology include the role of communication partners in augmentative and alternative communication (AAC), the influence of classroom acoustics on communication, and the impact of institutional dining environments on individual's ability to safely maintain nutrition and hydration.
- Personal Factors: these are internal influences on an individual's functioning and disability that are not part of the health condition. Examples in speech-language pathology may include age, gender, ethnicity, educational level, social background, and profession. Personal factors might also include an individual's background or culture if they influence their reaction to communication or swallowing.

The framework of speech-language pathology considers both health conditions and contextual factors across different populations. Figure 1 depicts how these components interact within the International Classification of Functioning, Disability, and Health (ICF). Health conditions are depicted on a continuum of functioning, ranging from intact to completely compromised. Contextual factors interact with both health conditions and each other, acting as facilitators or barriers to functioning. Speech-language pathologists (SLPs) influence contextual factors through education and advocacy efforts at various levels, including local, state, and national levels.

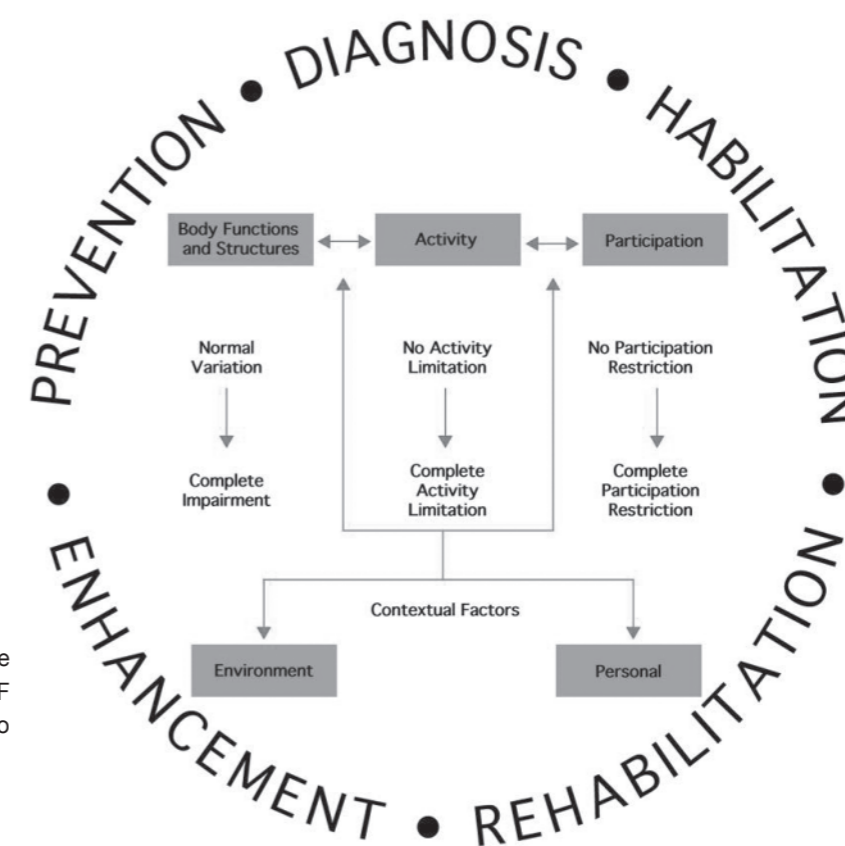


Figure 1. The interaction of the various components of the ICF model. This model applies to individuals and groups.

## Speech and language therapy: a multidisciplinary science

Speech and language therapy (SLT) is a multidisciplinary science that interacts with medical, linguistic, educational, and psychological disciplines. It encompasses assessment (including screening, identification, evaluation, and diagnosis), and intervention (including promotion, prevention, counselling, treatment, consultation, management, rehabilitation, and education) of communication and swallowing disorders. SLT focuses on human communication and swallowing processes, development and disorders, including the description, assessment, and treatment of voice, speech, language, and swallowing disorders. Human communication involves comprehension and production of oral and written language, as well as non-verbal communication. SLT addresses linguistic levels such as phonology (sound), lexicon (words), grammar (sentences), semantics (meaning), including vocabulary and word knowledge, and pragmatics (language function/use). The American Speech-Language-Hearing Association (ASHA) defines speech-language pathologists as professionals who engage in communication and swallowing practices across the lifespan.

Communication and swallowing disorders are central to the work of speech-language pathologists (SLPs). These areas are defined below:



- Communication: SLPs assist clients with language, cognition, fluency, resonance, and hearing.
- Swallowing: SLPs address all aspects of swallowing, including feeding and related behaviors.

ASHA categorizes SLP service delivery into the following areas:

1. Counselling and prevention
2. Screening, assessment, and treatment
3. Training and education

So the speech-language pathologist or speech-language therapist work to prevent, assess, diagnose, and treat speech, language, social communication, cognitive-communication, and swallowing disorders across all age groups.

Here is an overview of these disorders:

- Speech disorders: difficulty producing speech sounds correctly or fluently, voice problems, or resonance issues. Speech disorders occur when a person has difficulty producing speech sounds correctly or fluently (e.g., stuttering is a form of disfluency) or has problems with his or her voice or resonance.
- Language disorders: trouble understanding others (receptive language) or sharing thoughts, ideas, and feelings (expressive language). Language disorders may involve phonology, morphology, syntax, semantics, and pragmatics. Language disorders occur when a person has trouble understanding others (receptive language), or sharing thoughts, ideas, and feelings (expressive language). Language disorders may be spoken or written and may involve the form (phonology, morphology, syntax), content (semantics), and/or use (pragmatics) of language in functional and socially appropriate ways.
- Social communication disorders: difficulty with the social use of verbal and nonverbal communication, including challenges in social interactions, conversation, and storytelling. Often associated with autism spectrum disorder or other conditions like traumatic brain injury. Social communication disorders occur when a person has trouble with the social use of verbal and nonverbal communication. These disorders may include problems (a) communicating for social purposes (e.g., greeting, commenting, asking questions), (b) talking in different ways to suit the listener and setting, and (c) following rules for conversation and story-telling. All individuals with autism spectrum disorder have social communication problems. Social communication disorders are also found in individuals with other conditions, such as traumatic brain injury.
- Cognitive-communication disorders: problems with organizing thoughts, attention, memory, planning, or problem-solving. Typically occur due to stroke, traumatic brain injury, or dementia. These disorders usually happen as a result of a stroke, traumatic brain injury, or dementia, although they can be congenital.



- Swallowing disorders: difficulties with feeding and swallowing, often associated with orofacial myofunctional disorders like habitual open-mouth posture or nasal breathing, orofacial habits, inadequate chewing and chewing muscles and inadequate lips and tongue resting position.

## Speech and language therapy: improving vital functions

Speech therapy goes beyond addressing speech and language; it encompasses oral abilities, essential functions, and overall quality of life. For instance, orofacial myofunctional disorders, including habitual open-mouth posture and nasal breathing, impact breathing, chewing, swallowing, and nutrition, increasing susceptibility to infections. This highlights the connection between speech therapy, orofacial myofunctional disorders, and infection prevention.

The TOM approach, originating in Italy, focuses on motor and executive rehabilitation of speech and underlying behaviors. Grounded in motor learning principles, TOM addresses oral functions like breath, airway protection, feeding, eating, and oral hygiene. It also examines sensory aspects such as oral cavity sensitivity, teeth brushing, respiratory control, and other sensorimotor activities, enhancing the effectiveness of rehabilitation.

## A personal Experience in Rehabilitation: a case from Nairobi

The dissertation highlights a personal experience in a rehabilitation center in Nairobi, emphasizing collaboration with local therapists to address orofacial myofunctional disorders in children with cerebral palsy. The TOM approach was employed to improve vital functions, showcasing positive outcomes within a short timeframe.

A project was undertaken with the University of Medicine in Perugia (Umbria) and collaboration occurred with local therapists (including physiotherapists and occupational therapists) who worked with children with severe disabilities, particularly with children with cerebral palsy (CP) and orofacial myofunctional disorders ; so the children have difficulties with nasal breathing, maintaining lip rest position, chewing, swallowing, and eating. Exercises aimed at improving vital functions such as breathing, chewing, swallowing, eating, and overall nutrition were demonstrated and taught to local therapists.

Collaborative efforts were made to perform exercises, including chewing, swallowing, eating, blowing, maintaining lip rest position, and reducing drooling, among other important objectives for vital functions.

Within just 2 months, initial improvements were observed in some children, marking a significant outcome for both the children and their parents.

This exemplifies the potential collaboration between speech therapists and other rehabilitation professionals.



## Conclusion

This section synthesizes the main findings from each chapter, highlighting the leading role of speech and language therapy within the ICF framework. Positioned within this framework, speech and language therapy emerges as a multidisciplinary science that substantially contributes to health rehabilitation. SLPs go beyond addressing speech alone, tackling vital functions and emphasizing overall health in individuals with disabilities. The TOM approach stands out as an innovative strategy that enhances rehabilitation outcomes. Through collaboration and a holistic approach, speech therapy plays a crucial role in enhancing the quality of life for individuals grappling with communication and swallowing disorders.

## References

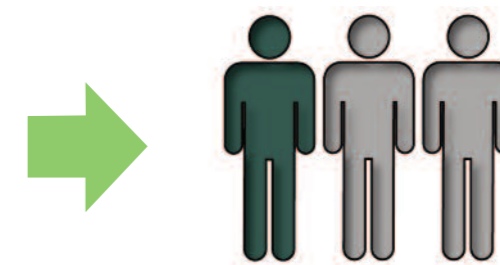
- American Psychiatric Association - Diagnostic and Statistical Manual of Mental Disorders, 2013;
- Approccio TOM (Tratti Orali Motori), G. Tombari;
- ASHA : American Speech-Language-Hearing Association;
- CPLOL – Comité Permanent de Liaison des Orthophonistes/Logopèdes de l'Union Européenne;
- World Health Organization (WHO) - International Classification of Functioning, Disability, and Health (ICF), 2014.

## REHABILITATION IN HEALTH SYSTEMS SPEECH AND LANGUAGE THERAPY

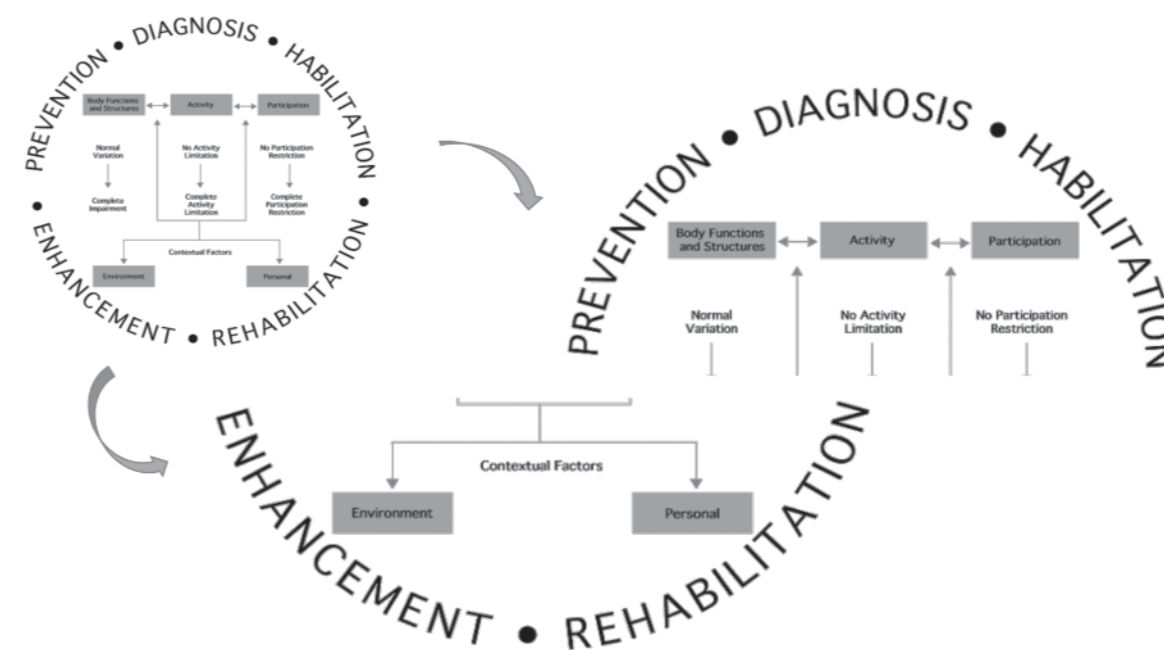
**Federica Orlandoni** Master's degree in "Scienze Riabilitative delle Professioni Sanitarie" at the University of Medicine in Perugia, UNIVPM (Università degli Studi di Perugia)

Healthcare profession that diagnoses and treats communication and swallowing disorders, using evidence-based techniques to improve individual's quality of life.

1 out of 3 children has troubles swallowing



**A. Cerchiari** - "Development and Pilot Study of a Pediatric Screening for Feeding and Swallowing Disorders in Infants and Children: The Pediatric Screening–Priority Evaluation Dysphagia (PS–PED)", 2023



ICF INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY, AND HEALTH



### Speech and language pathologists (SLP)

Work to prevent, assess, diagnose and treat speech, language, social communication, cognitive communication and swallowing disorders in children and adults.

1. Prevention
2. Evaluation
3. Treatment
4. Education



### Speech and language therapy

American Speech – Language – Hearing Association (ASHA)

#### COMMUNICATION

- Language
- Cognition
- Fluency
- Resonance
- Hearing



#### SWALLOWING

- Swallowing
- Feeding
- Related behaviours



#### OROFACIAL MYOFUNCTIONAL DISORDER



### Treating swallowing disorders can prevent infections

Risk of infections



Quality of life



**TOM APPROCH** G.Tombari

### Brand new Italian approach to treat speech and the behaviour underlying the speech

Based on the principles of motor learning  
Includes many aspects in the rehabilitation:



### Rehabilitation center - «Call Africa (NGO)» NAIROBI, KENYA *Children with Cerebral Palsy (CP)*



Cerebral palsy is a group of disorders that affect a person's ability to move and maintain balance and posture.





TAKING CARE OF THE OVERALL HEALTH  
OF THE PEOPLE WITH DISABILITY

## NEURO-PSYCHOMOTOR REHABILITATION

**Marianna Innocenti** Bachelor's Degree in "Terapia della Neuro e Psicomotricità dell'Età Evolutiva" at University of Milano-Bicocca - Master's Degree in "Scienze Riabilitative delle Professioni Sanitarie" at University of Perugia

### Introduction: Neuro-Psychomotor Rehabilitation

Neuro-Psychomotor Rehabilitation is a unique rehabilitation approach in Italy and worldwide that focuses on the development of children and teenagers from 0 to 18 years old; it acts on the motor, cognitive and emotional functions, paying attention to the neurodevelopmental process and disorders that may arise in this period of life.

In particular, the focus of neuro-psychomotor therapy is not on the deficit, but through a global and early approach, aims to:

- Help functional reorganization processes and global development
- Promote the integration between motor and perceptual functions
- Support the emerging skills
- Encourage independence and the best quality of life

This multidisciplinary science involves an attentive evaluation of the patient's needs and it aims at personalizing the intervention according to individual characteristics.

The purpose and the methodology of the rehabilitation intervention are agreed and shared with the family and the multi-professional team through the Individual Rehabilitation Project (IRP); IRP is a multi-element, person-centered rehabilitation management scheme, that used specific evaluation protocols and treatments, including the Neuro-Psychomotor Therapy.

Like The International Classification of Functioning, Disability and Health – Child and Youth version (ICF-CY), also Neuro-Psychomotor Rehabilitation is based on the biopsychosocial model.

The International Classification of Functioning, Disability and Health – Child and Youth version (ICF-CY) is the classification used between doctors and therapist to assess functioning needs, defining rehabilitation goals and outcomes, and it is based on the biopsychosocial model; also the neuro-psychomotor rehabilitation is based on this model: it considers the interactions between functions and body structures, activity and participation, personal factors and environment.

Neuro-Psychomotor Rehabilitation consists of non-invasive interventions that aim for prevention, evaluation and rehabilitation of individuals with neurodevelopmental delays or disorders. The intervention pays attention not only to the disorder but also to his modification during the developmental stages and to other possible associated disorders.

Inside the therapy room, the neuropsychomotor therapist uses his body and movements to establish a relationship with the patient, and proposes games and activities based on the session's goals and on the stage of the therapeutic project.

So, who is the neuropsychomotor therapist?

## Neuropsychomotor Therapist

Neuropsychomotor therapist is a healthcare professional that holds a Bachelor's Degree (BSc) which provides hard and soft skills in all the developmental areas.

The neuropsychomotor therapist, together with other health professionals, is one of the participants able to manage the patient's clinical needs when there is a developmental disability that can hinder the activities of daily living.

According to the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition, the main disorders treated by a neuropsychomotor therapist are:

- Motor disorders
- Global Developmental Delay
- Autism Spectrum Disorder
- Developmental Coordination Disorder
- Intellectual Disorders
- Attention-Deficit/Hyperactivity Disorder
- Communication Disorders
- Specific Learning Disorders

It is important that the intervention is started as soon as possible: an early intervention can modify the evolution of the disorder. The neuropsychomotor therapist uses specific methods for each kind of disorder, evidence-based; the most appropriate method is selected according to the individual characteristics and the timing of the intervention.

The neuropsychomotor therapist can also provide counselling and parenting support services, to encourage their empowerment and to transmit essential knowledge to create the best health conditions for the entire family.





Progetto sostenuto con i fondi  
Otto per Mille della Chiesa Valdese



#### Contatti:

*University of Gondar Hospital*  
*Black Lion Hospital*