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Statistical Analysis of the GDV data

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GDV Bio-Well program based in Internet allows to make statistical analysis of different parameters of the Bio-grams collected in different experiments.

For the moment of this analysis it was 18000 measurements of human fingers in the database, of both gender in the age from 25 to 100 years. Some people were tested multiple times. Analysis was done on all database without separation by age or gender.

Fig.1 presents histogram of GDV parameter Human Field Energy. (Energy E was calculated as

E = S x I x k, where S is the area of the image, I – averaged intensity, k – coefficient dependent on the physical properties of the GDV Bio-Well camera).

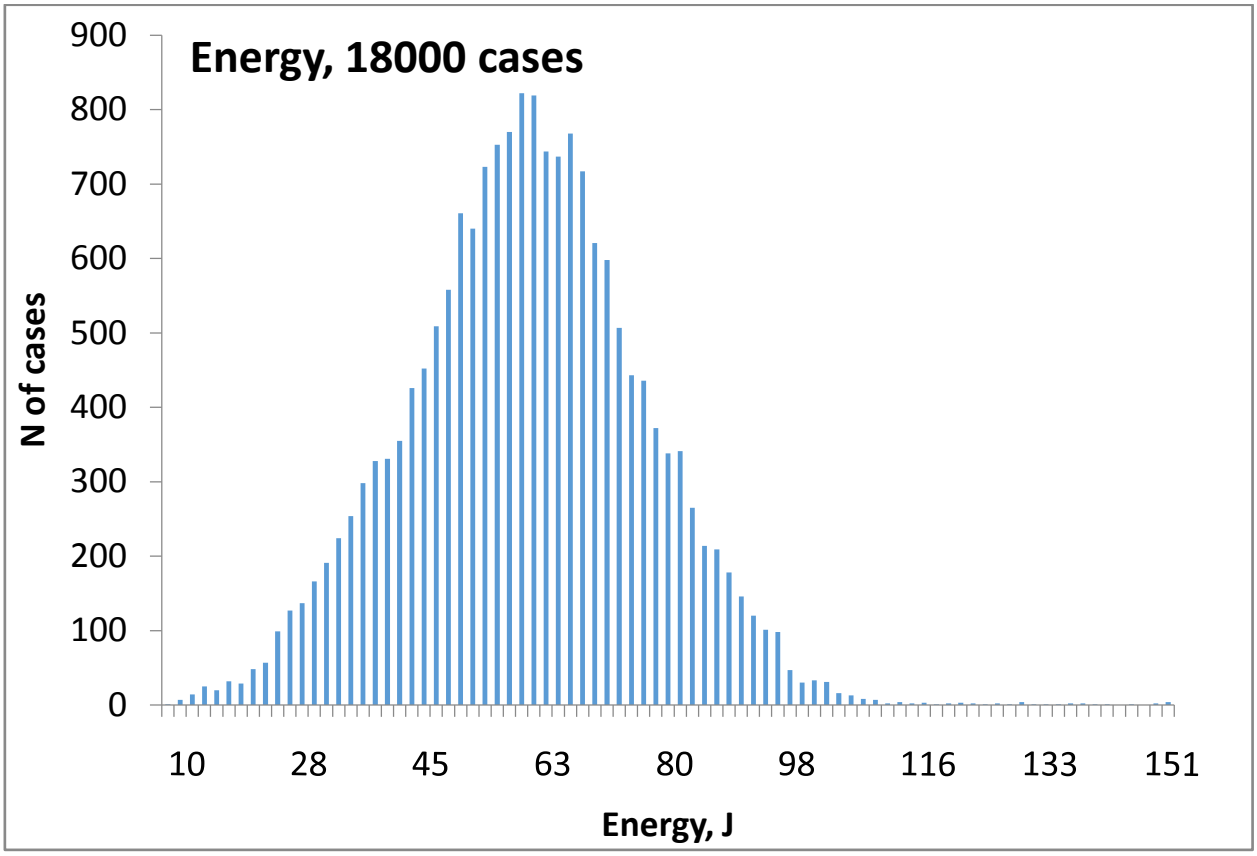


Fig.1 Histogram of GDV parameter Human Field Energy based on 18000 experiments. Abscises axes represent energy in Jouls, ordinate axes – amount of measurements with particular level of energy.

As we see from Fig.1, histogram has practically Gaussian way, which tells about normal distribution of this parameter.

Similar appearance had the histogram of energy distribution for every single finger.

Based on these data we have chosen the range of energy, typical for apparently healthy people as E = (40 – 70) Jouls.

Fig.2 presents histogram of Stress Index distribution.

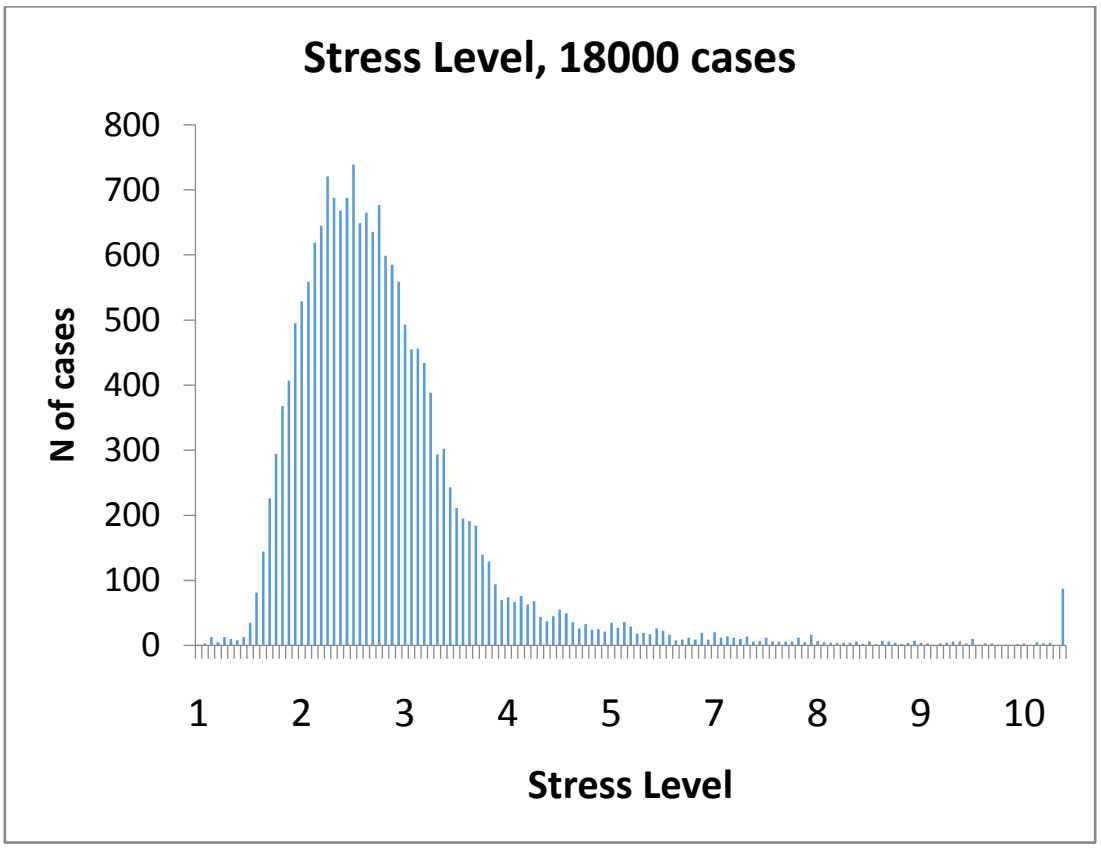


Fig.2 Histogram of Stress Level GDV parameter based on 18000 experiments. Abscises axes represent Stress Level in the scale from 0 to 10, ordinate axes – amount of measurements with particular level of stress.

As we see from Fig.2, histogram has well-presented maximum, but there are many measurements with high level of stress up to the maximum values.

Based on these data we have chosen the range of stress index, typical for apparently healthy people as: Str = { 2 - 4}.

Fig.3. presents histogram of distribution of the Balance parameter.

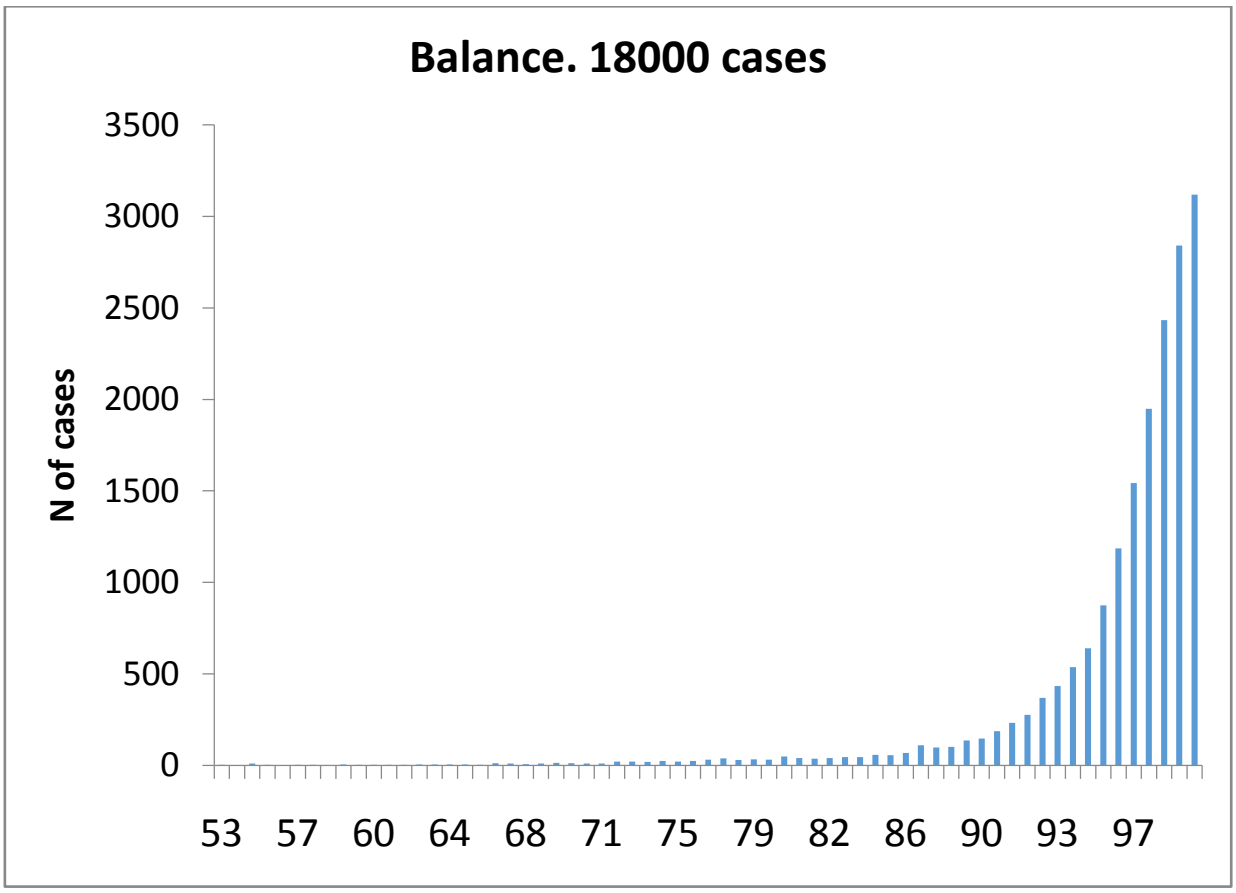


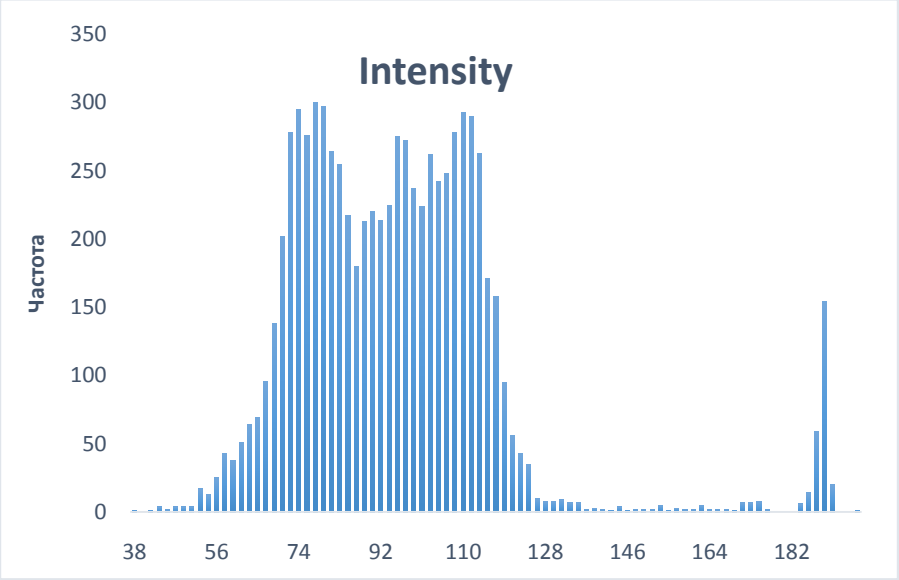
Fig.3 Histogram of Balance GDV parameter based on 18000 experiments. Abscises axes represent Balance parameter in the scale from 0 to 100, ordinate axes – amount of measurements with particular level of balance.

As we see from Fig.3, most of measured parameters belong to the diapason higher than 90%.

Каквидноизданныхрис.3, большинствоизмеренныхзначенийприходятсянадиапазонвыше 90%.

Based on these data we have chosen the range of Balance index, typical for apparently healthy people as: B = {90 – 100%}.

Histograms of parameters distribution for different fingers look identical. Below we present examples for the right thumb (R1). From these data it is clear that in statistical processing of data we need to use non-parametric methods of analysis. And the more the diapason of the particular parameter variation, the more it should be sensitive to the evaluation of different human states and may be useful for the research process.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Частота
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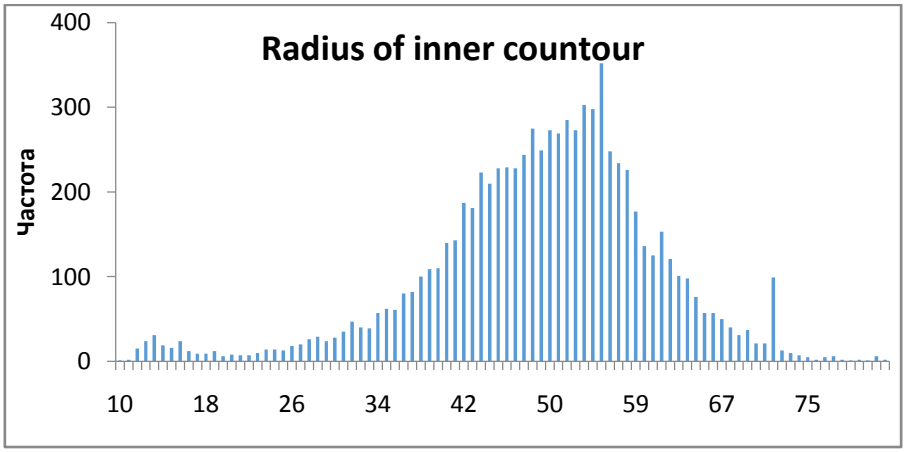
300
250
200
150
100
50
0
38
56
74
92
110
128
146
164
182


Radius of inner countour
Частота
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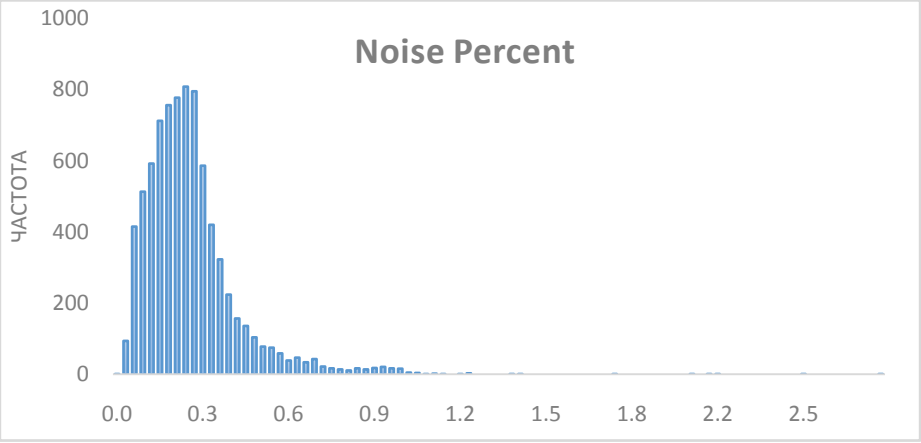
300
200
100
0
10
18
26
34
42
50
59
67
75


Noise Percent
ЧАСТОТА
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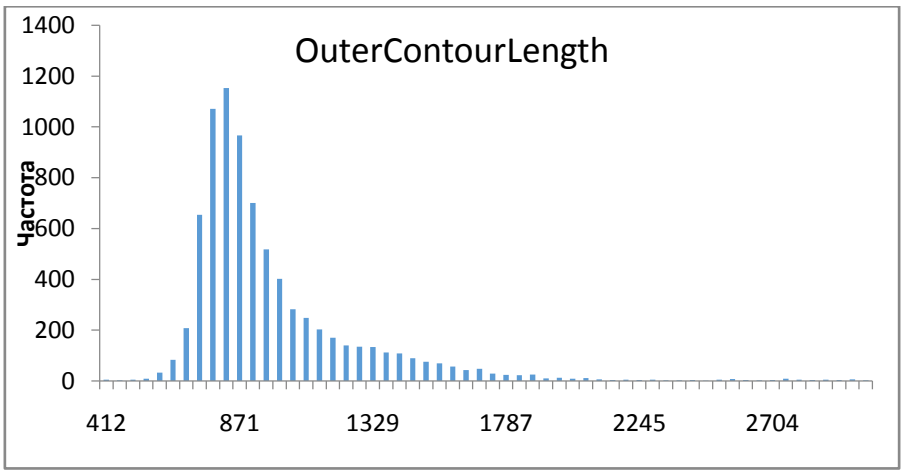
800
600
400
200
0
0.0
0.3
0.6
0.9
1.2
1.5
1.8
2.2
2.5


OuterContourLength
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1000
800
600
400
200
0
412
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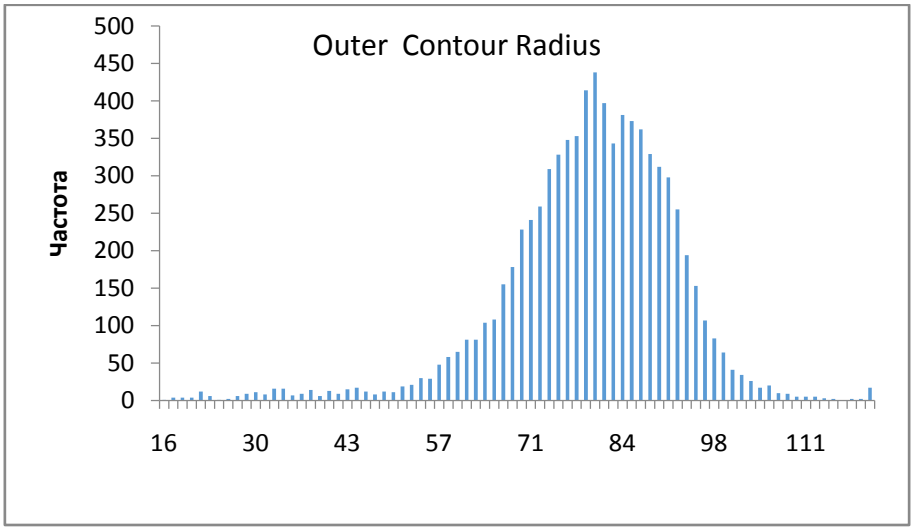
1329
1787
2245
2704


Outer Contour Radius
Частота
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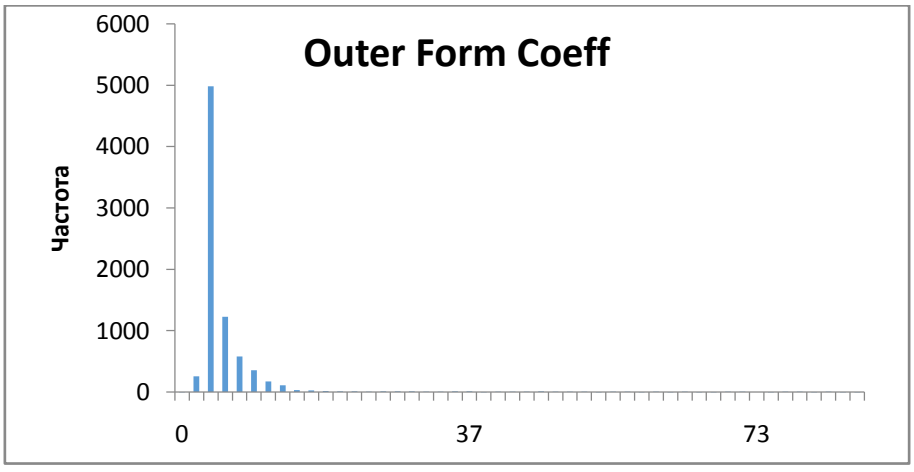
400
350
300
250
200
150
100
50
0
16
30
43
57
71
84
98
111


Outer Form Coeff
Частота
6000
5000
4000
3000
2000
1000
0
0
37
73

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