● CLEAR ALIGNERS vs BRACES · KANPUR

Aligners ya Braces? Kaun Daant Kaise Hilaata Hai - asli mechanics dekhiye

Dono ek hi biology chalate hain. Bas force kahan store hota hai aur kaun control karta hai - woh alag hai

Clinic mein tray ka mock-up aur bracket ki photo saath-saath dikhti hai, magar asli sawaal **"dono ek hi kaam karte hain toh farak kya hai?"** hai. Jawab: daant **plastic ke dabbe se bhi nahi hatte, wire se bhi nahi** - daant hatte hain jab ek calibrated force ek taraf pressure banata hai aur doosri taraf tension, aur uske gird ki haddi **pressure wali taraf resorb** karke aur **tension wali taraf nayi haddi bana** ke react karti hai. Yahi **orthodontic bone remodelling** hai. Do systems ke beech ka poora fark isi biology ke **upar char parat** ban hai - aur **kaunsa aapke case mein sahi hai, woh brochure se nahi, aapki records se tay hota hai.**

- **75%** — 12 mahine mein aligners ka PAR index reduction
- **80%** — same trial mein fixed braces ka PAR reduction
- **20-22 h** — roz ka wear target - iske neeche plan length badh jaata hai
- **~50%** — purane aligner systems ki overall mean accuracy

CHAPTER 1 · ASLI FARK KYA HAI

Biology Ek Hai - Uske Upar Chaar Paratein Alag Hain

Ek 32 saal ki software professional yahi sawaal lekar aati hain: **shortest aur sabse kam dikhne wala rasta** kaunsa hai. Uski mild-to-moderate crowding, thoda deep bite, ek rotated premolar, aur 6 saal pehle ki alignment ke baad wapas movement ka record. Clinic har baar alag jawab deti hai - kyunki koi comparison **tar** par khatam karta hai.

1. Force kahan store hota hai
Braces mein force ek **bendable wire** mein rehta hai jo orthodontist mooh mein hi reshape karta hai. Aligner mein force ek **preformed plastic shell** mein hota hai jo virtual plan se bani hoti hai.

2. Force kaise express hota hai
Rectangular edgewise wire rectangular slot mein baithti hai, isiliye **tipping, rotation, torque aur vertical control** ek saath chal sakte hain. Aligner ek patli membrane ki tarah kaam karta hai - **tipping aur translation** ke liye badhiya, torque aur rotation ke liye kamzor.

3. Timeline kaun control karta hai
Fixed appliance bond hone ke baad **chalta hi rehta hai**. Aligner sirf tab chalta hai jab pehna ho - isiliye patient compliance ek **clinical variable** ban jaati hai, preference nahi.

4. Plan ko edit kaise karte hain
Braces mein agle mahine ek **wire change**. Aligner mein nayi **scan, naya setup, nayi trays** - accurate hai, magar complex plans mein asli turnaround implication hai.

Headline research finding: mild-to-moderate, non-extraction adult cases mein dono systems **comparable alignment improvement** dete hain, magar fixed appliance ko **overall index scores** aur **torque, rotation, root control** mein **modest edge** milta hai. Yeh marketing verdict nahi - comparative literature yahi baar baar kehti hai. Isiliye **assessment-led decision, brand-led decision se aage hai.**

CHAPTER 1B · NEECHE SE COMPARISON

Nau Dimensions Ka Side-by-Side Parda

Yeh wahi table hai jo consultation mein discussion ka base banta hai. Ek line bhi ignore nahi karni - **har row plan ko badal sakti hai.**

Dimension	Clear aligners	Fixed braces
Force source	Preformed thermoplastic trays + attachments, elastics	Bonded brackets + continuous archwire, elastics, chains
Fixed ya removable	Removable - roz 20-22 ghante	Bonded - poori active phase tak
Plan revision	Digital re-scan, re-plan, nayi tray series	Chairside par wire change, bend, elastic change
Review rhythm	Roughly 8-10 hafte, progress scans ke saath	Roughly 4-6 hafte, adjustments ke liye
Hygiene	Jaise hai waise brush & floss; khane par nikalna	Roz brackets aur wire ke aas-paas interproximal cleaning
Visibility	Social situations mein near-invisible	Visible; ceramic aur lingual variants hain
Discomfort	Tray change par pressure feel, kabhi-kabhi sore	Har adjustment ke baad 24-72 ghante sharp soreness
White spot risk	Kam - mainly attachment bases ke aas-paas	Zyada - brackets ke aas-paas enamel saaf karna mushkil
Relapse protection	Aakhri tray ke baad disciplined retainer wear	Debond ke baad disciplined retainer wear

CHAPTER 2 · BRACES KAISE KAAM KARTE HAIN

Rectangular Slot Aur Wire - Yahi Poori Machine Hai

Har daant par bracket bond hota hai, aur bracket mein ek **slot** hota hai. Aaj kal woh slot rectangular hota hai - aksar **0.022 × 0.028 inch**. Wire bhi rectangular hai. Yahi geometry poora trick hai: wire **chhaai se bada aur uncha** hota hai, isiliye woh bahar nahi nikal sakta, aur slot ke andar uska **angle hi decide karta hai ki root kahan jayega**. Ulta daal dijiye, usi daant ka torque ulta ho gaya.

Phase	Kya lagta hai	Biological aur mechanical kaam
Levelling & alignment	Round nickel-titanium wires, badhta hua diameter	Light continuous force se crowding resolve - daant arch form mein tip hote hain
Working	Rectangular stainless steel, .018x.025 se .019x.025	Torque control shuru, space closure, arch shape refine
Finishing	Stainless steel + bends, elastics, vertical elastics	Final overjet, overbite, midline, occlusal contacts, detailing
Retention	Lower front ke peeche bonded retainer + removable retainer	Rotation-prone daanton ka relapse kam karna

Zyada push karoge toh tez nahi, nuksan
Pressure zone mein blood vessels ka sterile collapse - **hyalinisation** - resorption ke cells ko rok deta hai aur root ko nuksaan kar sakta hai. Isiliye orthodontics **light, continuous, well-distributed force** chahta hai. Yahi principle aligners par bhi lagta hai, magar fixed appliance mein usse **honour karna aasaan** hai - kyunki appliance daant par hai, chahe patient dekh raha ho ya na dekh raha ho.

Simultaneity - ek wire, kai daant ek saath
Ek continuous wire har daant ko jodta hai, isiliye **4 mm space closure** mein kai daant ek saath move ho sakte hain - aur wire saath hi tip, torque aur arch form bhi control karta hai. Plastic tray se woh combination laane ke liye planning tricks chahiye - aur wahi Chapter 3 ka subject hai.

CHAPTER 3 · ALIGNER KAISE KAAM KARTA HAI

Digital Planning, Trays Aur Teen Auxiliaries

Sawaal **"clear aligners kaise kaam karte hain?"** - chaar clinical kadam mein.

1 Capture
Intraoral scan ya precise impression har daant, gum line aur contact point map karta hai. Photographs, bite registration aur radiographs record poora karte hain.

2 Plan
Scan planning software mein jaata hai jahan clinician poori treatment daant-daant plan karta hai - kitne millimetre, kis direction mein, kitni trays mein.

3 Fabricate
Trays thermoform hoti hain. Har tray daanton ki near-identical copy hai jisme **chhota programmed offset** - aam taur par ek tray par fraction of a millimetre.

4 Drive
Pehni hui tray bade surface area par halka, well-distributed pressure deti hai - braces ka biological equivalent, magar chhote aur constant increment ke saath.

Tray ek patli shell hai - isiliye woh **khud torque ya rotation express nahi kar sakti**. Teen auxiliaries yeh gap bharte hain, aur inhi ki wajah se aligner-friendly case aligner-friendly hota hai.

Attachments
Chhote tooth-coloured resin bumps jo specific daanton par bond hote hain. Tray ko **positive grip** dete hain - rotate ya tip hone wale daant ko push karne ke liye kuch chahiye hi chahiye.

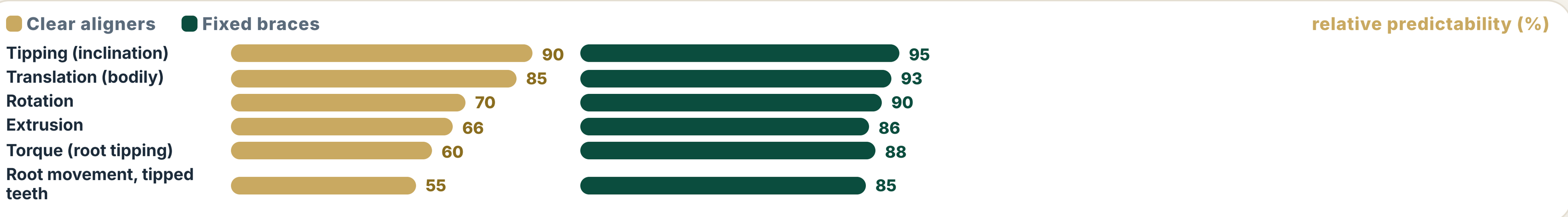
IPR - interproximal reduction
Daanton ke beech controlled enamel stripping, jisse woh **1-2 mm** space banta hai jo plastic shell khud nahi bana sakti. Aligner crowding isi tarah solve karta hai.

Elastics aur power arms
Daant par bonded buttons jinpar shaped composite arm lagta hai - tray ko **pull ya push karne ka lever** deta hai. Rotations, deep-bite opening aur mushkil closure ke liye.

CHAPTER 3B · MOVEMENT KA HISAAB

Kaunsa Movement Kis System Mein Kitna Reliable Hai

Yeh figure article ke apne Chart.js data se nikala gaya hai - published reviews aur scoping reviews ka indicative range. **Teaching illustration hai, clinical promise nahi.**

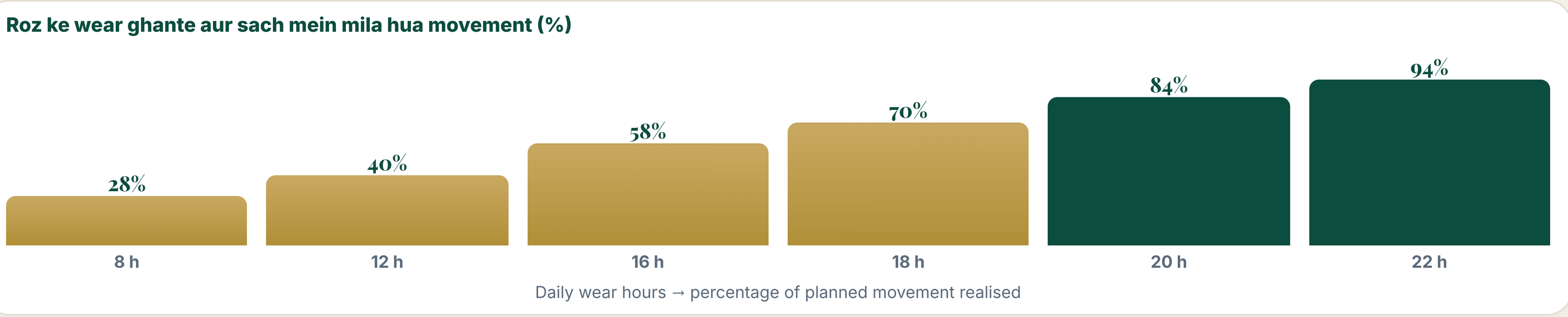


Published aligner accuracy studies purane systems ke liye **overall mean accuracy ~50%** report karte hain, rotations mein shortfall **roughly 5 degree**, aur torque commonly **roughly ek teesri** kam express hota hai. Planning software, attachment design aur multi-tray refinements se numbers sudhare hain - magar **ranking ulti nahi hui**.

CHAPTER 4 · WEAR TIME KA ASLI FARAK

Compliance Hi Sabse Bada Clinical Variable Hai

Yeh sabse zaroori variable hai, aur ise aksar **inconvenience** bataye jaata hai jabki yeh **clinical factor** hai. Tray sirf tab kaam karti hai jab **seated ho**. "Removable hone ki wajah se gentle hai" - galat. **Wear ke proportion hi iske proportional hai.**



Roughly **20 ghante per day se neeche** plan khatam karne ke liye **zyada trays** chahiye, **refinement rounds** zyada hone lagti hain, aur finishing date estimate ban jaata hai. Uske upar progress predictable ho jaata hai - aur **case complexity** phir se faisla karti hai.

BRACES CHOOSE KARIYE
Agar aap **20-22 ghante ka rule track nahi** karenge. Agar contact sport khelte hain jahan removable tray risk hai. Ya orthodontist ko plan par **maximum chairside control** chahiye.

ALIGNERS CHOOSE KARIYE
Agar aap **consistently wear** karenge. Agar treatment ke dauraan appearance professionally matter karta hai. Agar **decay ya white spot ka history** hai. Ya koi prosthesis ya musical instrument apne aas-paas rakhna hai.

DONO KE LIYE
Dono ke baad **retainer zaroori** hai. Retention optional extra nahi hai - wahi phase hai jo mahinon ka kaam protect karti hai, khaaskar kisi **rotated daant** ke liye.

CHAPTER 5 · KYA KAUN THEEK KAR SAKTA HAI

Movement By Movement - Yehi Honest Comparison Hai

Koi bhi appliance "behtar machine" nahi hai. Wo **alag-alag machine** hain. Isiliye sawaal "kaun behtar hai" nahi, "**aapke case ke liye kaun sahi hai**" hai.

Correction required	Clear aligners	Fixed braces
Mild-moderate crowding	**Excellent** IPR se space bana kar	**Excellent** gentle levelling wires se
Spacing ya midline closure	**Very good** full closure sequence se	**Very good** complex closure mein aksar tez
Rotations (gol premolar)	**Possible** attachments se, magar kuch degree under-correct	**Reliable** bent wire seedha rotation deta hai
Deep bite / bite opening	**Possible** attachments + bite ramps; final bite kam precise	**Very controllable** bite turbos, reverse curve, vertical elastics
Torque (root position)	**Weakest area** frequently under-expressed	**Excellent** rectangular wire + slot exact torque deta hai
Root movement, tipped teeth	**Less predictable**	**Standard capability**
Severe crowding, >5 mm discrepancy	**Often limited IPR + fixed phase** ya hybrid	**Strongly favoured**
Posterior crossbite / expansion	**Achievable** careful sequencing se	**Very predictable** incl. skeletal expansion
Extraction, bada closure	**Possible but staged** aur elastics par dependent	**Favoured** space closure fixed ka core strength hai
Impacted / unerupted daant	**Apne aap se nahi**	**Required traction** - brackets, wire, surgical exposure
Skeletal jaw discrepancy	**Correct nahi kar sakta** - braces alone bhi nahi	**Correct nahi kar sakta** - orthognathic/growth chahiye

Do limitations ko apna paragraph milna chahiye. Pehla - **severity ceiling**: fixed appliance ek mushkil case ko aam taur par ek hi course mein sambhaal leta hai, jabki aligner par severe case ko refinement scans, extra trays ya mid-course appliance change chahiye hote hain. Doosra - **occlusal finishing**: effectiveness comparisons mein aligners final occlusal contacts aur torque banane mein fixed se **kam consistent** nikle hain. Agar aapka goal **sirf saaf se seedhe front daant** nahi, balki **functional excellent bite** hai, toh yeh farq matter karta hai.

CHAPTER 5B · KAB HYBRID PLAN SAHI HAI

Case Complexity Ke Saath Dono Ka Behaviour

Chosen appliance **bina switch ya supplement kiye** intended result kitni baar deta hai - case complexity ke hisaab se.



Mild aur moderate crowding mein dono systems paas-paas hain. Kahan farak khulta hai? **Severe crowding (45 vs 90), rotations aur torque, aur extraction closure** - yahan aligners ko switch ya supplement ki zaroorat padti hai. Experienced orthodontist treatment se pehle hi bata deta hai ki aapka case **aligner-friendly zone, braces-dominant zone, ya hybrid zone** mein kahan hai. Wo baat kisi marketing comparison se zyada mehngi hai.

CHAPTER 6 · ASSESSMENT KYA DECIDE KARTA HAI

System Kaise Chunta Hai - Preferences Nahi, Records

Kisi bhi orthodontist se poochhiye ki system kaise decide hota hai, aur honest jawab hoga - **records review**, preference nahi. Yahan yeh hai ki kaunsi cheez check hoti hai, aur **har item recommendation kyun badal deta hai.**

Assessment item	Kya check hota hai	Plan kyun badalta hai
Photos & intraoral scan	Arch form, crowding, rotations, gum levels, missing teeth	Movements ki sankhya aur type decide hote hain - aur IPR se kitna space banna hai
Bite registration	Overjet, overbite, molar-canine relation, occlusal contacts	Deep bite ya functional shift case ko fixed control ki taraf push kar sakta hai
Radiographs	Root positions, bone levels, wisdom teeth, pathology	Confirm karta hai ki movement safe hai aur bone volume roots ke liye kaafi hai
Periodontal assessment	Gum health, bone support, recession risk	Kam support mein force lighter aur movement slow - aligner IPR bhi sahi na ho
Growth & age	Skeletal maturity, baaki growth	Growing adolescents growth modification se kabhi extraction avoid kar sakte hain - fixed conversation
Extraction decision	Space chahiye ya nahi, aur kitna	Bada closure braces favour karta hai; aligners ko staged ya hybrid plan chahiye
History & expectations	Purana relapse, retainer compliance, sports, kaam ki appearance	Relapse history bonded retainer aur compliance hataane wale system ko mazboot karti hai
Oral hygiene baseline	Plaque levels, existing white spots, decay history	Kharab baseline hygiene low-plaque option ko favour karti hai, strict protocol ke saath

Ek zaroori baat jo logon ko nahi pata hoti: aligner se braces mein **mid-treatment switch** ho sakta hai - aur hota bhi hai. Agar case aligner-friendly nikla magar plan atak gaya - jo aksar kisi stubborn rotation par hota hai - toh ek **chhota fixed finishing phase** ke saath khatam karna bilkul legitimate aur clinically sound plan hai. **Jo clinician yeh possibility explain nahi kar sakta, us par bharosa mat kijiye.**

KEY TAKEAWAYS

Ek Line Mein Poora Comparison

Shuru yahan se kijiye: **records poochhein, preference nahi**.

> *"Koi bhi appliance daant seedha nahi karta. Clinician ka plan seedha karta hai. Brackets aur trays sirf woh instrument hain jo plan deliver karte hain - aur sahi instrument aapki haddi, aapka bite aur aapki aadaton se tay hota hai, brochure se nahi."*
>
> Orthodontic assessment ka guiding principle

- ✓ **Wahi biology, alag mechanics.** Dono systems daant pressure-tension se bone remodelling karate hain. Braces rectangular slot mein wire se force dete hain; aligners preformed plastic shell se.
- ✓ **Comparable results, alag strengths.** Mild-to-moderate non-extraction adult cases mein dono similar improvement dete hain. Fixed ka edge **torque, rotation, root control, deep-bite control** aur complex space closure mein hai.
- ✓ **Wear time ek clinical variable hai.** Aligner sirf pehne tab kaam karta hai. **20+ ghante roz** ka working assumption hai - kam karne se treatment lamba hota hai aur refinements ka chance badhta hai.
- ✓ **Hygiene ka trade-off real hai, magat manage ho jaata hai.** Brackets se white-spot risk zyada; aligner-treated daanton mein interproximal traps ban sakte hain. **Koi bhi maintenance-free nahi hai.**
- ✓ **Records decide karte hain, preference nahi.** Scans, bite records, radiographs, periodontal health, extraction needs aur aapki khud ki compliance history - inhi se decide hota hai ki kaun sa system planned result de sakta hai.
- ✓ **Retention mandatory hai.** Jo bhi system chuniye, outcome utna hi stable hai jitna aap baad mein **retainer** pehne hain. Rotated daant tez relapse karte hain.

Aligners ya Braces? Records Hi Sahi System Bata Denge.

Saluja Dento Max Fac Centre par G.T. Road, Ashok Nagar, Kanpur, ek complete orthodontic assessment mein **photographs, scan ya impression, bite records aur radiographs** shamil hain - isiliye system ki recommendation **aapki anatomy se aati hai, preference se nahi**. Hum saaf saaf bata denge ki aapke case ke liye kaunsa option sahi hai aur kaunsa nahi. Aur agar plan atak gaya toh **aligner se braces ka mid-treatment switch** bhi hum khulke discuss karenge - kyunki woh legitimate plan hai, koi compromise nahi. **Records review book kijiye, sales pitch nahi.**

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