## SUPPLEMENTARY.

# Appendix 1.

**Table S1. Criteria for frequency of occurrence in different stages of Bender-Gestalt Test at different ages**

| Figure A description | Age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | >12 |
| Type 1: doodles of indefinite shape. | 77% | 15% | - | - | - | - | - | - | - | - |
| Type 2: figures of irregular shape, but their location resembles a pattern (usually two irregular circles with a small gap, sometimes touching or overlapping). | 15% | 45% | 14% | - | - | - | - | - | - | - |
| Type 3: two circles located along the horizontal axis and touching, the second of them is distorted in such a way that it resembles a quadrangle; figures often overlap. | + | 19% | 50% | 10% | 18% | - | - | - | - | - |
| Type 4: a circle and a quadrangle to the right of the circle are clearly drawn; they can touch each other, but not necessarily. | + | + | 16% | 13% | 6% | - | - | - | - | - |
| Type 5: a circle and a diagonally oriented quadrangle to the right of the circle are clearly drawn; they can touch each other, but not necessarily. | + | + | + | 12% | 34% | 23% | 26% | - | - | - |
| Type 6: circle and quadrilateral are correctly oriented and touching. | + | + | + | 57% | 40% | 68% | 57% | 50% | 83% | 70% |
| Type 7: "completely successful reproduction" — correct structure, pattern orientation, and size of figures. | + | + | + | + | + | + | + | 41% | 14% | 25% |
| **Figure 1 description** | **Age** | | | | | | | | | |
| | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **>12** |
| Type 1: doodles of indefinite shape. | 75% | - | - | - | - | - | - | - | - | - |
| Type 2: horizontally oriented pattern consisting of any symbols. | + | 18% | - | - | - | - | - | - | - | - |
| Type 3: a series of horizontally located circles; their number, size or distance between them may vary. | + | 50% | 13% | - | - | - | - | - | - | - |
| Type 4: the elements of the pattern are very small circles or dots. | + | 18% | 41% | 42% | 35% | 30% | 35% | - | - | - |
| Type 5: the elements of the pattern are very small circles or dots; their number is close to the pattern. | + | + | 35% | 51% | 40% | 45% | 37% | 28% | 32% | - |
| Type 6: the pattern consists of dots located along a horizontal line, their number and distance between them are reproduced almost correctly. | + | + | + | + | 10% | 18% | 27% | 70% | 67% | 72% |
| Type 7: in addition to the previous option, pairs of elements are highlighted. | + | + | + | + | + | + | + | + | + | 25% |
| **Figure 2 description** | **Age** | | | | | | | | | |
| | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **>12** |
| Type 1: doodles of indefinite shape. | 92% | - | - | - | - | - | - | - | - | - |
| Type 2: a series of horizontally or vertically oriented circles or just a lot of circles. | + | 67% | 32% | - | - | - | - | - | - | - |
| Type 3: horizontal series of carefully drawn circles; series are repeated three or more times in the vertical direction; in some cases, this pattern covers the entire page. | + | 22% | 60% | 34% | 14% | - | - | - | - | - |
| Type 4: vertical columns of three small circles; columns are repeated three or more times in the horizontal direction; no attempts to tilt the columns. | + | + | + | 62% | 50% | 62% | 30% | 15% | 27% | - |

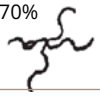
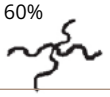
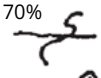
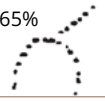
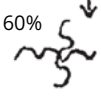
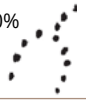
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Type 5: a horizontal pattern of vertical columns made up of small circles, plus an attempt to tilt the columns (as a result of which the whole figure may take on a certain tilt). | + | + | + | + | 10% | 26% | 36% | 32% | 38% | - |
| Type 6: the correct inclination of each vertical column, and the pattern as a whole maintains a horizontal orientation. | + | + | + | + | + | 10% | 23% | 35% | 34% | 30% |
| Type 7: "completely successful reproduction" — correct structure, pattern orientation, number of elements approximately equal to the sample. | + | + | + | + | + | + | + | 15% | 10% | 70% |
| **Figure 3 description** | **Age** | | | | | | | | | |
| | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **>12** |
| Type 1: doodles of indefinite shape. | 95% | 20% | - | - | - | - | - | - | - | - |
| Type 2: unstructured set of circles or dots. | + | 42% | 20% | - | - | - | - | - | - | - |
| Type 3: horizontal series of dots. | + | 23% | 26% | - | - | - | - | - | - | - |
| Type 4: a point and a series of points making up straight lines; small circles are used instead of dots; the lines gradually lengthen; the number of points may differ from the sample, but perseveration is not obvious; the distance between the lines varies. | + | + | 38% | 37% | 26% | 30% | 24% | - | - | - |
| Type 5: a point and a series of points making up regularly increasing arcs; the first two arcs contain the correct number of points, the rest - approximately the correct number; the last two arcs can be almost straight; the number of arcs corresponds to the sample. | + | + | 16% | 50% | 52% | 42% | 50% | 28% | 28% | - |
| Type 6: a point and a series of points forming regularly increasing angles; the number of points in each subsequent angle increases; the last corner can be smoothed almost to an arc. | + | + | + | + | 14% | 26% | 20% | 40% | 50% | 18% |
| Type 7: "completely successful reproduction" — correct structure, pattern orientation, number of elements approximately equal to the sample. | + | + | + | + | + | + | + | 28% | 12% | 80% |
| **Figure 4 description** | **Age** | | | | | | | | | |
| | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **>12** |
| Type 1: doodles of indefinite shape. | 70% | 30% | - | - | - | - | - | - | - | - |
| Type 2: two arcs that can intersect, touch each other, or be adjacent to each other, can be closed or open. | 25% | 45% | 12% | - | - | - | - | - | - | - |
| Type 3: two open arcs located horizontally; there may be attempts to place one lower than the other; the upper arc resembles an open square (in rare cases, the square can be closed); figures are adjacent to each other, touching or almost touching. | + | 20% | 56% | 22% | 28% | - | - | - | - | - |
| Type 4: the tilt of the square or the obvious deviation of the second figure from the diagonal of the square. | + | + | 34% | 56% | 42% | 27% | 23% | - | - | - |
| Type 5: the first figure is a nice open square; the second figure is located approximately along its diagonal. | + | + | + | 22% | 22% | 25% | 50% | 15% | 45% | - |
| Type 6: "completely successful reproduction" — correct structure and orientation of the pattern, size of the figures. | + | + | + | + | + | 42% | 19% | 83% | 55% | 100% |

| Figure 5 description | Age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | >12 |
| Type 1: doodles of indefinite shape. | 80% | 20% | - | - | - | - | - | - | - | - |
| Type 2: unstructured set of circles or dots. | + | 20% | - | - | - | - | - | - | - | - |
| Type 3: wide open arc and straight segment; the figures are usually made up of circles, but there are also lines. | + | 50% | 20% | 12% | - | - | - | - | - | - |
| Type 4: an arc and a straight-line segment made up of circles or, less commonly, points; there is deformation of the figure in the form of stretching or compression. | + | + | 42% | 25% | 44% | 37% | 31% | - | - | - |
| Type 5: an arc and a straight-line segment made up of points, corresponding in size to the sample; the segment touches the arc and is directed upward to the right (less often mirroring). | + | + | 20% | 58% | 54% | 52% | 53% | 22% | 26% | - |
| Type 6: "completely successful reproduction" — correct structure, pattern orientation, ratio and number of elements. | + | + | + | + | + | + | 14% | 78% | 58% | 100% |
| **Figure 6 description** | **Age** | | | | | | | | | |
| | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **>12** |
| Type 1: doodles of indefinite shape. | 90% | 15% | - | - | - | - | - | - | - | - |
| Type 2: two intersecting or approximately parallel lines, almost straight. | + | 53% | 22% | - | - | - | - | - | - | - |
| Type 3: two straight, broken or slightly wavy intersecting lines (usually at right angles). | + | 18% | 10% | 10% | - | - | - | - | - | - |
| Type 4: two wavy lines intersecting at right or oblique angles. | + | + | 42% | 90% | 70% | 64% | 67% | 73% | 30% | - |
| Type 5: two sinusoids whose length is approximately the same as the sample (although the number of waves may vary) and which intersect at right or oblique angles. | + | + | + | + | 28% | 27% | 28% | 25% | 60% | 45% |
| Type 6: "completely successful reproduction" — correct structure, pattern orientation, ratio and number of elements. | + | + | + | + | + | + | + | + | 10% | 45% |
| **Figure 7 description** | **Age** | | | | | | | | | |
| | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **>12** |
| Type 1: doodles of indefinite shape. | 90% | 28% | 15% | - | - | - | - | - | - | - |
| Type 2: two circles overlap, touch or not touch each other; usually they are located horizontally, but sometimes under each other. | + | 60% | 31% | - | - | - | - | - | - | - |
| Type 3: two irregular closed figures, an obvious attempt to draw corners (sometimes straight); the figures are close, but do not overlap. | + | + | 42% | 30% | 17% | 20% | 22% | - | - | - |
| Type 4: overlapping polygons were more or less successfully reproduced (2-3 corners were not drawn); shapes touch or overlap, but not in a pattern. | + | + | + | 54% | 53% | 48% | 50% | 10% | 24% | - |
| Type 5: overlapping hexagons were more or less successfully reproduced; one of the figures is usually larger and more carefully drawn. | + | + | + | + | 17% | 24% | 16% | 60% | 54% | 10% |
| Type 6: "completely successful reproduction" — correct structure, pattern orientation, ratio and number of elements. | + | + | + | + | + | + | + | 19% | 17% | 90% |
| **Figure 8 description** | **Age** | | | | | | | | | |
| | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **>12** |
| Type 1: doodles of indefinite shape. | 90% | 20% | - | - | - | - | - | - | - | - |
| Type 2: two irregular circles, one inside the other. | + | 50% | 15% | - | - | - | - | - | - | - |
| Type 3: two irregular circles, one inside the other. | + | 25% | 45% | - | - | - | - | - | - | - |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Type 4: the outer figure has relatively clearly drawn corners (can be 4, 5, 6 angles), while the inner figure is reproduced as a circle. | + | + | 26% | 52% | 45% | 51% | 48% | - | - | - |
| Type 5: a more or less well-reproduced hexagon with a rhombus inside it. | + | + | + | 40% | 40% | 44% | 40% | 42% | 54% | - |
| Type 6: "completely successful reproduction" — correct structure, pattern orientation, ratio and number of elements. | + | + | + | + | + | + | 10% | 48% | 34% | 100% |

*Note:* The result of the child copying each specific figure should be correlated with the types of reproduction presented in the first column. Having determined what type the child's drawing belongs to, you need to look at what is in the table cell located at the intersection of the row of this type and the column corresponding to the child's chronological age. If the cell contains percentage values, then we can say that the result is within the age norm. The value itself indicates what percentage of children of this age showed the same result. If the cell contains "+" or "-", this means that this type of reproduction is not typical for children of this age ("+" respectively means ahead of age norms, and "-" means delay) [1].

**Figure S2. Typical responses of subjects of different ages when performing the Bender-Gestalt Test.**

| | Figure A | Figure 1 | Figure 2 | Figure 3 | Figure 4 | Figure 5 | Figure 6 | Figure 7 | Figure 8 |
|---|---|---|---|---|---|---|---|---|---|
| Adults | 100% | 25%  | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 11 years old | 95% | 95% | 65% | 60% | 95% | 90% | 70%  | 75% | 90% |
| 10 years old | 90% | 90% | 60% | 60% | 80% | 80% | 60%  | 60% | 90% |
| 9 years old | 80% | 75%  | 60% | 70% | 80% | 70% | 80% | 65% | 70% |
| 8 years old | 75% | 75% | 75% | 60% | 80% | 65% | 70%  | 65% | 65% |
| 7 years old | 75% | 75% | 70% | 60% | 75% | 65%  | 60%  | 65% | 60% |
| 6 years old | 75% | 75%  | 60% | 80% | 75% | 60%  | 60% | 60% | 75% |
| 5 years old | 85% | 85% | 60% | 80% | 70% | 60% | 60% | 60% | 75% |
| 4 years old | 90% | 85% | 75% | 80% | 70% | 60% | 65% | 60% | 60%  |
| 3 years old | Scribbles | | | | | | | | |

*Note:* The cells show typical responses from subjects of a certain age and their frequency of occurrence as a percentage. An empty cell indicates no change in response pattern compared to previous ages. The proposed tables can be used as age norms to assess the degree of developmental delay or severity of regression [1].

Source: Belopolsky VI, Lovi OV. [Visual-motor Bender gestalt test: manual].2nd ed. Moscow: Kogito Centr; 2008. Russian.