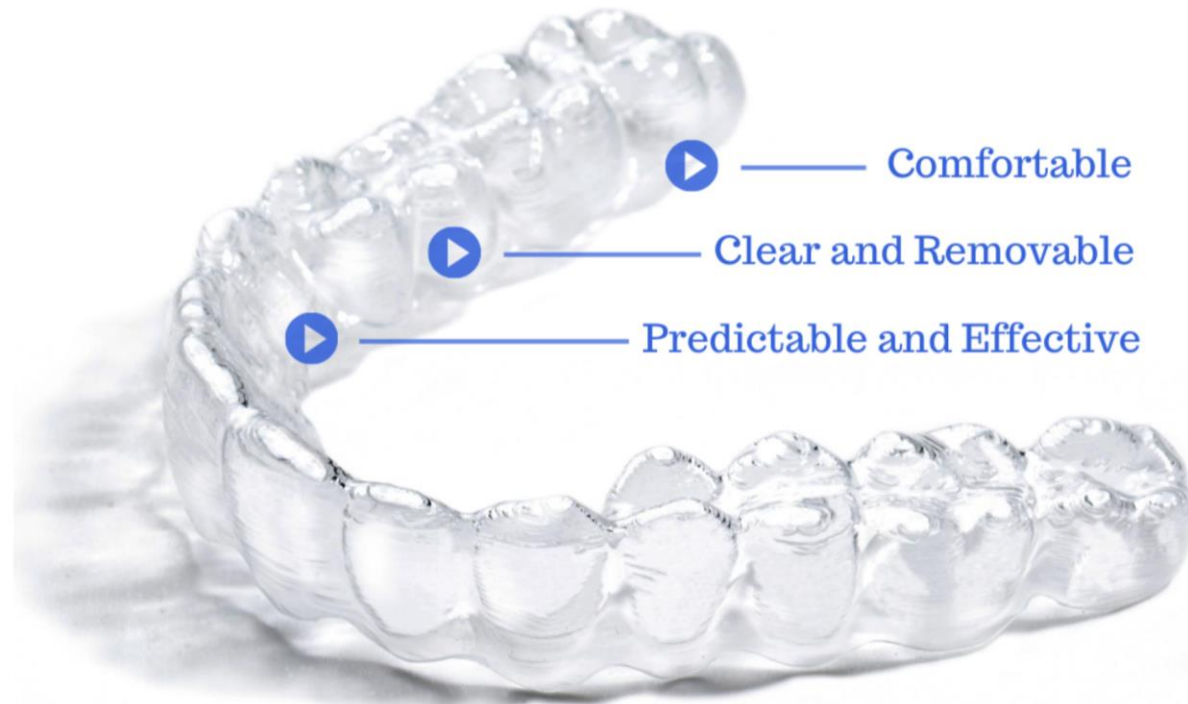


ACTIVE ALIGNERS



A Comprehensive Guide to IPR: Taking you from Start to Finish

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INTER-PROXIMAL REDUCTION

- Introduction to IPR
- Evolution of IPR
- Treatment Planning
- IPR Assessment
- Risk Management
- Manual Instrumentation
- Step by Step Guide
- IPR Summary
- Tips for Success
- FAQ's
- Conclusion
- References and Acknowledgments



Research supports the use of interproximal reduction by showing no increased decay on the altered surfaces, greater stability after treatment, and no increase in sensitivity when the amount of enamel removed is kept within reasonable limits

Dr. Greg Jorgensen (Orthodontist)

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INTRODUCTION TO IPR



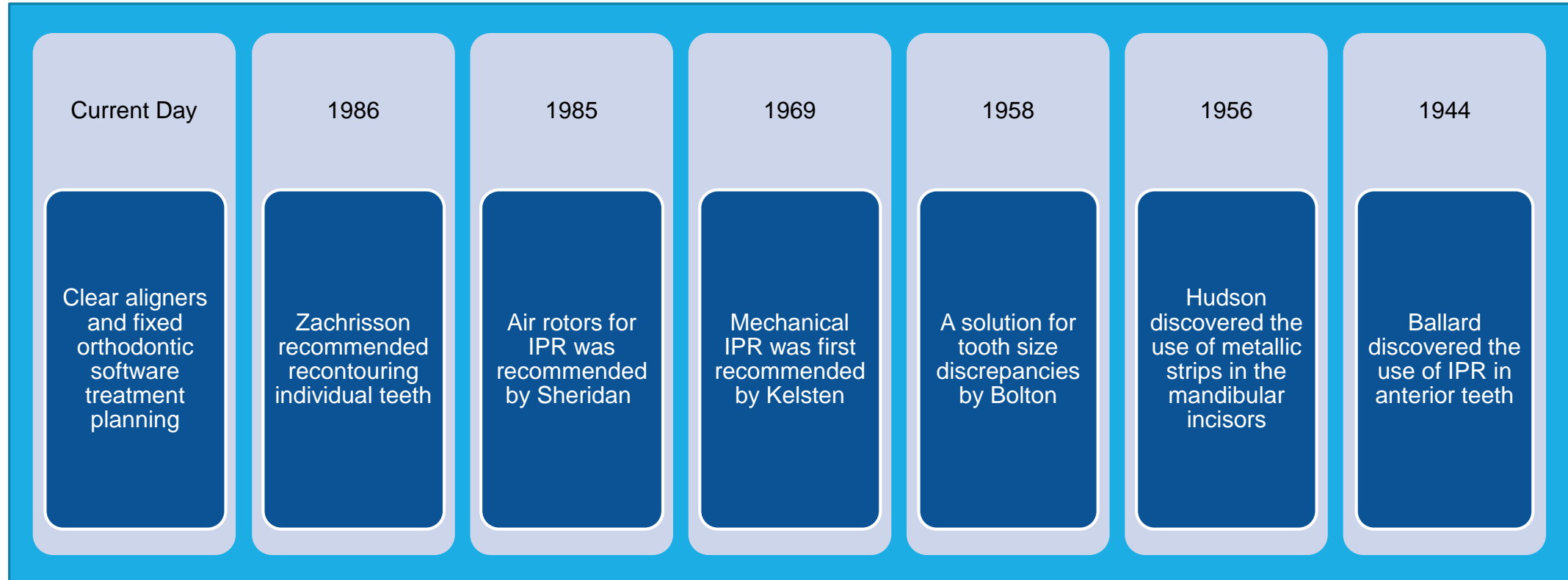
What is Interproximal Reduction (IPR)

Interproximal reduction is a simple, safe and successful method to create space for orthodontic tooth movement. It is used to resolve mild to moderate crowding without extractions during orthodontic treatment.

(Goodman, 2011)

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EVOLUTION OF IPR



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IPR TREATMENT PLANNING

IPR Patient Explanation

Procedure should be explained in detail to the patient following ethical guidelines.

It is important that the patient knows and understands the procedure.

They should be fully aware of all indication and contraindications associated with the procedure.

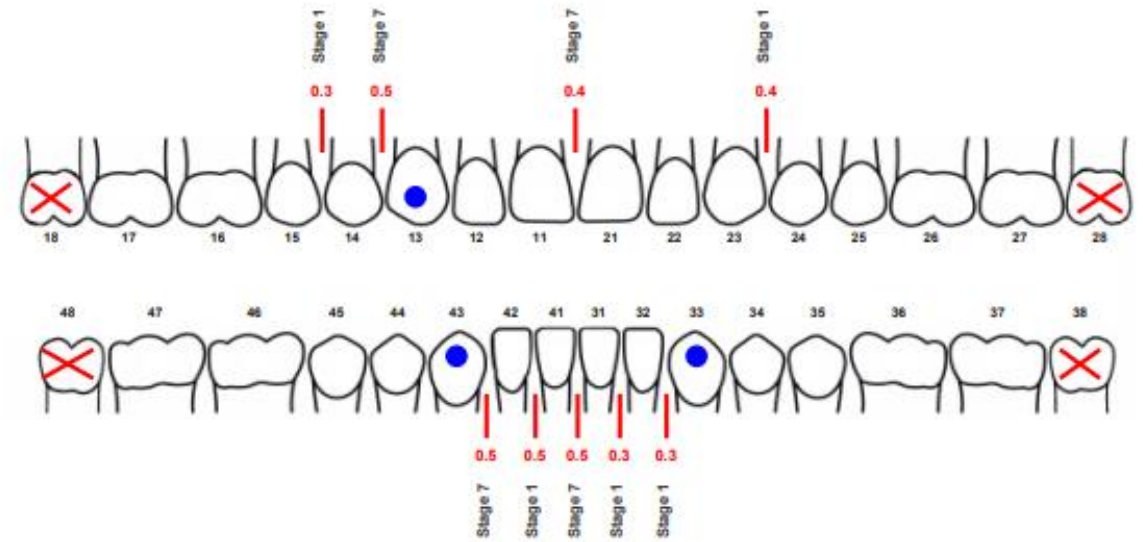
Patient should give verbal and written consent regarding the treatment.

We do provide you with a customizable informed consent when you onboard.

Treatment Summary PDF Example

The treatment summary will indicate where IPR is required and attachments need placing.

Please note: the stage that IPR or attachments are required.



Attachments: stage: 0 teeth: 13, 33, 43

- - The attachment icon shown at a specific stage indicates that an attachment needs to be placed at that stage.
- | - The IPR (interproximal reduction) icon shown at a specific stage indicates that IPR needs to be performed at that stage. IPR values are displayed in millimeters.
- X - Missing tooth.

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IPR - ASSESSMENT



Dental and medical history to be completed before treatment

Use smile summary for each individual patient to see allocated IPR sites

Use Smile Summary video of before and after to assist in recognizing the contact areas of specific teeth that require IPR

In order to determine the thickness of enamel in the involved teeth, Radiographs may be required

Assess for contraindications

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IPR ASSESSMENT Cont.

Indications (Candidate)

Crowding of the mandibular or maxillary incisors

Black triangle in the anterior teeth

Tooth size discrepancy

Reshaping of teeth to increase stability

Recontouring of teeth

Traumatic occlusion

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Contra-indications (Non-Candidate)

Hypersensitive

Enamel hypoplasia

Required reduction exceeds the recommended limit per arch

Excessive crowding if in the absence of extraction

Rotated teeth, no proper access to the contact area

Patients with poor oral hygiene

Patients with very rectangular teeth

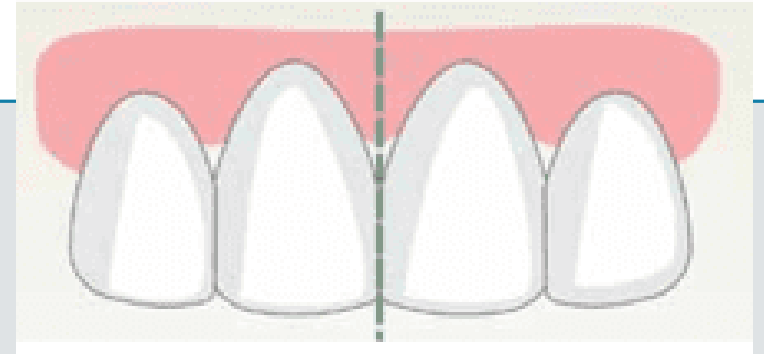
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IPR - Risk Management

HARD AND SOFT TISSUE CONSIDERATIONS

- Symmetrical midline should be preserved
- Excessive reduction could result in Peg laterals
- IPR should result in a contact point aligned with the vertex of the papilla
- Soft tissue must be protected
- Avoid creating wide interproximal spaces as they can compromise the periodontal status of the patient
- Enamel is generally thicker on the distal surface than the mesial



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IPR - Risk Management cont.



Enamel Ledging

Enamel ledges are formed when a practitioner gouges the tooth surface during IPR. It is more likely to occur when using mechanical instrumentation than manual. Enamel should be removed along the axis of the tooth and not perpendicular or vertical as ledging will be created.

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IPR - Risk Management cont.



Black Triangles

Black triangles are formed when IPR is performed on teeth with a minimal space between the proximal surface point and upper margin of the bone crest. This will result in poor aesthetics.

. 4.5 mm to 5mm is recommended distance when performing IPR.

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IPR - Risk Management cont.



Poor Contouring

When performing IPR it is possible to cause teeth to appear square or have sharp edged corners. For a more natural and aesthetically pleasing result, ensure all sharp edges and contouring of the tooth is rounded off..

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IPR - Manual Instrumentation

Manual Strips

- This material is the safest option, however time consuming.
- They are available in single and double sided.
- Single sided strips are a better option in breaking contact between the adjacent teeth.
- Double sided are most effective in achieving desired dimensions once contact has been broken.

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IPR - Step by Step Guide

Step One

Personal protective equipment and sterilized instruments need to be in place to minimize any potential harm to the practitioner and the patient.



Step Two

Use a retractor for better visibility and to reduce risk of harm to the lips.



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IPR - Step by Step Guide cont.

Step Three

Identify the operating site and apply topical anesthetic if required. Protection of soft tissue is important, therefore the use of wedges can be used to protect the gingiva.

A separating elastic can be used to open up the contact area to make it easier for practitioner to access site.



Step Four

When initiating IPR it is imperative to open the contact area first. This can be completed by using a fine diamond coated strip, and then the desired material can be used to reach set goal.

A separating elastic can be used to open up the contact area to make it easier for practitioner to access site.

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IPR - Step by Step Guide cont.

Step Five



- A gauge is used to assist with keeping dimensions accurate. This should be done before, during and after the procedure.



Step Six

- Once IPR is complete and dimension achieved it is imperative that polishing is done.
- Polishing strips can be used in conjunction with a white stone bur to contour any sharp edges.



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IPR - Step by Step Guide cont.



Step Seven

- A fluoride treatment can be applied to assist in remineralizing the enamel. Examples may, but are not limited to:
 - Tooth mousse
 - Enamel varnish
 - Fluoridated toothpaste

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IPR summary



1. IPR (Interproximal Reduction)

1. Always protect the soft tissue of lips, cheeks and gums with retractors or cotton gauze.
2. Always start the interproximal procedure with the thinnest strip using a back and forth motion. It's time to stop when the strip passes through easily.
3. Repeat the above process with a thicker strip to widen the contact to the Smile Summary PDF.



2. Checking spacing

1. Confirm the amount of interproximal enamel removed with the thickness gauge.
2. Use the gauge at every strip to not over strip.
3. Stop stripping when the gauge has the slightest resistance interproximally.



3. Polish and confirm

1. Always polish the interproximal surfaces worked on until the surface is round and smooth.
2. Verify the dimensions with the thickness gauge.
3. Remember to record the date and amount of IPR in the patient's record.

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IPR Tips for Success



- Gaining consent from the patient
- A thorough assessment of the patients tooth morphology and enamel thickness
- Assess the patient for any present contraindications to the procedure
- Understanding the smile summary
- Draft a plan of action both mentally and physically
- Prepare the appropriate working materials beforehand
- Use a method you are most comfortable with
- Protect the soft tissue around the tooth
- Always review the exact amount of IPR required in the Smile Summary PDF
- Avoid creating ledges near the cervical regions
- The aim of reduction is to create space for ideal tooth alignment during Active Aligner treatment, to give teeth a suitable shape whenever problems of **shape** or **size** require attention.
- Always check that reduction on stripping is in the correct contact area of the tooth as the tooth may be rotated during the treatment plan.
- As teeth are more often than not triangular shaped, IPR is often only needed at the contact points of the teeth.
- Stripping areas should be paralleled
- The stripped area should be fluoridated after polishing

(Barcoma *et al*, 2015)

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IPR – FAQ's:

Interproximal reduction is a procedure that files the surface down (reduction) between two adjacent teeth. Interproximal refers to the contact between two adjacent teeth. This procedure can be recommended when contact between two teeth prevents the desired orthodontic movement.



Q: Should I do all the IPR requested at once?

A: If the amount of IPR is 0.2mm or less, it can be performed all at once, if the amount of IPR exceeds 0.2mm, it is recommended to do it gradually along with the treatment plan, to avoid making the patient feel uncomfortable or create a place for the food to be stuck in there.

Q: How do I measure how much IPR I have performed?

A: With the IPR gauges, the gauges are metal strips to have more control on the reduction. These gauges can be sterilized in a steam autoclave, dry heat autoclave, or in a chemical cold sterile set.

Q: What do I use to perform the IPR?

A: IPR could be performed with:

- IPR strips
- Mosquito burs
- Low-speed handpiece disc.

The important aspect is to always try to preserve the anatomy, IPR strips provide that control, if a bur or disc is used, it is better to finish the removal with strips to avoid sharp edges and straight cuts.

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IPR – FAQ's cont:

Q: If the case presents IPR, when should I start doing it?

A: IPR is built into the treatment plan, often to start prior to delivering aligner 1. However, it can be indicated at a later stage. Please check the treatment summary to confirm at which stage the IPR should be done.

Q: Where is the IPR performed?

A: Only in the mesial or distal contact area.

Q: Do I need to perform all the IPR suggested on the Smile Summary?

A: When the IPR is more than 0.02mm, we recommend stopping the IPR process 0.01mm before getting to the total amount requested, and for that moment on, check the IP contacts on every appointment and just make that remaining 0.01mm if needed.



YouTube Video – IPR

<https://youtu.be/Snhc-DLrbHI>

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IPR Conclusion

•IPR is an effective and safe procedure. All precautions should be taken into consideration when working on a patient to prevent and reduce possible damage to the tooth and soft tissue. An assessment of the patients tooth morphology is an essential step to consider. Communicate with the patient to track their progress.

IPR References

1. Goodman J., 2011. <https://www.oralhealthgroup.com/features/interproximal-Reduction-IPR-for-dummies>
2. Static.webshopapp.com. (2015). *Interproximal Reduction Technical Guide*. [online] Available at: <https://static.webshopapp.com/shops/040625/files/162899870/ipr-techguide-ideal-strip-set-handmatig-en-hoekstu.pdf> [Accessed 10 Jun. 2019].
3. Barcoma E., Shroff B., Best M., Shoff M.C., Lindauer S.J., 2015. Interproximal Reduction of teeth: *differences in perspective between orthodontists and dentists, vol 85 pages (821-824)*.



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WE ARE HERE FOR YOU EVERY STEP OF THE WAY

- We pride ourselves on great customer service
- Support where needed: Online, Telephonic, Text
- Flexibility where it matters
- The Active Aligners team is here to help.

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