**Estrogens, Total and Fractionated, LC/MS/MS**

**REFERENCE RANGES**

**E1 Estrone: Male (pg/mL) Female (pg/mL)**

<7 years Not available Not available

7-9 years <7 <20

10-12 years <11 1-40

13-15 years 1-30 8-105

16-17 years 1-32 4-133

18+ years 9-36 see message

**Message for Females**

**18+ year:**

Early Follicular <150

Late Follicular 100-250

Luteal <200

Post-menopausal 3-32

**Tanner stages for**

**all <18 years:**  **Male (pg/mL) Female (pg/mL)**

Tanner Stage I <7 <27

Tanner Stage II <11 1-39

Tanner Stage III 1-31 8-117

Tanner Stage IV-V 2-30 4-109

**E2 Estradiol: Male (pg/mL) Female (pg/mL)**

<7 years Not available Not available

7-9 years <7 <36

10-12 years <11 1-87

13-15 years 1-36 9-249

16-17 years 3-34 2-266

18+ years 10-42 see message

**Message for Females**

**18+ years:**

Early Follicular 30-100

Late Follicular 100-400

Luteal 50-150

Post-menopausal 2-21

**Tanner stages message**

**for all <18 years:** **Male (pg/mL)** **Female (pg/mL)**

Tanner Stage I <8 <56

Tanner Stage II <10 2-133

Tanner Stage III 1-35 12-277

Tanner Stage IV-V 3-35 2-259

**Estrogens Total**

**Calculated:** **Male (pg/mL) Female (pg/mL)**

<7 years Not available Not available

7-9 years <10 1-48

10-12 years 1-19 2-116

13-15 years 3-62 15-333

16-17 years 4-64 6-354

18+ years 19-69 see message

**Message for Females**

**18+ years:**

Early Follicular 30-250

Late Follicular 200-650

Luteal 50-350

Post-menopausal 5-52

**Tanner stages message**

**for all <18 years:**  **Male (pg/mL) Female (pg/mL)**

Tanner Stage I 1-11 1-86

Tanner Stage II 1-19 3-169

Tanner Stage III 3-61 23-351

Tanner Stage IV-V 4-62 8-341

Note that the total estrogens from estrone plus estradiol are not valid in pregnancy due to the presence of estriol at significant levels.