



Introduction to physical impairment^{1,2}

- Bodily condition that makes it difficult for an individual to perform certain activities and interact with the world around them
- Can be related to
 - Communication
 - Sensing (i.e. hearing or vision)
 - Movement

Physical impairments and altered functional abilities can be a result of



Central nervous system trauma

- Spinal cord injury
- Stroke
- Traumatic brain injury



Diseases of the nervous system

- Amyotrophic lateral sclerosis
- Multiple sclerosis
- Huntington's disease
- Post-polio syndrome
- Parkinson's disease



Other causes

- Adult-onset conditions like cataract, glaucoma, diabetic retinopathy
- Muscle dystrophy
- Nutritional deficiencies (such as low vitamin A)
- Physical trauma resulting in hearing/vision impairments
- Infections

How physical impairment leads to rapid deterioration of oral health³⁻⁹

- Difficulty in maintaining oral hygiene
- Difficulty in gaining oral access due to persistent mouth closure, tooth grinding, and resistant head movement
- Dysphagia
- Exposure to cariogenic factors (e.g. food supplements and head and neck radiation)
- Fragility, muscle weakness, and loss of dexterity
- Facial paralysis or loss of sensation
- Multimorbidities
- Polypharmacy
- Pooling and accumulation of saliva intraorally
- "Sip" feeding for stroke patients
- Tube feeding or a lack of oral feeding



- Calculus accumulation and periodontal diseases
- Food accumulation in the oral cavity
- Increased risk of aspiration pneumonia
- Increased risk of caries
- Increased risk of dental trauma
- Increased risk of oral infection
- Xerostomia associated with multimorbidities and polypharmacy



Moreover, dependency on caregivers and a poor capacity for self-care, coupled with a reluctance to ask for help, may limit oral healthcare for individuals with physical impairment

Visit <https://oralhealth.knowledgehub.wiley.com/special-healthcare-needs/> for additional resources

Why is prioritising oral health important?⁵⁻⁹

- Globally, ~1 billion people live with some form of physical impairment
- This number is expected to increase with the rise in incidence of chronic health conditions



Individuals with physical impairment face multiple barriers to accessing oral healthcare

Poor oral health can, in turn, lead to poor dietary intake and nutritional status

This ultimately decreases physical function and further contributes to the risk of impairment

Acknowledging these barriers and prioritising oral health is, thus, important to ensure overall health outcomes for these individuals

Physical impairment and barriers to oral healthcare^{10,11}

Availability

- A deficit of suitable services
- Lack of specialist services, additional facilities, and conscious sedation facilities
- Prolonged waiting lists
- High demand leading to substantial delays
- Lack of information on services and how to contact them

Accessibility

- Geographical distance
- Lack of specific facilities including
 - Disabled parking
 - Wider doors
 - Clear signages
 - Ambulance services
 - Ramp access for wheelchair-enabled individuals
 - Adequately equipped toilets
- Difficulty in booking appointments
- Inability to view appointment letters
- Reliance on family, caregivers, or nursing homes

Accommodation

- Poor transitional arrangements (e.g. from wheelchair to dental chair, or between facilities)
- Timing or length of appointments
- Difficulty accessing and processing information
- COVID-19-induced barriers such as face masks
- Difficulty in communicating with hearing-, vision-, or speech-impaired individuals

Acceptability

- Individuals may have narrowed preferences, views, and tolerance of treatment
- They may not prioritise oral care and, consequently, face the risk of its degradation



Affordability

- Direct costs of treatment
- Indirect costs of transport, prescriptions, or loss of earnings for caregivers
- Perceived costs (fear of potential costs and uncertainty)



Aids and adaptations to improve oral health in individuals with physical impairment^{4,6-8}

- Twice daily toothbrushing, preferably supervised
- Powered (power/electric) toothbrushes or special/modified three-headed toothbrushes for those with neuromuscular coordination issues
- Oral hygiene maintenance training and individuals with physical impairment and their carers
- Scheduled dental visits
- Discussion of photographs to motivate oral care



Specific products that could help maintain oral hygiene

Stannous fluoride-containing toothpastes for tube-fed patients reduce the risk of aspiration

Xylitol chewing gums in caries-prone individuals or those with xerostomia to stimulate salivary flow

Chemical agents like chewing gum, tablets, gels, and pastes to counter the development of cariogenic biofilms

Sequentially managing oral health in individuals with physical impairment^{5,8}

Dental or other HCPs can make an initial assessment of oral health depending on the severity of physical impairment

They can evaluate oral health, including trauma to teeth, unstable dentures, risk of caries, and dysphagia

Dental HCPs and specialists can provide professional oral healthcare as required*

*Restrict early-stage dental treatment to preventive guidance and emergency care

Educate individuals with physical impairment and those on oral or nasogastric feeding regimens, along with their caregivers on maintaining oral hygiene, using a personalised plan relevant to the individual and their condition



Oral treatment plan for individuals with physical impairment^{5,11}

Oral plan should be person-centred, tailored, and based on considerations of

- Dietary analysis
- Oral health stressor evaluation
- Medication-induced side effects
- Understanding the patient's capacity to manage daily oral hygiene and/or level of dependence on assistance
- Conscious sedation, general anaesthetics, or non-pharmacologic approaches such as modelling and acclimatisation

- Dental care programmes should be administered by dental care hygienists
- However, other HCPs play a critical role in their contribution to the oral health of individuals with physical impairment by diagnosing oral conditions, identifying problems, and referring these individuals to dental HCPs



Guidance for treatment of caries⁴

- Deliver fluoride in high concentrations by applying either silver diamine fluoride or fluoride varnish sealed with restorative cement to arrest lesions
- Use high-viscosity glass ionomer (via the atraumatic restorative technique approach) as a restorative cement

For restorations undertaken under general anaesthesia:

- Leverage resin composite restorations and stainless-steel crowns to restore primary dentition
- Dental amalgam in permanent dentition
- Use the Hall technique to cement the crown for restorations that need to be performed without local anaesthesia

Guidance for individuals on sip feeding⁵

- Consider professional nutritional advice to prevent malnutrition
- Preventive programme must include
 - Twice daily toothbrushing/assisted toothbrushing with fluoride toothpaste that is free of foaming agents
 - Removing toothpaste by spitting or suctioning (here rinsing should be avoided so that the effect of fluoride can be maximised)
 - Use of stannous fluoride toothpaste containing at least 5000 ppm fluoride
 - Application of fluoride varnish to protect teeth
 - Regular sipping throughout the day and mouth rinsing after consumption of supplements
 - Countering dry mouth by consuming water, using ice chips, and appropriate saliva substitutes
 - Minimising contact between tooth surface and food by using a straw to reduce tooth decay
 - Utilising the Cariogram assessment model to counter to onset of dental caries

Role of carers and professional teams^{6-8,11}

- Convey the importance of dental health
- Nurses and healthcare assistants must provide guided tooth cleaning
- Resolve fears about aspiration pneumonia
- Involve non-professional caregivers in oral healthcare
- Know when to recommend referral to special care dentistry

Ensuring access to special dental care services¹¹

When the general dental professional lacks knowledge and skills to provide oral care

When the individual:

- Has an impairment that requires the use of sedation, general anaesthesia, or clinical holding
- Has an American Society of Anaesthesiology score of 3 or above
- Has speech and language impediments that require a specialised therapist
- Needs assistance from a third party to communicate effectively and enable oral hygiene care
- Needs a wheelchair recliner or hoist to access a dental chair
- Has a fluctuating or limited capacity to provide consent
- Needs domiciliary care

Managing individuals with auditory-visual impairments¹¹

Use guide/service dogs in healthcare facilities

Gently gain attention by speaking and if necessary, touching the patient

Provide items to prepare patients for a specific procedure

Utilise braille, tactile models, and audio aids when possible

Use verbal responses and communicate actual reality to the patient

Use a training plate to aid with desensitisation

Use text messages, emails, and letters over phone calls

Ensure removable prostheses do not hinder patients

Enable point-of-contact correspondence with hearing next of kin or support worker

Establish the patient's needs and preferred communication, and ensure this is recorded

Ensure lighting and background noises are optimised in a way that least impacts their tactile sensations

Make provisions for the use of British Sign Language, an interpreter (if needed), and account for lip-reading or hand signals

Provide large-format and easy-print guidance documents, written information, and appointment letters to patients who are partially sighted

Leverage other communication aids such as post-appointment leaflets, Typetalk systems, induction loops, infrared systems, and transcribing apps

Eliminate background noises and voice modulation so patients who are hard of hearing or use hearing aids are sufficiently accommodated

Key Takeaways



Individuals with physical impairment may have a higher risk of developing oral health conditions



The plan must include regular dental appointments and should be reviewed regularly



Individuals requiring tube feeding or those with neurological disorders carry the risk of developing aspiration pneumonia due to dysphagia and should receive an oral health risk assessment and a patient-specific oral hygiene care plan



A specific dental caries management plan can help those individuals who are at risk of rapid tooth destruction



Oral healthcare education, communication, and rehabilitation of individuals with impairment must be prioritised

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