

# ABOUT THE MISDIAGNOSTICS OF MAGNESIUM DEFICIENCY

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## Five errors:

1. The symptoms are not recognized to belong to MDS<sup>(1),(2)</sup> (i.e., no test).
2. The symptoms are attributed to age or mental problems (i.e., no test).
3. The serum test is wrongly interpreted due to a wrong choice of criterion.
4. The dose of Mg substitution is too small (i.e. less than 600 mg per day).
5. The therapy is reduced or even suspended too early (i.e. before 0.9 mmol/l are reached).

## How to find out MDS patients through a serum-magnesium test?

Data by v.Ehrlich 1997 for 366 patients in a sample of 3894 persons

proven frequency of erroneous diagnosis 90% (329 of 366) with a critical value of 0.7 mmol/l Mg	proven frequency of erroneous diagnosis 50% (183 of 366) with a critical value of 0.75 mmol/l Mg	no error in the chosen sample with a critical value of 0.8 mmol/l Mg
only 10% found	only 50% found	
< 0.7 mmol/l Mg	< 0.75 mmol/l Mg	< 0.8 mmol/l Mg

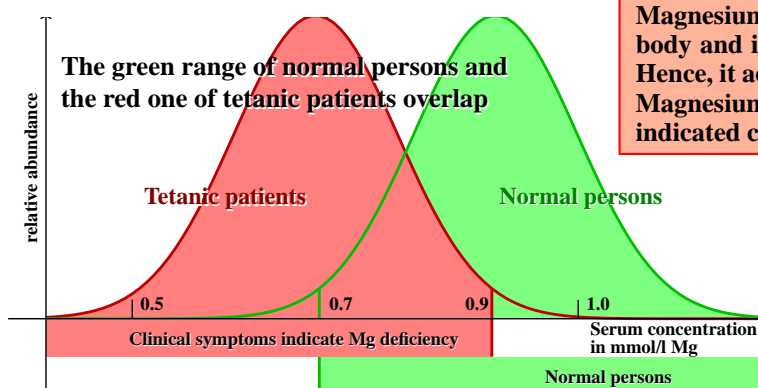
We demonstrate a calculation to estimate the number of patients who are not correctly diagnosed through a serum test as a function of the critical value of the Mg serum concentration (0,7<sup>(3),(4),(5)</sup> or 0,75<sup>(6),(7),(8)</sup> or 0,80 mmol/l<sup>(9),(10)</sup>). We have taken the data of v.Ehrlich<sup>(11)</sup> (1997), who had diagnosed 9,4% patients among 3894 in total which had symptoms that belong to a clinically relevant magnesium deficiency syndrome and which showed less than 0.8 mmol/l. When patients with more than only 0.7 mmol/l Mg are considered as normomagnesaemic, more than 329 magnesium-deficiency patients would be erroneously declared as normomagnesaemic. In these cases, unfortunately, no magnesium therapy would be started.

## Our conclusions are

1. All exclusion diagnoses are suspect of Magnesium deficiency (in particular ADHD, CFS). All unclear chronic internal diseases are suspect of Magnesium deficiency.
2. Magnesium deficiency produces age problems and mental problems as well. The Mg serum value must be checked in both cases.
3. Serum values below 0.8 mmol/l Mg confirm a suspected MDS.
4. The substitution of Magnesium must start with doses not less than 600 mg Mg per day.
5. The application ought not be suspended or reduced below a serum value of 0.9 mmol/l Mg.

The lower confidence limit for the sound population is mostly a bad choice for the critical value to find affected patients. Here, this lower limit is clearly too low for serving as critical value.

It is a famous error in statistics to use the confidence limits of the normal population as exclusion limits for the affected (see the diagram below)<sup>(12)</sup>.



Magnesium is an essential element occurring naturally in the body and is not a foreign drug normally absent in the body. Hence, it acts causally, and it is almost free of adverse effects. Magnesium therapy must be considered as first choice in the indicated cases.

In 2000, we estimated the distribution of the serum value for affected patients much too conservative. As the data of v.Ehrlich show, the mean value of the left distribution is larger than 0.75 mMol/l Mg, and only 10% of the red area lie left of 0.7 mMol/l Mg.

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