

## RUSSELL'S PERIODONTAL INDEX (PI)

P.S

The Periodontal Index (PI) was developed by Russell A.L. in 1956, over a trial period of ten years.

The PI was intended to estimate deeper periodontal disease by measuring the presence or absence of gingival inflammation and its severity, pocket formation, and masticatory function.

The PI is a composite index because it records both the reversible changes due to gingivitis and the more destructive and presumably irreversible changes brought about by deeper periodontal disease.

### METHOD:

All the teeth present are examined. All the gingival tissue circumscribing each tooth (i.e. all the tissue circumscribing a tooth is considered a scoring or gingival unit) is assessed for gingival inflammation and periodontal involvement.

### INSTRUMENTS USED

Mouth mirror, Plain probe.

### SCORING CRITERIA

Russell chose the scoring values (0, 1, 2, 4, 6, 8) in order to relate the stages of the disease in an epidemiological survey to the clinical conditions observed.

### RUSSELL'S RULE

The Russell's rule states that "When in doubt assign the lesser score".



| SCORE | CRITERIA                                                                                                                                                                                               | ADDITIONAL RADIOGRAPHIC FEATURES                                                                       |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 0     | NEGATIVE: There is neither overt inflammation in the invading tissue nor loss of function due to destruction of supporting tissues.                                                                    | Radiographic features essentially normal.                                                              |
| 1     | MILD GINGIVITIS: There is an overt inflammation in the free gingivae, which does not circumscribe the tooth.                                                                                           |                                                                                                        |
| 2     | GINGIVITIS: Inflammation completely circumscribes the tooth but there is no apparent break in the epithelial attachment.                                                                               |                                                                                                        |
| 4     | Used only when radiographs are available                                                                                                                                                               | There is early notch like resorption of alveolar crest.                                                |
| 6     | GINGIVITIS WITH POCKET FORMATION: The epithelial attachment has been broken and there is a pocket.<br>There is no interference with normal mastication, tooth is firm in its socket & has not drifted. | There is horizontal bone loss involving the entire alveolar crest upto half of the length of the root. |



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ADVANCED DESTRUCTION WITH LOSS OF MASTICATORY FUNCTION: The tooth may be loose; may have drifted; may sound dull on percussion with a metallic instrument; may be depressible in its socket.

Advanced bone loss involving more than half of the tooth root or a definite infrabony pocket with widening of PDL. Root resorption on maxillary maxilla at the apex.

### CALCULATION:

$$\text{PI score per person} = \frac{\text{Sum of individual scores}}{\text{Number of teeth present}}$$

### INTERPRETATION:

| Clinical condition                          | Individual PI score |
|---------------------------------------------|---------------------|
| Clinically normal supporting tissue         | 0 - 0.2             |
| Simple gingivitis                           | 0.3 - 0.9           |
| Beginning destructive periodontal disease   | 1.0 - 1.9           |
| Established destructive periodontal disease | 2.0 - 4.9           |
| Terminal disease                            | 5.0 - 8.0           |

**DRAWBACKS:** Since only a mouth mirror, and no calibrated probe is used, there might be an underestimation of the true level of periodontal disease.



# RECORDING FORMAT:

| 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |