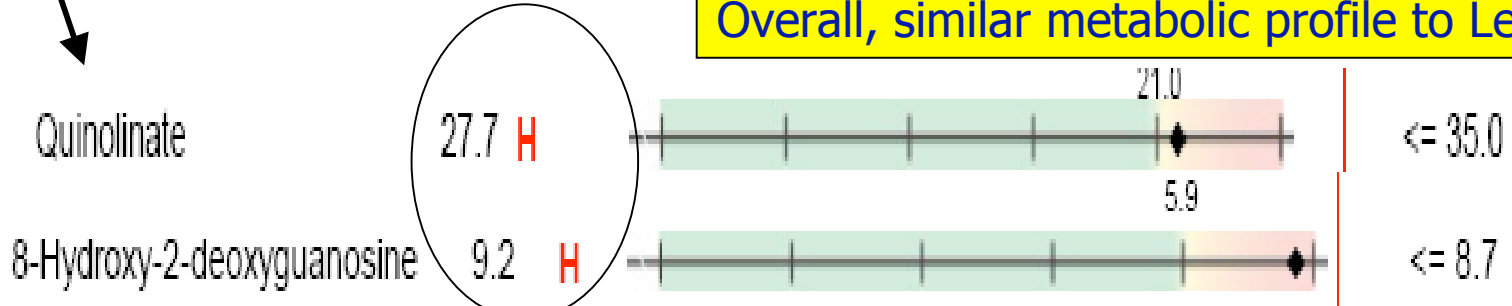


# Nathan, 5 year old male dx: ASD

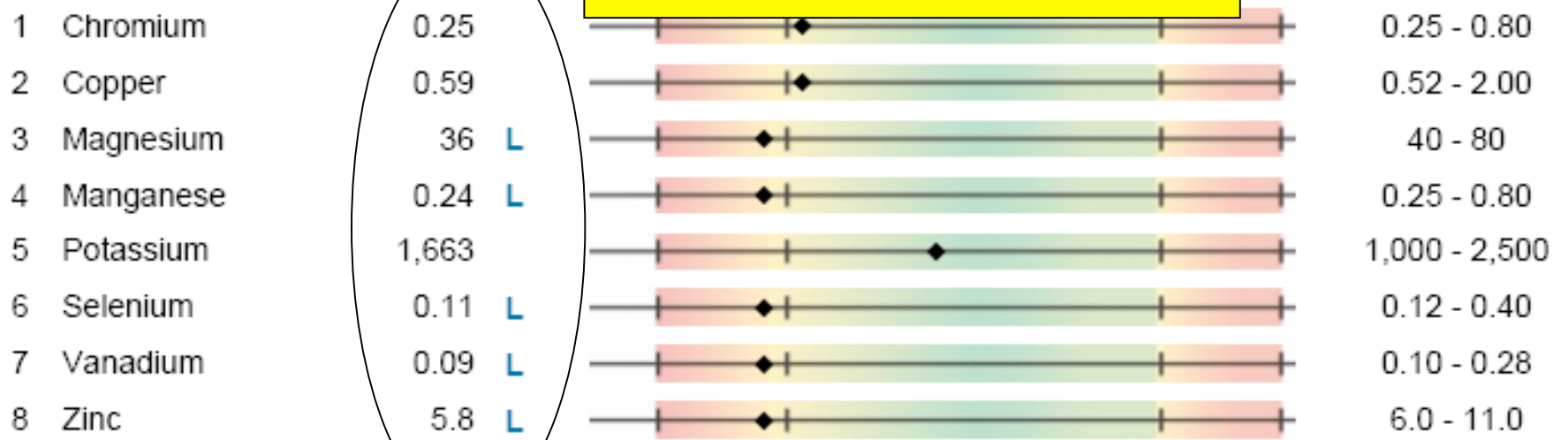


Overall, similar metabolic profile to LeAnne



Why is he so depleted?  
Gut absorbtion? Nutrient Intake? Constant immunostress?

Primarily Intracellular Elements Related



# Case Studies Using Organic Acid Testing

## B-Complex Vitamin Markers

(B1, B2, B3, B5, B6, Biotin)

15  $\alpha$ -Ketoisovalerate

0.47

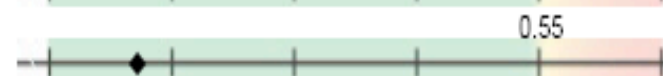


1.10

$\leq 2.10$

16  $\alpha$ -Ketoisocaproate

0.16



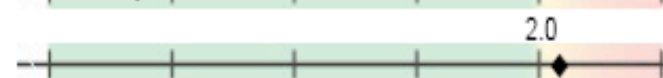
0.55

$\leq 1.00$

17  $\alpha$ -Keto- $\beta$ -Methylvalerate

2.4

H



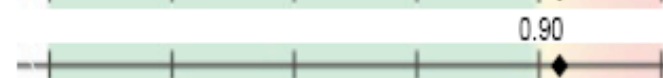
2.0

$\leq 3.7$

18 Xanthurenate

1.04

H



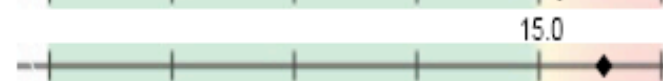
0.90

$\leq 1.50$

19  $\beta$ -Hydroxyisovalerate

21.2

H



15.0

$\leq 23.9$

## Methylation Cofactor Markers

(B12, Folate)

20 Methylmalonate

5.9

H

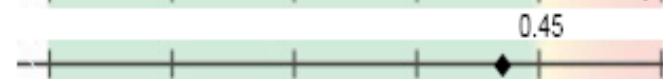


3.5

$\leq 4.8$

21 Formiminoglutamate

0.41

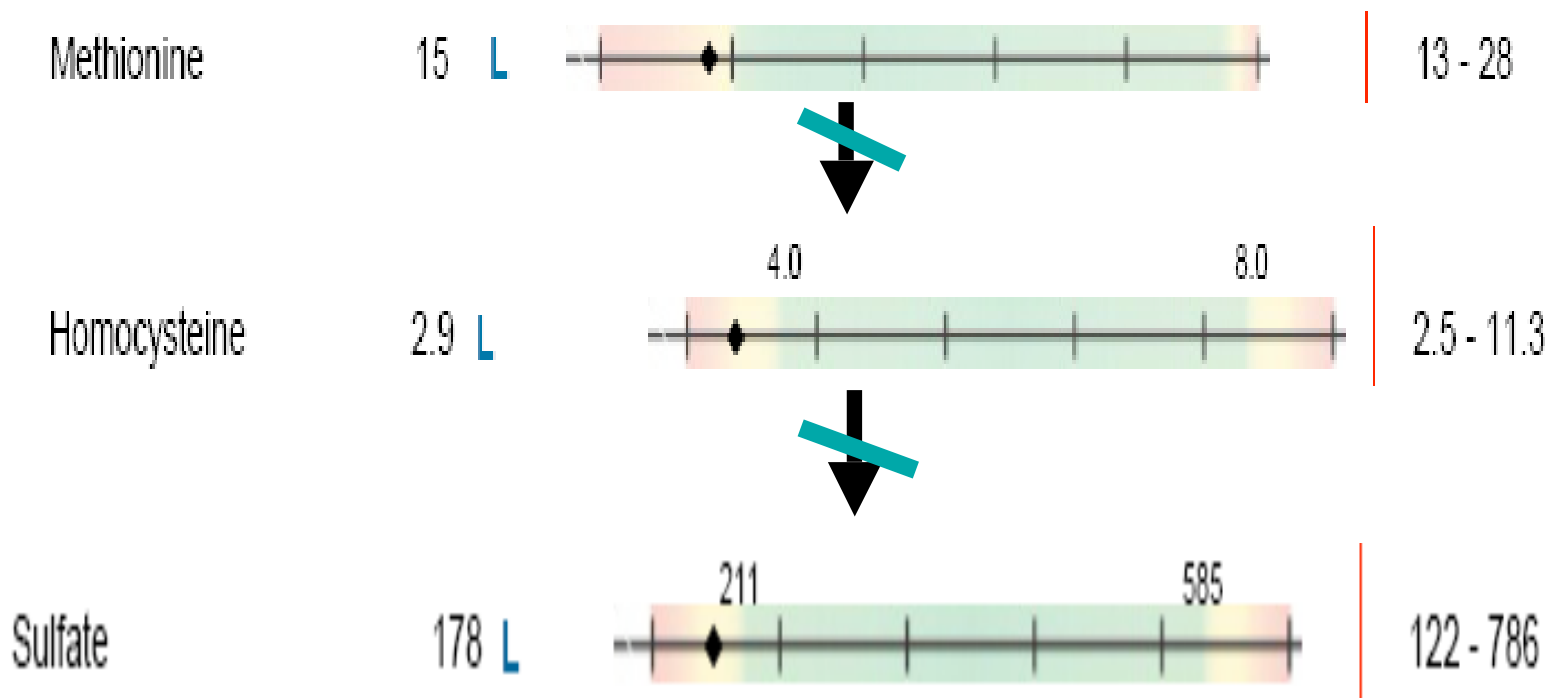


0.45

$\leq 0.93$

Folic acid looks O.K. but B12, B6, 1, 2, 3, 5 and biotin are indicated

Key markers of methylation and sulfation are very low, including homocysteine. Thus, the body is unable to generate adequate endogenous antioxidants and 8OHdG rises. Remember that the key cofactors are also very depleted in this child, and QUIN is elevated- pointing to inflammation and elevated immune response. Nathan's profile is typical of ASD children.



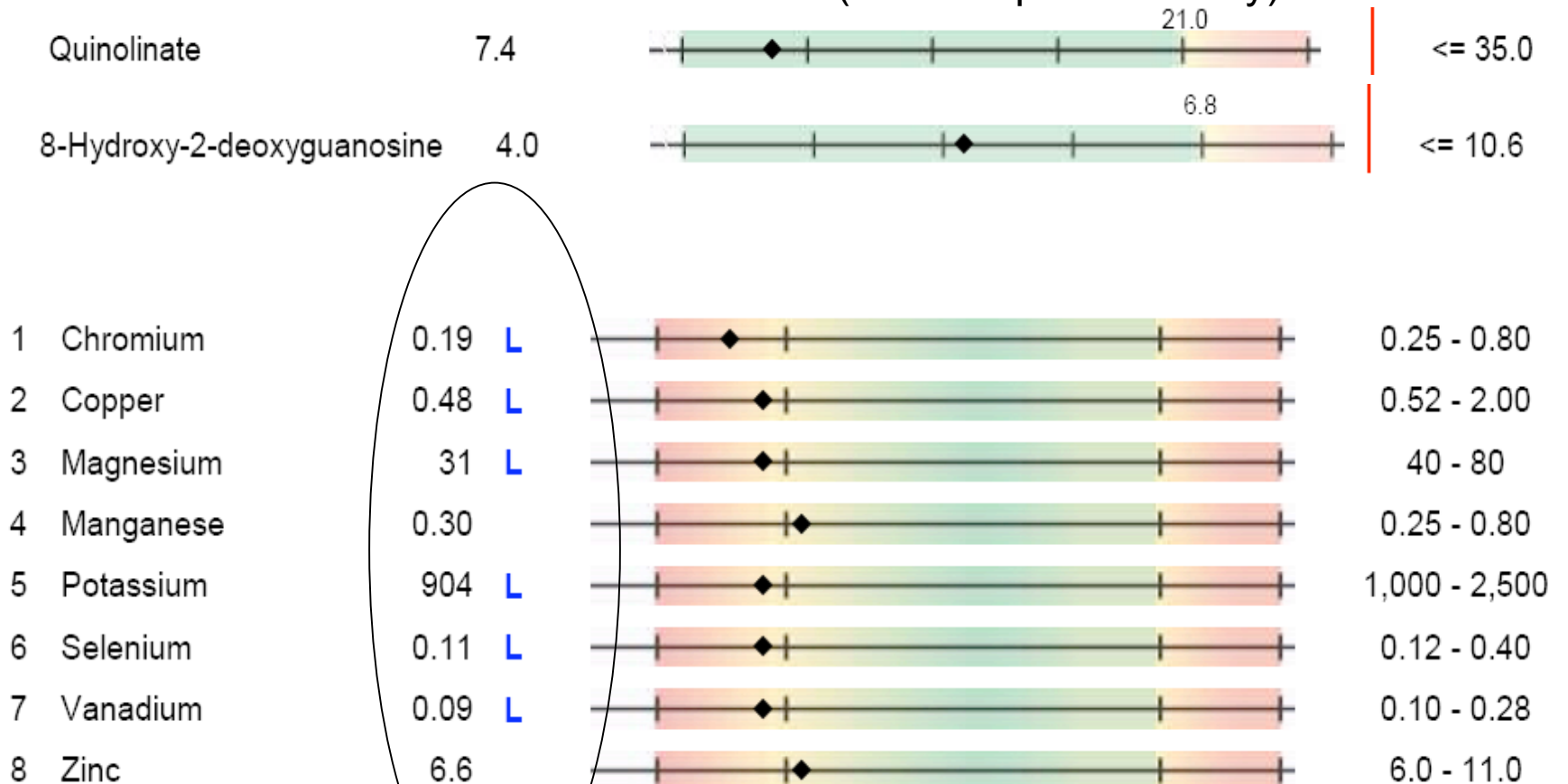
Total body stores of cysteine are depleted- including exogenous sources

# Case Studies Using Organic Acid Testing

- Considerations for Nathan:
  - QUIN elevation-  
1<sup>st</sup> locate, treat microbial presence-  
gf/cf diet, reduce GI+ other inflam/immune
  - 2<sup>nd</sup>: Modulate NMDA agonism:
    - Threonine
    - Magnesium
    - Taurine
  - B vitamins, minerals as indicated
  - Sulfur amino acids, antioxidants

# repetitious behavior (self stimming).

1<sup>st</sup> test 04/05 –(some tx prior to study)



B-Complex Vitamin Markers  
(B1, B2, B3, B5, B6, Biotin)

15	a-Ketoisovalerate	0.56	1.10	<= 2.10
16	a-Ketoisocaproate	< 0.1	0.55	<= 1.00
17	a-Keto-β-Methylvalerate	1.1	2.0	<= 3.7
18	Xanthurenate	0.4	0.9	<= 1.5
19	β-Hydroxyisovalerate	10.5	15.0	<= 23.9

Methylation Cofactor Markers  
(B12, Folate)

20	Methylmalonate	2.8	3.5	<= 4.8
21	Formiminoglutamate	0.50 H	0.45	<= 0.93

Homocysteine

4 L

Modest methylation/sulfation issues

<= 8

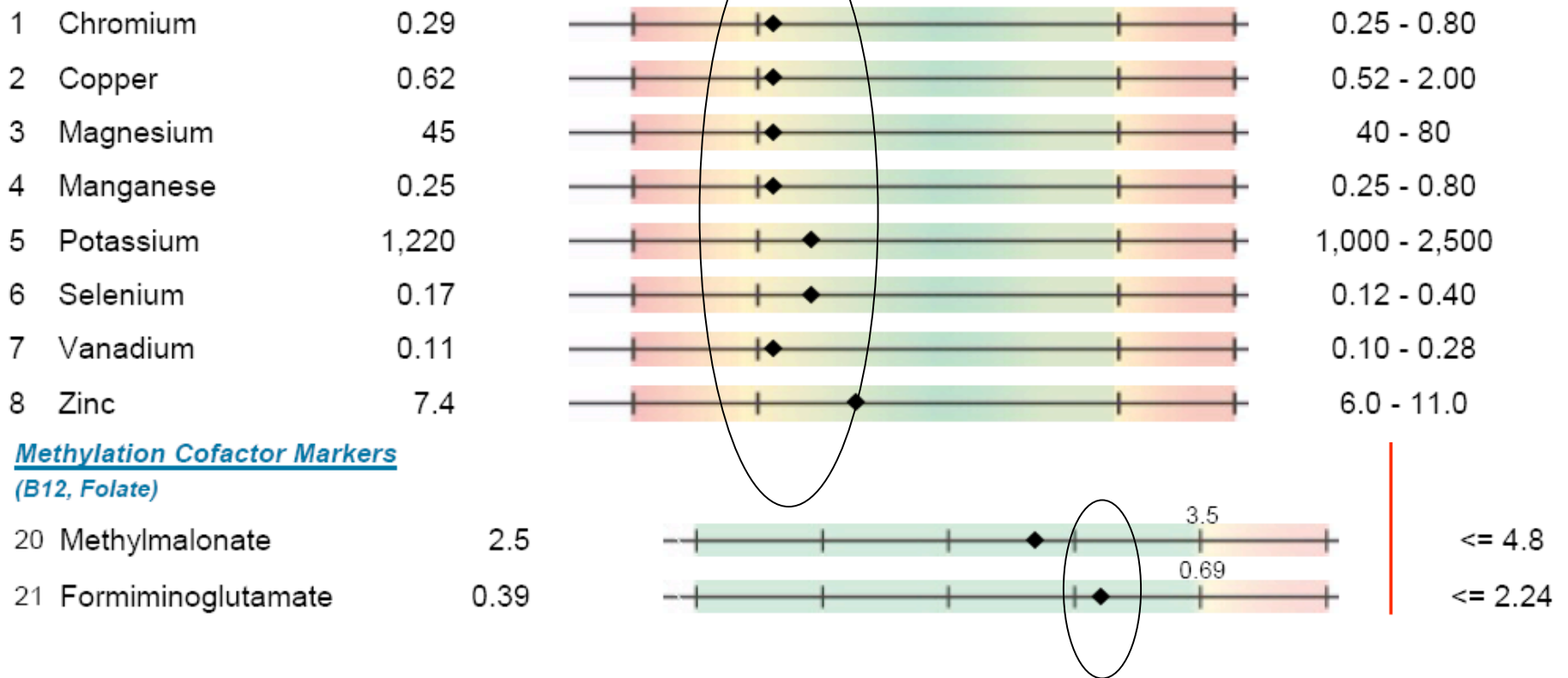
Sulfate

166 L



122 - 786

all areas, particularly speech,  
 temporary regression after DMPS  
 treatment, now resolved.



Much improvement in markers. Minerals are generally challenging to normalize