

|                          | <b>Metopic (n=17)</b> | <b>Controls (n=65)</b> |
|--------------------------|-----------------------|------------------------|
| <i>Male</i>              | 12                    | 40                     |
| <i>Female</i>            | 5                     | 25                     |
| <i>Mean Age (months)</i> | 23.9 ± 8.7            | 33.8 ± 8.8             |

Table S1: Patient demographics

|                | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|
| $\beta$        | -7.391   | -2.345   | -2.315   | 2.401    | -2.014   | 1.296    | -1.055   | -2.797   |
| <i>P-Value</i> | 0.0001   | 0.056    | 0.001    | 0.000    | 0.001    | 0.026    | 0.004    | 0.000    |

Table S2: Estimates and p-values for the regression coefficients using our model.

|                 | <b>Misclassifications</b> | <b>Sum of differences</b> | <b>Avg. relative error per scan</b> | <b>P-value</b> |
|-----------------|---------------------------|---------------------------|-------------------------------------|----------------|
| <i>3D model</i> | 194/306                   | 274                       | 0.323                               | p=0.019        |
| <i>IFA</i>      | 221/306                   | 406                       | 0.470                               |                |

Table S3: Different rating reconstruction errors comparing our model with the IFA model.

| Author                           | Measurement   |
|----------------------------------|---|
| Bottero et al. <sup>17</sup>     | Ratio of interparietal to intercoronal distance                               |
| Oi et al. <sup>3</sup>           | Nasopteron Angle  |
| Posnick et al. <sup>18</sup>     | Interorbital distance<br>Bitemporal Width                                     |
| Diluna et al. <sup>19</sup>      | Intercanthal Distance to midfacial width ratio<br>Endocranial bifrontal angle |
| Beckett et al. <sup>20</sup>     | Interzygomaticofrontal suture<br>Interdacryon distance                        |
| Ruiz-correa et al. <sup>21</sup> | Trigonocephaly severity index   |

Table S4: Previous Objective Measures