

IMPLANT GUIDE • BONE GRAFTING • KANPUR

Bone Grafting: Zaroori Hai Ya Nahi?

Kya karta hai, kaise heal hota hai, aur sach mein kiske saath zaroori hai — 7 chapters mein.

Lagon ko graft ka naam sunte hi darr lagta hai. Halki baat samajh lo — yeh modern implantology ka sabse **predictable aur routine** procedure hai. Bas sahi material, sahi stage aur sahi defect ke liye plan hona chahiye. Neeche padhiye, phir decide kijiye.

GRAFT SKIP KAR SAKTE HAIN

6–8 mm

Bone kaafi hai, implant sahi position mein aa sakta hai — conservative aur sahi choice

GRAFT ZAROORI HAI

<5–6 mm

Width/height kam — bina graft implant lingual, bahar ya shallow jayega

Daant Nikalne Ke Pehle Saal Mein Kya Hota Hai

DATA

~50%

Ridge width ka loss — pehle saal mein (*Schropp et al.*)

6.1 mm

Reported average width loss within one year

2/3

Us loss ka hissa sirf pehle 3 mahine mein

0.5–1%

Annual loss after year one — dheema, par kabhi zero nahi

Bone Shrink Deta Hai — Aur Dheere Nahi

CHART

Alveolar ridge width after extraction

Nikalne ke din		100%
3 mahine		~83%
6 mahine		~68%
12 mahine		~50%

Illustrative curve, published dimensional-change studies par based. Index: extraction-day width = 100%.

Ridge Preservation

Extraction ke **usi waqt** kiya jaata hai — shuru ho chuke collapse ko slow karta hai.

Ridge Augmentation

Baad mein, healed site par — saalon pehle khoyi hui bone ko rebuild karta hai.

Kyun Zaroori Hai

Graft ka maalab "bone paida karna" nahi — **sahi jagah** banana hai, jahan implant biologically theek lage.

5 Graft Materials — Kaun Kaunsa

MATERIALS

MATERIAL	SOURCE	HEALING	KAHAN SABSE USEFUL
Autograft	Aapki apni jaw, chin ya retromolar bone	4–6 mo	Reference standard; block grafts vertical gain ke liye
Allograft	Processed human donor bone	4–6 mo	Socket preservation, horizontal augmentation, particulate
Xenograft	Bovine / porcine mineral	6–9 mo	Sinus augmentation; slow, stable volume
Alloplast (synthetic)	Calcium phosphate, hydroxyapatite, bioactive glass	3–6 mo	Space maintenance, contained defects
Block graft (format)	Usually autograft ya processed block	4–6 mo	Vertical + horizontal; 4 mahine mein ~26–27% resorption

Material Karta Kya Hai — 3 Biological Kaam

BIOLOGY

OSTEOGENIC

Cells Laata Hai

Apne saath zinda bone-forming cells deta hai — sirf autograft.

OSTEOINDUCTIVE

Signal Deta Hai

Aapke apne cells ko bone banane ka signal deta hai.

OSTEOCONDUCTIVE

Scaffold Hai

Nayi bone iske upar **chipakti** hai — sabhi materials mein yei hai.

Reported horizontal bone gain by technique (mm)

Block graft (onlay)		~2.5 mm
GBR + membrane		~1.8 mm
Particulate + membrane		~1.5 mm
Socket preservation		~1.0 mm

Illustrative comparison of published means. 2025 series of simultaneous ridge recontouring reported mean gain 1.8 mm.

Membrane Ka Kaam

Guided bone regeneration: soft-tissue cells ko bahar rokta hai, bone cells ko jagah deta hai. Collagen membrane 4–8 hafte mein dissolve.

Mixing Common Hai

Autogenous bone = cells, particulate = filling, xenograft = volume, membrane = protection. **Combination defect-wise** chuni jaati hai, aadat se nahi.

Chair Par Kya Hota Hai — 8 Steps

PROCEDURE

1

Anaesthesia & Asepsis

Area thoroughly numb — surgery khud **painless**. Patient ko bas pressure feel hota hai.

2

Flap Design

Chhota gum flap, blood supply **preserved**. Acchi soft tissue hi healing decide karti hai.

3

Decortication

Bone surface micro-rough — deliberate bleeding, marrow spaces khulte hain. Naye vessels yahin se aate hain.

4

Harvesting

Sirf autograft mein — jaw, chin ya wisdom-tooth ke peeche se. Site sutures se band.

5

Graft Placement

Packed, shaped to implant contour; screws, pins, mesh ya sutures se **stability**.

6

Membrane

Resorbable collagen membrane upar, flap ke neeche tuck. Doosra operation rare.

7

Closure

Tight, **tension-free** suturing — exposure aur infection ka sabse bada protection.

8

Post-op

1–2 din brush/rinse nahi, 1 hafta soft diet, no smoking. Sutures 7–10 din mein.

Graft Integrate Kaise Hota Hai

HEALING

DAY 1–7

Clot + Immune Clear

Neutrophils aur macrophages debris saaf karte hain.

WEEK 2–4

Blood Vessels Aate Hain

Fibroblasts + osteoprogenitors migrate in. **Blood supply** sabse important.

MONTH 2–6

Woven → Lamellar Bone

Pehle woven bone, phir implant ke liye mazboot lamellar bone.

MONTH 4–6

Scan Par Confirm

Repeat CBCT par gain measurable — drill se pehle proof.

Graft se implant placement tak — kitna time

Socket preservation	3–6 mahine
Synthetic / allograft (horizontal)	4–6 mahine
Block graft (vertical gain)	4–6 mahine
Xenograft sinus augmentation	6–9 mahine

Range matter karti hai, midpoint nahi. Maxilla (upper jaw) trabecular + kam dense hai — wahan plan zyada conservative rakha jaata hai.

Staged vs Simultaneous

Staged: implant mahine baad. **Simultaneous:** same session — sirf jab native bone se 15–35 Ncm primary stability ban rahi ho.

Kya Timing Badalta Hai

Defect size, jaw region, age, smoking, **blood sugar control**, aur graft stability. 166 cases ka review: maxilla aur 40+ age mein failure zyada.

Kaun Ko Chahiye, Kaun Ko Nahi

INDICATION

✓ Haan, Graft Zaroori Hai

✓ Buccolingual width **<5–6 mm** — sahi emergence profile ke liye kam

✓ Vertical height **kam** — saalon se poora tooth loss ya trauma ke baad

✓ Maxillary sinus floor **low/pneumatized** — neeche 5–6 mm se kam bone

✓ Periodontal disease ne bache daanton ke aas-paas **defect** banaye hain

✓ Trauma, cyst removal ya tumour surgery ke baad **contained bony defect**

✓ Aesthetic zone mein **labial plate thickness** chahiye, narrow ridge deta nahi

✗ Nahi, Skip Karein

✗ Abhi **hi nikaala** gaya hai, socket ki deewarein healthy hain — 3–6 mahine baad implant

✗ Width **6–8 mm** se zyada hai — safety zone ke saath

✗ Aesthetic zone mein **residual height** aur labial bone mojud hai

✗ Implant **sahi prosthetic position** mein aa sakta hai, soft tissue compromise kiye bina

✗ Medical condition mein elective augmentation **risky trade-off** — bridge ya chhota implant discuss hota hai

"Kya main implant **wahin** laga sakta hoon jahan use hona chahiye — na ki padosi ke daant ke itne paas, na ki cheek mein jhuk kar?" Agar jawab **haan** hai, to graft mat karo. Agar **na** — to graft karo. Doosra option wahi implant hai jo radiograph par tikta hai par biologically fail hota hai."

— Honest clinical rule • over-treatment bhi utna hi problem hai jitna under-treatment

CBCT Scan Kya Batata Hai

IMAGING

Residual ridge width

Crest, 3 mm apical aur 6 mm apical par — kyunki width **uniform** nahi hoti.

Vertical height

Crest se vital structures tak: mandible mein canal + mental foramen, upper jaw mein sinus + nasal floor.

Density & architecture

Cortical thickness aur trabecular pattern — **primary stability** aur drilling behaviour predict karte hain.

Defects & pathology

Undercuts, ridges, concavities + koi residual cyst, root fragment ya infection — graft se pehle clear.

Digital planning

Wahi data virtual implant positioning aur guided surgical template deta hai — **graft implant ke plan ke hisaab se banta hai, ulta nahi**. 4–6 mahine baad repeat CBCT graft maturity confirm karta hai. Well-run implant centre mein yeh doosri nazari **standard practice** hai, optional extra nahi.

Surgery Se Pehle 6 Sawaal Zaroor Puchhein

ACTION

1 Kunsaa dimension deficient hai — width, height, ya dono? Mujhe kitne millimetres chahiye?

2 Yeh technique aur kyun — mere case mein staged behtar hai ya simultaneous?

3 Kaunsa material, aur kyun — protection hogi (membrane, fixation)?

4 Scan mujhe dikhayenge — before aur after? Implant se pehle repeat CBCT confirm karega?

5 Agar fail ho gaya to? Aapki exposure/infection rate kya hai aur follow-up protocol?

6 Pehle kya control karna hai — smoking, uncontrolled blood sugar, ya gum disease? Teenon hi graft healing sabse zyada disturb karte hain.

The Crown Multispeciality Dental Clinic & Implant Center

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TIMINGS

Tue–Sat: 11AM–3PM & 5PM–9PM | Sun: 11AM–4PM | Mon: Closed

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Kanpur