



# Marshfield Labs™

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# Laboratory *News*

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## **RE-STANDARDIZATION OF INSULIN-LIKE GROWTH FACTOR 1 (IGF-1) ASSAY**

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Effective February 9, 2017, the Insulin-like Growth Factor 1 (IGF-1) assay performed at Marshfield Labs will switch to reagent kits with a calibrator that was re-standardized with the World Health Organization (WHO) 1st International Standard for insulin-like growth factor 1, NIBSC code 02/254. Providers should expect numerical changes in results. (Please see "Updated Reference Intervals", Tables 1 and 2, on page 2 of this article.) Ordering will remain the same.

### **BACKGROUND**

The stocks of the previous WHO International Reference Reagent (NIBSC code 87/518) are now exhausted. Calibrators used for IGF-1 immunoassays are to be re-standardized with the new WHO reagent, NIBSC code 02/254.

With this re-standardized assay, the observed results showed an average difference of approximately -40% when compared to the current IGF-1 method. As a result of these differences, re-baselining IGF-1 values of your patients is recommended.

The reference intervals are updated based on a multicenter study with samples from 12 cohorts from the United States, Canada, and Europe, that included 15,014 subjects (6,697 males and 8,317 females), 0 to 94 years of age. (J. Clin Endocrinol Metab, May 2014, 99(5); 1712-1721).

### **CONTACTS**

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**BEYOND numbers**

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**UPDATED REFERENCE INTERVALS**

**Table 1.** Reference interval based on age/gender

| Reference Intervals for IGF-1 (ng/mL) |      |      |        |      |
|---------------------------------------|------|------|--------|------|
|                                       | Male |      | Female |      |
| Age                                   | Low  | High | Low    | High |
| 0                                     | 25   | 134  | 17     | 107  |
| 1                                     | 27   | 142  | 18     | 113  |
| 2                                     | 30   | 156  | 21     | 124  |
| 3                                     | 35   | 174  | 24     | 140  |
| 4                                     | 39   | 191  | 28     | 160  |
| 5                                     | 44   | 208  | 32     | 182  |
| 6                                     | 49   | 226  | 37     | 204  |
| 7                                     | 55   | 247  | 43     | 228  |
| 8                                     | 63   | 273  | 50     | 258  |
| 9                                     | 72   | 306  | 58     | 295  |
| 10                                    | 83   | 343  | 69     | 338  |
| 11                                    | 96   | 384  | 80     | 382  |
| 12                                    | 108  | 421  | 90     | 421  |
| 13                                    | 118  | 449  | 99     | 450  |
| 14                                    | 126  | 465  | 106    | 466  |
| 15                                    | 130  | 467  | 109    | 467  |
| 16                                    | 130  | 457  | 109    | 457  |
| 17                                    | 128  | 439  | 107    | 436  |
| 18                                    | 125  | 417  | 103    | 410  |

| Reference Intervals for IGF-1 (ng/mL) |      |      |        |      |
|---------------------------------------|------|------|--------|------|
|                                       | Male |      | Female |      |
| Age                                   | Low  | High | Low    | High |
| 19                                    | 120  | 391  | 98     | 381  |
| 20                                    | 114  | 363  | 92     | 351  |
| 21-25                                 | 99   | 300  | 80     | 289  |
| 26-30                                 | 84   | 238  | 68     | 229  |
| 31-35                                 | 76   | 209  | 63     | 206  |
| 36-40                                 | 72   | 197  | 60     | 193  |
| 41-45                                 | 65   | 184  | 54     | 174  |
| 46-50                                 | 58   | 174  | 50     | 165  |
| 51-55                                 | 53   | 170  | 46     | 161  |
| 56-60                                 | 48   | 165  | 40     | 147  |
| 61-65                                 | 43   | 160  | 37     | 144  |
| 66-70                                 | 41   | 163  | 34     | 138  |
| 71-75                                 | 36   | 152  | 33     | 140  |
| 76-80                                 | 33   | 146  | 31     | 140  |
| 81-85                                 | 30   | 140  | 31     | 147  |
| 86-90                                 | 29   | 141  | 30     | 151  |

**Table 2.** Percentile reference based on Tanner age/gender

| Percentiles for IGF-1 according to Tanner Stages |                |              |        |        |        |        |
|--|----------------|--------------|--------|--------|--------|--------|
| Tanner   | Age Range year | IGF-1, ng/mL |        |        |        |        |
|  |                | 2.50%        | 25%    | 50%    | 75%    | 97.50% |
| <b>Males</b>                                     |                |              |        |        |        |        |
| I  | 6.1 - 12.9     | 70.19        | 113.20 | 136.30 | 159.74 | 216.35 |
| II   | 8.1 - 14.8     | 91.11        | 180.32 | 234.50 | 280.61 | 365.03 |
| III  | 10.9 - 16.0    | 207.62       | 288.51 | 343.95 | 379.06 | 431.48 |
| IV   | 12.4 - 17.1    | 188.88       | 308.08 | 370.66 | 415.52 | 487.17 |
| V  | 13.5 - 20.0    | 192.92       | 261.12 | 300.69 | 348.23 | 482.21 |
| <b>Females</b>                                   |                |              |        |        |        |        |
| I  | 5.8 - 12.1     | 74.06        | 130.08 | 159.57 | 199.55 | 273.22 |
| II   | 9.3 - 14.1     | 100.60       | 161.50 | 209.63 | 273.39 | 380.99 |
| III  | 9.3 - 15.1     | 218.87       | 300.52 | 323.45 | 363.77 | 445.84 |
| IV   | 11.8 - 16.6    | 190.23       | 287.33 | 319.67 | 369.40 | 493.97 |
| V  | 12.5 - 19.9    | 159.99       | 234.92 | 286.74 | 333.62 | 431.64 |

