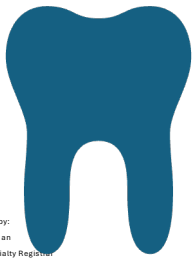
Topic:
Risks of orthodontic treatment, role of the orthodontic therapist, organisation of orthodontic services in the UK

2026 Diploma in Orthodontic Therapy (DipOT) Course



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Lecture outline

Part 1	BREAK	Part 2
• The regulatory functions of the GDC • Organisation of Orthodontic services in the UK • Scope of practice		• Benefits • Risks • Clinical presentation of relevant oral and dental diseases

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PART 1

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Learning outcomes

At the end of this lecture, the learner should be able to describe:

- the regulatory functions of the GDC
- the organisation of orthodontic services in the UK
- The scope of practice of each member of the dental team and how the roles interact for effective teamwork and patient care (Safe practitioner outcome L2.7)
- The role of the OT within the framework of the dental team
- When to refer the patient to a dentist where treatment is beyond the training or experience of the orthodontic therapist

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The Regulatory Functions of the General Dental Council (GDC)

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The General Dental Council (GDC)

- A “statutory regulator” is a body established by law (a statute) to oversee and regulate a specific profession or industry
- The GDC is a UK-wide (across the 4 nations of the UK), statutory regulator of the whole dental team
- What do they do?/ What are their “regulatory functions”?

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The GDC's regulatory functions

These are the legally mandated duties and powers that the GDC carries out to protect patient safety and maintain public confidence in dental services.

This included:

1) Protecting the public
2) Maintaining a register
3) Setting standards
4) Approving education and training
5) Ensuring ongoing professional development
6) Investigating fitness to practice

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Public Protection and Engagement

- Primary role of the GDC is to **protect the public** and ensure that they have confidence in the healthcare professionals they regulate

- How is this achieved?
  - Through the statutory functions (what the GDC must do by law according to the Dentists Act 1984)
  - Public register of professionals
  - Information on how to raise concerns
  - Transparent and accountable processes

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Registration of Dental Professionals

- Maintains a register of qualified professionals
- Ensures only those meeting education and conduct requirements can practise
- Includes Dentists and DCPs (e.g., orthodontic therapists, hygienists)

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Setting Standards

- Publishes 'Standards for the Dental Team'
- Sets expectations for:
  - Clinical care
  - Communication and consent
  - Professionalism and ethics

The picture can't be displayed.

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Quality Assurance of Education

- Approves dental education and training programs
- Monitors institutions to ensure safe, high-quality training
- Supports consistency in professional competence

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Continuing Professional Development (CPD)

- Sets mandatory CPD requirements
- Professionals must complete CPD in key topics:
  - Medical emergencies
  - Radiography
  - Disinfection and decontamination
- Ensures lifelong learning and up-to-date practice

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Investigating Fitness to Practise

- Investigates concerns about professional conduct or capability
- Types of issues:
  - Misconduct
  - Performance concerns
  - Criminal convictions
  - Health issues

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Enforcement Powers

- Can issue warnings, conditions, suspensions, or removals
- Holds Fitness to Practise hearings for serious concerns
- Focuses on patient safety and public trust

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Summary

- GDC ensures only safe, ethical, and competent professionals practise

- Functions:
- Standards
- Registration
- Education
- CPD
- Fitness to Practise
- Enforcement
- Public Protection

- Central to maintaining trust in UK dental care

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The organisation of orthodontic services in the UK

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Essential Facts About the UK Healthcare System

- Health is a **devolved responsibility**; Scotland, Wales, Northern Ireland, and England make their own healthcare spending decisions.
- Health policy is led by the **Secretary of State for Health and Social Care** (England) and equivalent ministers in devolved nations.
- The NHS is a **publicly funded healthcare system**, mainly financed through taxation.
- Most NHS services are **free at the point of use**.
- Some charges apply for **dental treatment and prescriptions**.
- Children, pensioners, and certain benefit recipients may receive **reduced or exempt charges**.
- The NHS treats **over 1 million patients every 24 hours**.
- Public healthcare spending is approximately **11% of UK GDP**.
- A **private healthcare sector** also exists alongside the NHS.

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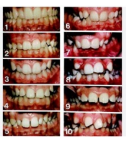
NHS Eligibility for Orthodontic Treatment

To qualify for NHS orthodontic treatment:

1. Clinical Need

- Must meet **IOTN 3.6 or above**:
  - Dental Health Component (DHC) must be 3, 4, or 5.
  - Aesthetic Component (AC) must be 6 or above if DHC is borderline.
  - Overall :
    - DHC 4 or 5 qualifies regardless of AC
    - DHC 3 must be accompanied by AC ≥ 6



2. Age Limit

•**Usually under 18 years old** at the time of referral.
•Referrals ideally made **before the 18th birthday**.
•Adults typically not eligible unless there's a medical or complex need.

3. Patient Suitability

•Good oral hygiene.
•Willingness to comply with treatment.
•Consent and motivation assessed before acceptance.

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Orthodontic services across the UK: Structure

Orthodontic care within the UK is deliver in:

- **Primary care:**
  - Eg. High-street practices
  - Largely delivered by specialist orthodontists in **primary care under NHS contracts or privately**
  - By providers in primary care who provide orthodontic services as part of a mixed contract under general dental services
- **Secondary care: Hospital based/Dental schools**
  - Reserved for **complex cases** needing multidisciplinary input (e.g., cleft lip/palate, syndromes, jaw surgery).
  - Delivered by hospital-based specialists or consultants.
  - Also used for **training** orthodontists and orthodontic therapists.
- **Private sector:**
  - Parallel to NHS, private orthodontic treatment is widely available.
  - Often accessed by adults or patients not qualifying under NHS criteria.
  - Includes cosmetic options (Invisalign, lingual braces, etc.)
- **Tertiary care:**
  - Highly specialised regional/national MDT services relating to Orthodontics)

  Examples:
  - ❖ Craniofacial service
  - ❖ Cleft lip & palate service
  - ❖ Beckwith-Wiedemann syndrome with macroglossia service

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"Who is the most appropriate clinician/service to provide the treatment?"

Levels of complexity 1-3b

Once a patient qualifies for NHS Orthodontic treatment, the complexity framework helps determine:

- GDP?
- Enhanced skills practitioner?
- Specialist orthodontist?
- Consultant-led hospital service?

Complexity of Care

- NHS England formally uses Levels 1–3b.
- Other UK nations recognise complexity-based referral pathways and specialist/consultant-led care, but do not routinely use the same classification system.

Level 1: Primary care – recognising of malocclusions, applying IOTN and making appropriate referrals in primary care as well as monitoring after treatment

Level 2: Dentists with a special interest in primary care – non-complex treatment of simple malocclusions that do not require skeletal changes

Level 3a: Specialist orthodontists in primary care with link to consultant-led managed clinical networks – complex orthodontic and simple multidisciplinary team (MDT) cases

Level 3b: Consultant-led orthodontic services in secondary care – complex MDT cases not suitable for management in primary care

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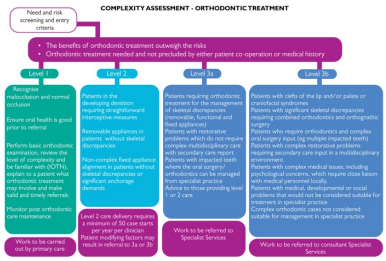
"Who is the most appropriate clinician/service to provide the treatment?"

Levels of complexity 1-3b



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NHS Funding models explained

a. UOA System (England & Wales):

- Contracted orthodontic providers deliver a specified number of **Units of Orthodontic Activity (UOA)** per year.
- Example: Full course of treatment = 21 UOAs.
- Payment is made in **monthly instalments**, not per patient.
- Contract values are tendered and scored on cost and quality.
- Case complexity does **not** affect UOA amount.

b. Fee-per-Item System (Scotland & NI):

- Providers are paid for **each stage/item of treatment** submitted.
- Complex/more involved cases receive higher total fees.
- Requires **prior approval** in many cases.
- Offers flexibility but is administratively intensive and budget-unpredictable.

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Structure and Commissioning of NHS Dentistry – England

- **NHS England** is responsible for all commissioning.
- Payments for primary care contracts are managed by the **NHS Business Services Authority (NHSBSA)**.
- **Contract Types**
- **1. General Dental Services (GDS) Contract**
- Accounts for approximately **85% of primary care contracts**.
- Contracts are of **indefinite duration.**
- Each **Course of Treatment (CoT)** is assigned a number of **Units of Dental Activity (UDA) /Units of Orthodontic Activity (UOA)** according to treatment band.
- Each UDA has an agreed monetary value.
- This system simplifies patient charging.
- **2. Personal Dental Services (PDS) Agreement**
- Time-limited contracts, usually lasting **five years**.
- Typically used for **specialist dental services**.

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Structure and Commissioning of NHS Dentistry – Scotland

- Devolved healthcare system
- NHS Scotland = 14 Health Boards
- Boards accountable to Scottish Ministers

Dental Services

- **GDS:** Independent contractors, blended payment system (capitation + SDR item-of-service)
- **PDS:** Salaried NHS dentists, special care/paediatric/priority groups
- **HDS:** Secondary care, salaried dentists

Leadership & Regulation

- Chief Dental Officer (CDO)
- Director of Dentistry (DoD) in each Board
- Regulated by **Healthcare Improvement Scotland (HIS)**

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Structure and Commissioning of NHS Dentistry – Wales

National Level

- **Welsh Government (WG)**
- Chief Dental Officer (CDO) and Dental Policy Team set national dental policy and strategy.
- Provide funding to Health Boards for NHS dental services and oral health programmes.

Regional Level

- **Health Boards**
- Receive funding from the Welsh Government.
- Determine local oral health priorities and service plans.
- Decide how much funding is allocated to NHS dental care.
- Planning guided by Welsh Government policy and guidance.

Service Delivery

- **Secondary Care Services** eg. Consultant-led Specialist Dental Services
- **Community Services** eg. Community Dental Service (CDS), role defined by Welsh Health Circulars
- **Primary Care Services** eg. General Dental Services (GDS), commissioned from independent dental providers (eg. Corporate dental groups, independent dental practices).

Additional Provision

- Most GDS providers also deliver **private dentistry**
- Funding models include:
  - Dental insurance schemes
  - Fee-per-item/private payment arrangements

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Structure and Commissioning of NHS Dentistry – Northern Ireland

- **Health is devolved.**
- Regulated by the **Regulation and Quality Improvement Authority (RQIA)**.
- Dental services are overseen by the **Chief Dental Officer (CDO)** and delivered through **five HSC Trusts**.
- **Dental Services**
- **General Dental Services (GDS)**
- Fee-per-item contract system.
- Based on the **Statement of Dental Remuneration (SDR)**.
- Administered by the **HSC Business Services Organisation (BSO)**.
- **Community Dental Services (CDS)**
- Similar role to the Public Dental Service (PDS) in Scotland.
- **Hospital Dental Services (HDS)**
- Provides secondary care dental services.
- Similar role to Hospital Dental Services in Scotland.

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Commissioning models across the UK

Feature	England	Wales	Scotland	Northern Ireland
Funding Model	UOA-based contract	UOA-based contract	Fee-per-item	Fee-per-item
Commissioners	NHS England	Local Health Boards	NHS National Services Scotland	Health & Social Care Board
Prior Approval	Not routine	Not routine	Required > £430	Required in borderline or repeat cases
Eligibility Criteria	IOTN DHC ≥3 + AC ≥6	Same	Same	Same
Common Index for Eligibility	IOTN (3.6 rule)	IOTN (3.6 rule)	IOTN (3.6 rule)	IOTN (3.6 rule)

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Challenges across the UK

- Long waiting lists for NHS orthodontic care
- Premature or inappropriate referrals
- Resource wastage from repeat reviews or unsuitable referrals
- Variation in service access depending on region

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The scope of practice of each member of the dental team and how the roles interact for effective teamwork and patient care (Safe practitioner outcome L2.7)

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The Orthodontic Workforce and Training

NHS England

Clinical standard for dent
Orthodontics

- **General Dental Practitioners (GDP)**
- **Dentists Accredited to Perform Level 2 Complexity Care**
- **Specialists**
- **Consultants**
- **Orthodontic Therapists**

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Dentist

- **Role:** Clinically leads the dental team and has the broadest scope of practice.
- **Core Duties:**
  - Diagnose disease and formulate treatment plans.
  - Perform restorations, endodontics, extractions, oral and periodontal surgery.
  - Prescribe and deliver fixed/removable prostheses.
  - Administer conscious sedation and prescribe medications.
  - Conduct complex procedures including orthodontic and cosmetic treatments.
- **Additional Skills:**
  - Provide implants and non-surgical cosmetic injectables.

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Dental Hygienist

- **Role:** Focuses on prevention and treatment of periodontal disease.
- **Core Duties:**
  - Carry out full periodontal examinations and charting.
  - Scale and polish (supra- and sub-gingival).
  - Provide antimicrobial therapy.
  - Administer local anaesthesia (infiltration and ID block).
  - Take and prescribe radiographs.
  - Apply fissure sealants and topical treatments.
  - Take impressions and photographs.
  - Give smoking cessation and oral hygiene advice.
  - Care for dental implants and peri-implant tissues.

Additional Skills:
•Tooth whitening (on prescription).
•Administer inhalation sedation.

Limitations: Cannot restore teeth or extract.

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Dental Nurse

Role: Provides clinical and administrative support to dental professionals and patients.

Core Duties:
- Prepare and maintain the clinical environment.
- Carry out infection prevention and control.
- Assist chairside during treatments.
- Record dental charting and oral tissue assessments.
- Mix and handle dental materials.
- Take impressions (on prescription).
- Process and prepare for dental radiography.
- Provide reassurance and appropriate patient advice.
- Maintain accurate and contemporaneous records.
- Make appropriate referrals.

Additional Skills (with further training):
•Apply fluoride varnish.
•Take radiographs.
•Take and cast study models.
•Remove sutures (after dentist checks wound).
•Construct trays and mouthguards (on prescription).

Limitations: Cannot diagnose or treatment plan.

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Dental Therapist

•**Role:** Provides restorative and preventive care to children and adults.

•**Core Duties:**
- Conduct clinical examinations and take medical histories.
- Perform restorations on primary and permanent teeth.
- Extract primary teeth.
- Place pre-formed crowns.
- Perform pulpotomies (primary teeth).
- Carry out scaling and root surface debridement.
- Provide periodontal care and apply topical agents.
- Administer local anaesthesia.
- Take and prescribe radiographs.
- Take impressions and photographs.

Additional Skills:
•Tooth whitening (on prescription).
•Inhalation sedation.
•Suture removal (after dentist checks wound).

Limitations: Cannot extract permanent teeth or perform complex procedures.

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Orthodontic Therapist

•**Role:** Delivers specific orthodontic treatments under the prescription of a dentist.

•**Core Duties:**
Orthodontic therapists can:
- ✓ Give advice on appliance care and oral health instruction
- ✓ Identify, select, use and maintain appropriate instruments
- ✓ Clean and prepare tooth surfaces ready for orthodontic treatment
- ✓ Take impressions
- ✓ Pour, cast and trim study models
- ✓ Make a patient's orthodontic appliance safe in the absence of a dentist
- ✓ Fit orthodontic headgear
- ✓ Fit orthodontic facebows which have been adjusted by a dentist
- ✓ Take occlusal records including orthognathic facebow readings
- ✓ Make appropriate referrals to other healthcare professionals

Removable appliances:
- ✓ Insert passive removable orthodontic appliances
- ✓ Insert active removable appliances adjusted by a dentist

Fixed appliances:
- ✓ Remove fixed appliances, orthodontic adhesives and cement
- ✓ Place brackets and bands
- ✓ Prepare, insert, adjust and remove archwires
- ✓ Fit tooth separators
- ✓ Fit bonded retainers

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Orthodontic Therapist

Orthodontic therapists cannot:
- •Remove sub-gingival deposits
- •Give LA
- •Re-cement crowns
- •Place temporary dressings
- •Place active medicaments

Additional Skills:
1. Apply fluoride varnish on the prescription of a dentist
2. Repair the acrylic component part of orthodontic appliances
3. Measure and record plaque indices and gingival indices
4. Remove sutures after the wound has been checked by a dentist

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Comparison Table: Dental Technician vs Clinical Dental Technician

Feature	Dental Technician	Clinical Dental Technician (CDT)
Works directly with patients	No	Yes (edentulous patients only)
Constructs dental appliances	Yes	Yes
Prescribes treatment	No	Yes (limited to complete dentures)
Takes impressions	Sometimes (with supervision)	Yes
Conducts clinical exams	No	Yes (within scope)
Provides oral health advice	No	Yes
Must refer complex cases	Not applicable	Yes (dentate or implant patients to dentists)
Performs chairside adjustments	Occasionally (under supervision)	Yes
Administers radiographs	No	Yes
Additional skills	• Intraoral scanning (under supervision). • Assist with chairside procedures in collaboration with dentists/CDTs.	• Re-cement temporary crowns. • Tooth whitening (on prescription). • Anti-snoring devices (on prescription).
Limitations	Cannot work independently with patients or perform clinical procedures.	Must refer dentate or implant patients to a dentist.

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How Roles Interact for Effective Teamwork and Patient Care

(GDC Safe Practitioner Outcome)

- **Collaborative, Patient-Centred Approach**
  Each team member works within their scope of practice and communicates effectively to deliver safe, timely, and high-quality care.

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How Roles Interact for Effective Teamwork and Patient Care

(GDC Safe Practitioner Outcome)

Orthodontist
- Leads diagnosis & complex decision-making
- Prescribes treatment and delegates appropriately
- Oversees clinical progress

Orthodontic Therapist (OT)
- Delivers care under prescription
- Monitors progress, motivates patients
- Escalates issues outside scope

Dentist (GDP)
- Maintains oral health during ortho treatment
- Manages restorative needs
- Refers to orthodontist when needed

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How Roles Interact for Effective Teamwork and Patient Care

(GDC Safe Practitioner Outcome)

Dental Technician
- Constructs accurate appliances from prescriptions
- Communicates indirectly via impressions and models
- Supports treatment outcomes through precision work

Dental Hygienist/Therapist
- Provides preventive care
- Supports hygiene education and periodontal health
- Coordinates with OT and GDP

Dental Nurse
- Supports chairside care
- Prepares materials and ensures infection control
- Aids efficient clinical workflow

Admin/Reception Staff
- Coordinates appointments and records
- Maintains communication with patients
- Supports informed consent and smooth delivery

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The role of the OT within the framework of the dental team

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1) **Support Specialist Orthodontists**
- Deliver prescribed orthodontic treatments under supervision
- Implement treatment plans and appliance adjustments

2) Collaborative Team Member
- Work closely with orthodontists, dental nurses, hygienists, and dentists
- Communicate patient progress and escalate concerns appropriately

3) **Clinical Duties**
- Place, adjust, and remove fixed and removable appliances
- Take impressions, radiographs, clinical photographs, and IOTN assessments
- Provide oral hygiene and appliance care instructions

4) Patient-Centred Care
- Encourage compliance and motivate patients throughout treatment
- Recognize and report dental disease or soft tissue abnormalities

5) Scope and Accountability
- Work within the General Dental Council (GDC) Scope of Practice
- Refer to a dentist or orthodontist when care is beyond their scope

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When to refer the patient to a dentist where treatment is beyond the training or experience of the orthodontic therapist

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Professional Guidance on referring

- - **GDC Standard:** "Registrants must work within their scope of practice and refer patients when necessary."
- - **British Orthodontic Society (BOS):** Referral should occur when the patient needs diagnosis or treatment planning beyond the orthodontic therapist's remit.

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Clinical Indications for Referral

Scenario	Reason for Referral
Caries or periodontal disease	Requires diagnosis, treatment, and ongoing dental care
Poor oral hygiene	Needs preventative intervention and oral health education by a dentist or hygienist
Oral soft tissue lesions	Investigation and possible referral for biopsy or OMFS assessment
Dental trauma	Requires radiographs, pulp testing, and possibly endodontic or restorative care
Complex extractions or surgical exposures	Requires surgical planning and execution outside the orthodontic therapist's scope

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Clinical Indications for Referral

Scenario	Reason for Referral
Impacted teeth needing imaging or surgery	Needs CBCT, surgical planning, and/or exposure by specialist team
Non-appliance-related pain or swelling	Requires general dental or medical assessment
Suspected root resorption	Needs radiographic monitoring and potentially modified treatment planning
Appliance failure due to enamel/dentine defects	Requires restorative diagnosis and management
Orthodontic complications or emergencies	Specialist orthodontic input needed

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Principle to Follow

- **"If in doubt, refer out."**
  Orthodontic Therapists must always work under the prescription of a dentist and should **never diagnose or manage conditions beyond their training**. According to the GDC:
  "Registrants must work within their scope of practice and refer patients when necessary."

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BREAK

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PART 2

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Learning outcomes

At the end of this lecture, the learner should be able to:

- List the benefits of orthodontic treatment
- Describe the potential risks of orthodontic treatment including iatrogenic damage
- Utilise this knowledge to weigh up risk vs benefit of treatment
- Describe and identify the clinical presentations of oral and dental diseases relevant to the role of an orthodontic therapist and explain the principles underpinning their diagnosis, prevention, and treatment

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Risk-Benefit analysis

- The decision to undergo orthodontic treatment should be based upon an evaluation of the risks and benefits of the procedure (**risk–benefit analysis**)

Benefits of treatment	Risks of treatment
• Improved aesthetics/appearance	• Worsening of dental health
• Psychosocial benefit	• Failure to achieve aims of treatment
• Improved function	• Relapse
• Improved dental health	

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Benefits of orthodontic treatment

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Improved aesthetics/appearance

- Often the principal reason people seek orthodontic treatment
- Although improved dental appearance may be cited as the main goal of treatment by patients, it is likely that the perceived benefit is not a change in appearance per se, but the anticipated psychosocial benefit associated with improved appearance.

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Psychosocial benefit

Malocclusion has been linked to

- ➢ reduced self-confidence and self-esteem
  - Children with increased treatment need experience more bullying and lower self-esteem (DiBiase and Sandler, 2001)
  - Certain traits associated with teasing
- ➢ Stereotyping
  - More ideal smiles considered more intelligent and have higher chance of finding a job (Pithon et al. 2014)
- ➢ Teasing
  - Bullying found to be reduced by 78% post-treatment (Seehra et al.2013)

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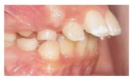

Increased overjet "teeth that stick out"

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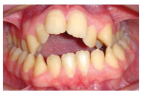
Improved function

➢Speech

Anterior open bite may be associated with a lisp



➢Chewing efficiency/masticatory function

Several missing teeth

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Potential benefits of orthodontic treatment to dental health

Examples of specific occlusal anomalies where evidence suggests orthodontic correction may provide long-term dental health benefit:

- Localised periodontal problems
- Increased overjet associated with increased risk of dental trauma
- Unerupted impacted teeth with risk of pathology

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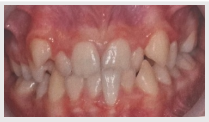
Potential benefits of orthodontic treatment to dental health

Examples of specific occlusal anomalies where evidence suggests orthodontic correction may provide long-term dental health benefit	

• Localised periodontal problems such as
  • crowding causing a tooth/teeth to be pushed out of the bone, resulting in recession
  • Anterior crossbites with evidence of compromised buccal periodontal support on affected lower incisors
	

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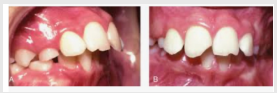
Potential benefits of orthodontic treatment to dental health

Examples of specific occlusal anomalies where evidence suggests orthodontic correction may provide long-term dental health benefit	
• Increased overjet associated with increased risk of dental trauma	

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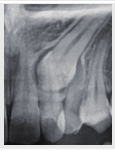
Potential benefits of orthodontic treatment to dental health

Examples of specific occlusal anomalies where evidence suggests orthodontic correction may provide long-term dental health benefit	
• Unerupted impacted teeth with risk of cyst formation	

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Risks of orthodontic treatment

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Understanding the terms used to describe risks of orthodontic treatment

- Generalised "This commonly experienced by many patients, likely to happen"
- Iatrogenic "Mostly preventable, unlikely to happen and if it happens, it was caused by the treatment or clinician."
- Deleterious effects "causes harm or damage"

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Understanding the terms used to describe risks of orthodontic treatment

Generalised risks of orthdodontic treatment

- These are **overall risks** that could are common or expected to happen during orthodontic treatment, affecting many patients to varying degrees. Not all generalised risks are harmful or severe
  - ✓**Include both avoidable and unavoidable risks**
  - ✓**May or may not be caused by the clinician**
  - ✓**Some are expected, others preventable**

Examples:
- Pain or discomfort during treatment
- Difficulty in maintaining oral hygiene
- Risk of root resorption
- Risk of relapse
- Development of white spot lesions
- Temporary speech issues from appliances
- Need for extractions or surgery

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Understanding the terms used to describe risks of orthodontic treatment

Iatrogenic risks:

- damage to a patient directly caused by the clinician or as a result of orthodontic treatment itself
- often **due to error, poor technique, or misjudgement**.
- A subset of generalised risks
- **Mostly preventable** with correct planning, monitoring, and technique

Examples:
- Enamel fracture when removing bonded fixed appliance
- Excessive force can cause root resorption, mobility, even loss of vitality
- Gingival damage from poor appliance placement
- Enamel demineralisation if oral hygiene was not monitored or reinforced
- TMJ issues from incorrect occlusal planning
- Over-expansion causing soft tissue damage

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Iatrogenic risks:

Why is it important to know about this?
- In order to prevent damage
- In order to weigh up risk vs benefit of treatment
- In order to answer patients' questions

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Iatrogenic risks

INTRA-ORAL	EXTRAORAL	SYSTEMIC

• Enamel decalcification
• Enamel wear
• Enamel fracture
• Root resorption
• Pulpitis
• Periodontal effects
• Ulceration from appliances
• Chemical burns from etchant
• Direct trauma to soft tissues from clumsy instrumentation
	• TMJ dysfunction
	• Soft tissue effects
	  • Headgear injuries (eye damage, skin trauma, bruising)
	  • Allergy (also systemic)
	  • Burns from etch or from overheating handpiece(may be intra or extra oral)
		• Allergy (nickel, latex)

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Describe and identify the clinical presentations of oral and dental diseases relevant to the role of an orthodontic therapist and explain the principles underpinning their diagnosis, prevention, and treatment

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Good oral hygiene vs poor oral hygiene

Clinical features of good OH	Clinical features of bad OH
✓ Healthy gums –light pink gingiva ✓ No plaque build-up around teeth or brackets ✓ No inflammation (redness/swelling) around the gingival margin of gums ✓ No staining ✓ No food debris ✓ No bleeding of the gums when brushing	• unhealthy gums (swollen, red) with gingival hyperplasia • Inflammation of the gingival margin • Plaque build-up around brackets and teeth • Build-up of food debris • Staining present • Bleeding gums when brushing • Decalcification seen as white spot lesions or brown lesions once braces off

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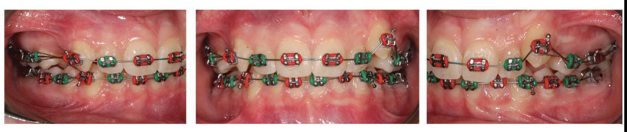
What's the difference between oral and dental disease?

Aspect	Oral Diseases	Dental Diseases
Definition	Diseases affecting the entire mouth and associated soft tissues	Diseases specifically affecting the teeth and supporting hard tissues
Structures Involved	Gums, tongue, cheeks, lips, palate, salivary glands, jaw bones, mucosa	Enamel, dentin, pulp, periodontal ligament, alveolar bone
Common examples in Orthodontics	Gingivitis, periodontitis, gingival recession, oral ulcers, candidiasis, oral cancer, soft tissue trauma from appliances	Decalcification, dental caries, pulpitis, periapical abscess, tooth fracture, tooth erosion, root resorption

68

How would you describe the OH in these photos?

-good OH?
-bad OH?
-improved OH?



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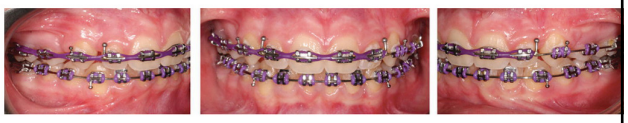

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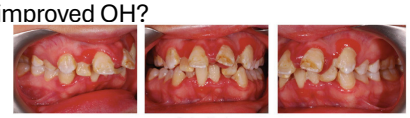
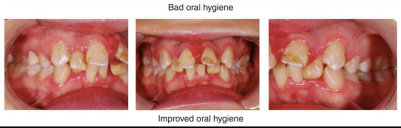


Bad oral hygiene



Improved oral hygiene

71

What's the difference between oral and dental disease?

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Oral disease: Oral ulcers

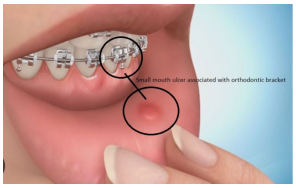
Clinical Presentation:
•Painful, round lesions on oral mucosa
•May occur due to appliance trauma or stress

Diagnosis:
•Visual inspection

Prevention:
•Smooth sharp appliance edges, apply relief wax

Treatment:
•Topical analgesics, saltwater rinses, eliminate irritants

Role of OT:
•Recognise and manage minor ulcers; refer if persistent or unusual



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Oral disease: Gingival recession

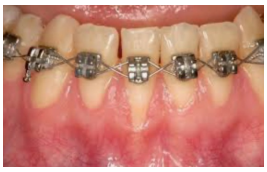
Clinical Presentation:
- Exposure of tooth root surfaces, often on labial or buccal aspects
- Sensitivity to cold, elongated appearance of teeth, or visible cementoenamel junction

Diagnosis:
- Visual inspection
- Periodontal charting to record attachment loss

Prevention:
- Avoid aggressive tooth brushing
- Maintain gentle and effective oral hygiene
- Use of orthodontic techniques that minimise excessive forces on teeth

Treatment:
- Address aetiological factors (e.g. trauma, plaque)
- Referral for periodontal input if severe or progressing

Role of OT:
- Identify early signs and advise gentle brushing techniques
- Monitor throughout treatment and refer where needed



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Oral disease: Gingivitis

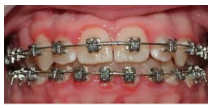
Clinical Presentation:
•Red, swollen, bleeding gums, particularly around brackets
•Tenderness and bleeding on brushing

Diagnosis:
•Visual and periodontal examination
•Assessment of bleeding on probing and plaque levels

Prevention:
•Emphasis on brushing and interdental cleaning
•Regular reinforcement of oral hygiene practices

Treatment:
•Improved plaque control, chlorhexidine mouthwash if indicated
•Referral for periodontal evaluation if persistent

Role of OT:
•Identify signs of gingival inflammation
•Reinforce brushing technique, refer if severe



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Oral disease: periodontal disease

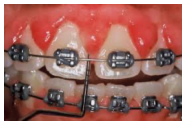
Clinical Presentation:
•Pocketing, recession, mobile teeth, bone loss
•May have halitosis or pus discharge

Diagnosis:
•Periodontal probing and radiographic evidence (by dentist)

Prevention:
•Maintenance of excellent oral hygiene
•Avoidance of risk factors (e.g. smoking)

Treatment:
•Referral to dentist/periodontist for management
•Supportive oral hygiene education by OT

Role of OT:
•Recognise signs and refer appropriately



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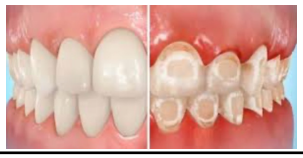
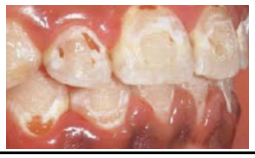
Dental diseases: Decalcification (experienced in 80-85% of orthodontic patients)

Role of Orthodontic Therapist:
•Monitor oral hygiene and provide ongoing education
•Identify early signs of decalcification
•Refer to dentist for restorative care if needed





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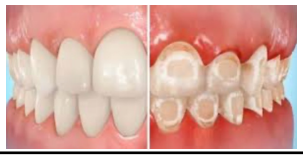
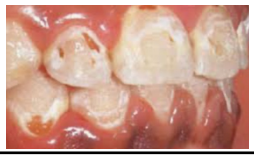
Dental diseases: Decalcification

Clinical Presentation:
•White spot lesions near bracket margins
•Commonly in cervical or interproximal regions
•Often asymptomatic initially

Diagnosis:
•Visual inspection under good lighting
•Air drying to identify early lesions
•Use of disclosing tablets
•Regular photographs and records





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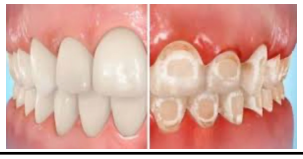
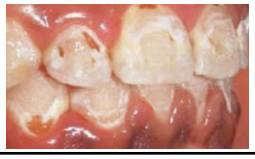
Dental diseases: Decalcification

Prevention:

•Oral hygiene instruction and reinforcement
•Daily fluoride toothpaste and mouthwash
•Dietary advice (reduce sugary snacks)
•Fluoride-releasing bonding agents or varnish
•Consider avoiding elastomeric modules as they attract plaque (alternative: self-ligating brackets; may use of stainless-steel quick ligatures or fluoride releasing modules)

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Dental diseases: Decalcification

Treatment Principles:

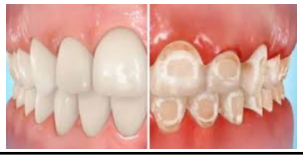
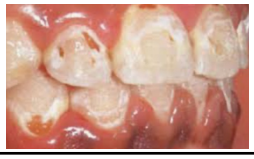
•Remineralisation of non-cavitated lesions (spontaneously reduced in size, appearance, in first 6-12 weeks following FA removal)

•DO NOT USE high fluoride (causes hypermineralisation of surface layer, preventing further diffusion of ions and instead this stamps/fixes the size and appearance of the lesion)

Treatment Principles:

- DO USE Casein Phosphopeptide-Amorphous Calcium Phosphate (promotes diffusion of ions into body of lesion)

REFER for tx options: Micro-abrasion, vital tooth bleaching, restoration.

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Dental diseases: Root resorption (orthodontic)

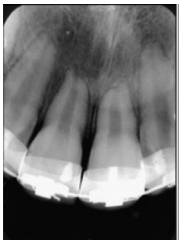
Clinical Presentation:
- Usually asymptomatic; visible radiographically as shortened roots

Diagnosis:
- Radiographic monitoring throughout orthodontic treatment

Prevention:
- Avoid excessive force; monitor progress and adjust appliances accordingly

Treatment:
- Reduction or pause in orthodontic forces; multidisciplinary input for severe cases

Role of OT:
- Maintain records, highlight concerns, follow orthodontist guidance



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Which of the following statements are correct in relation to the prevention of caries & poor gingival health?

- Reduction in the frequency of sugar & acid intake
- Consumption of natural fruit juice & diet drinks
- Technique of brushing
- Regular attendance at dentist
- Use of fluoride mouth-wash
- Frequency of tooth-brushing

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Which of the following statements are true?

a) Oral hygiene instruction and dietary advice may have only short-term effects

b) If used regularly, fluoride varnish and mouthwash reduce the incidence of white-spot lesions.

c) Use of an interdental toothbrush is more effective in reducing plaque levels in patients with fixed appliances than a standard toothbrush

d) Fluoride-containing cements and elastomeric modules have been shown to be effective.

83

Which of the following statements about the causes of gingival recession are true?

- a. Trauma to the gingival tissues from tooth brushing can cause gingival recession
- b. If teeth are orthodontically moved beyond the cortical plate then their bony support is compromised and recession occurs as the labial gingiva is no longer supported by labial bone.
- c. There is no evidence to support this
- d. A deep bite does not always cause recession, it only does so in the presence of poor oral hygiene that allows for the exacerbation of periodontal breakdown

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Oral health problems that would dissuade you from carrying out treatment	*Oral health problems that would require further investigation*	*Oral health problems that you may accept for treatment*
Active caries- a patient with active caries is unlikely to be a suitable candidate for orthodontic treatment until they have shown an improvement in their cariogenic diet and oral hygiene. A patient with active periodontal disease would need this to be fully controlled before treatment is contemplated. Severe root resorption would be a reason to not to carry out further orthodontic treatment. Gingival inflammation is indicative of poor oral health and is again a factor that would dissuade you from starting treatment until it was controlled	A patient with dental erosion needs to be investigated to ensure that the aetiological factor causing the erosion is no longer active before treatment is started. Dental Trauma; If a tooth has suffered dental trauma it needs to be investigated with vitality tests and radiography and may well need to be restored to ensure it is free of symptoms and then only should orthodontic treatment be contemplated . Ulceration or other pathology relating to the oral mucosa may refer to an oral medicine problem that needs to be investigated.	Patients with hypoplasia or enamel defects can be treated with orthodontics A patient with a previous history of demineralisation without having had orthodontic treatment that is now no longer active may indicate a patient who had a history of poor dental health in the past and has now turned the corner and can be treated with orthodontics. Impacted teeth. A patient presenting with impacted (excl. 3rd molars) should be treated with orthodontics.

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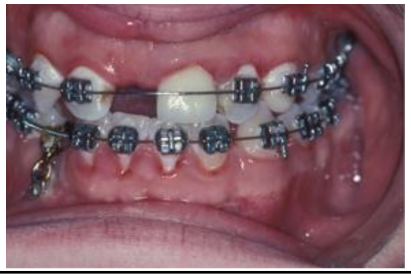
Identify the problems with the following clinical presentations



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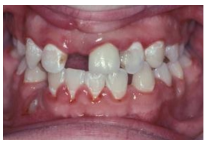
Identify the problems with the following clinical presentations

Following early removal of the appliances, which problems can you identify?



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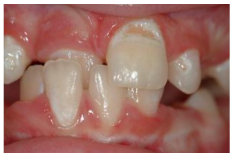
Identify the problems with the following clinical presentations



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Scenarios

- Likely diagnosis
- Prevention
- Treatment

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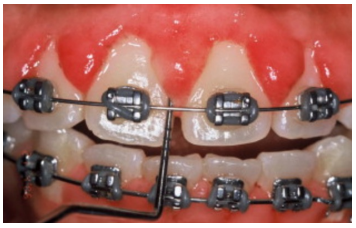
Scenario 1
You notice that a patient has swollen, red gums that bleed easily during brushing.



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Scenario 2
You see a chalky white patch around the upper lateral incisor bracket during a review.

- **What's happening?**
- **What advice?**

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Scenario 3
A patient complains of soreness behind their lower back teeth. You see a red, inflamed area around a partially erupted molar.

- **Likely diagnosis?**
- **Action?**

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Scenario 4
Your patient shows early gum recession around the lower incisors during treatment.

- **Possible causes?**
- **Advice?**

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Scenario 5
A 13-year-old patient has poor hygiene and drinks sugary drinks despite advice.

- **Risks?**
- **Your role?**

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References

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Questions?

Thank you!

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