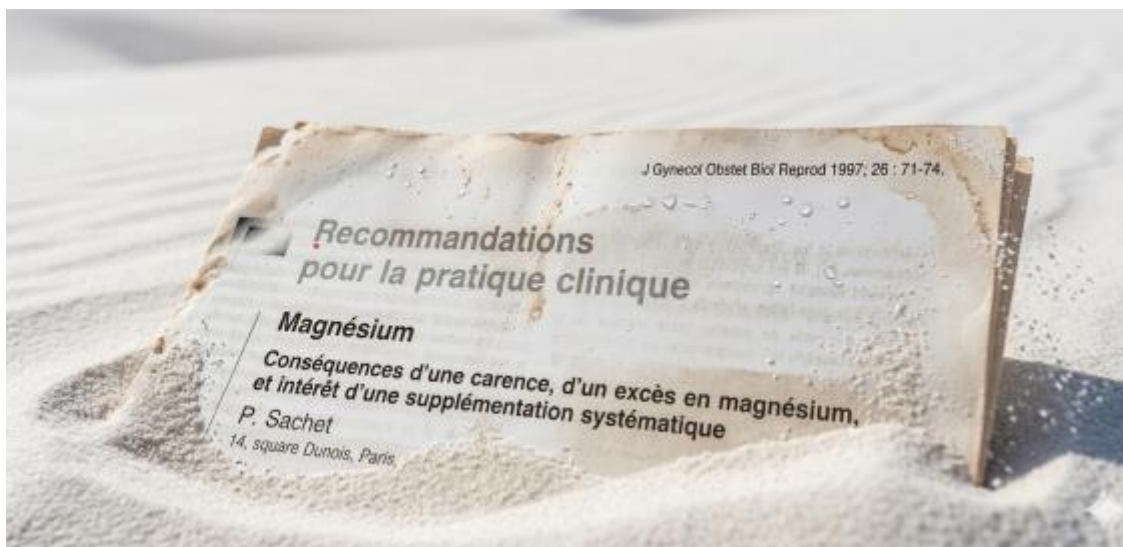


THE ECHO FROM SACHET

A WARNING AGAINST MAGNESIUM-INDUCED NEUROMUSCULAR SILTATION

Jens Georg Pinkernelle (Author)
Independent Researcher, Radiologist
CH-9016 St. Gallen
freirad@googlemail.com

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Abstract

Background: (<https://doi.org/10.5281/zenodo.18867230>) An annotated update of the case series. The prevailing medical consensus regarding the unconditional safety of magnesium (Mg) supplementation is fundamentally challenged, particularly when viewed through the lens of medical history.

Results/Discussion:

- **History:** Jean Durlach notably dismissed warnings of toxicity at standard Mg doses as "scientific fraud"; conversely, Paul Sachet—relying on clinical observations and metabolic balance studies—warned of cumulative retention leading to insidious tissue saturation.
- **Cases:** The striking clinical improvement observed in patients following Mg abstinence and B-vitamin supplementation confirms, *ex juvantibus*, the occurrence of chronic Mg toxicity even when supplementation remains within established guidelines.
- **Pathophysiology:** Mg clearance appears to transition into a protracted phase following an initial sharp decline in RBC-Mg, suggesting that RBC-Mg may serve as a diagnostic "manometer" for systemic "Mg pressure". Magnesium regulation is a highly energy-intensive process; consequently, during states of energetic deficit (e.g., stress, advanced age, medication, or infection), a vicious cycle can be triggered: Mg-induced substrate inhibition of ATP production further impairs the body's capacity for Mg regulation.
- **Publication:** Swissmedic has officially indexed the patients as suspected cases. Open research repositories such as Zenodo represent an uncomplicated and efficient means of providing the public with critical scientific information.

Conclusion: Occult hypermagnesaemia evidently represents a neglected epidemiological hazard with a plausible causal link to various chronic health disorders. A revision of routine Mg diagnostics—shifting towards whole-blood or RBC-Mg measurement—alongside a critical reassessment of Mg intake and laboratory reference values, appears imperative.

Keywords: Occult Magnesium Toxicity, Magnesium Supplementation, Mitochondrial Dysfunction, Chronic Fatigue, Pharmacovigilance, Paul Sachet

Clinical Observation, Scientific Logic, and Dogmas

It may surprise the outsider, but within the medical-scientific community, the term "Pope" is common parlance in relation to specific research topics. Where there is a Pope, a dogma is never far behind. For the broader professional world, it seems absurd that one could be poisoned by a relatively low chronic intake of magnesium (Mg), at least according to current guidelines. And yet, in the cases presented here, there is a clear echo of clinical-scientific findings and controversies from several decades ago. As early as the 1940s, Pierre Delbet pointed out muscular hardening resulting from excessive magnesium intake [1].

The issue had been named. Another key figure to mention is Paul(-Yves) Sachet, a gynaecologist and nutrition expert (CERIN Centre de Recherche et d'Information Nutritionnelles) who operated within the inner circle of Jean Durlach—the latter being considered the pre-eminent authority on magnesium—within the framework of the *International Society for the Development of Research on Magnesium* [2] (SDRM, "Société pour le Développement des Recherches sur le Magnésium"). In the 1970s and 80s, the systematic supplementation of pregnant women with magnesium was clinical standard.

Known medical databases do not provide a very detailed picture of Sachet's medical views regarding Mg. Research via search engines remains sparse. Artificial Intelligence databases contain fragments of meeting minutes and forum entries, as well as semantic summaries of his alleged or actual statements, which indicate that Sachet, based on his clinical experience, openly advised against the administration of systemic Mg supplements.

and toxicological consequences of pharmacological and physiological studies: for example it is a real scientific fraud to identify the absent toxic effects of physiological magnesium supplementation with those of high pharmacological magnesium doses ... which in fact may induce toxicity. There should be

Fig. 1: Jean Durlach, in an abstract of an issue of the journal "Magnesium Research" which he published, called it a fraud if anyone claimed that normal doses of Mg supplements could lead to toxicity [3].

The only publicly available PubMed entry concerns the title "Magnesium. Consequences of a deficiency, of excessive magnesium, and value of systematic supplementation," in the French original: "Conséquences d'une carence, d'un excès en magnésium, et intérêt d'une supplémentation systématique" [4]. This is a short article in a supplement issue containing recommendations for clinical practice. Here, Sachet clearly positions himself as an opponent

of supplementation, arguing against the "phantom" of Mg deficiency in the general population and pointing out that, according to Husain's research, a retention of Mg per 250-300 mg dose (10-13%) could be observed in pregnant women [5].

Based on the research of Husain et al., Sachet defines the threshold for Mg accumulation in the body as very low. The kidneys react rather sluggishly with the excretion of Mg at relatively small increases in serum concentration. The Mg rapidly disappears from the serum into the intracellular space, following the electrochemical gradient. Conversely, it is known that the kidneys massively increase excretion when Mg is administered in higher doses via infusion. Against this background, the renal threshold for forced excretion of Mg in the serum is rather high. The kidneys are adept at retaining Mg in the body. This regulatory behaviour provides the foundation for Mg to accumulate in tissues to the point of toxic effects under conditions of chronically increased intake. From an evolutionary perspective, this seems explicable, as Mg—at least in northern latitudes—represents a scarce substrate; thus, a tendency toward renal retention has likely been programmed into the local ancestral population.

Biophysical properties indeed make Mg a peculiar mineral [6]. It possesses by far the largest hydration shell among electrolytes, making its regulation highly energy-intensive. This means that every additional administration of Mg requires additional ATP provision and must therefore be seen as an energetic burden. In certain life situations, this can be the starting point for a vicious circle as soon as the body enters a state of relative energy deficiency (e.g., during illness, nutrient deficiencies, medication use, "stressful life phases," sports, aging, etc.). In such situations, Mg can no longer be regulated efficiently. In the event of accumulation within the cells beyond a certain threshold, the Mg itself then acts as an inhibitor of energy production.

As a critic of the general, casually formulated view that "magnesium is always good," Sachet apparently became isolated or was isolated. According to AI databases, entries by and about Sachet in congress records and internal reports of professional societies thin out noticeably from 1997/98 onwards.

This view of Mg as a supposed panacea represents a perpetuated echo within the medical community. For instance, an article by another European society for magnesium research comments, verbatim: "Hypermagnesaemia is a very rare event compared to

hypomagnesaemia and is usually based on the presence of severe renal insufficiency and/or the intake of excessive amounts of magnesium."

Update of the Case Descriptions [7]

The clinical course of both patients presented has continuously improved, although a normal state has not yet been fully reached. Both patients have significantly expanded their range of motion, accompanied by generally improved strength and significantly better sleep. The index patient has achieved largely normal sleep patterns for the past 8 weeks. Exceptions occur occasionally after excessive athletic exertion, involving typical "wolf hours" (early morning wakefulness). The first half of sleep is invariably deep and continuous.

In the meantime, the index patient has significantly increased vitamin B1 intake (up to 650 mg per day, predominantly as Benfotiamine, depending on increased mental or physical strain). This was done following the observation of significant fluctuations in condition, which occurred under the regime of 150 mg Benfotiamine—coupled with sub-optimal compliance—especially after athletic exertion. The B-complex has been maintained. At this stage, merely reducing Mg intake is insufficient. The patient reports a positive effect from increasing the daily supplemented creatine to a total of 6 g (3 g in the morning and 3 g in the evening), which could suggest better substrate saturation of the creatine kinase in the myocyte, which is under Mg load.

The reported female patient also indicates a significantly improved sense of well-being. She confirms a marked reduction in the "leaden heaviness" of the lower extremities, making long-distance running possible again. However, she refuses further blood samples.

Parameter	Values				
RBC-Mg (mmol/L)	not performed	2.8	2.94	2.52	2.48
Serum Mg (mmol/L)	0.97	0.85	0.80	0.93	0.92
Serum K (mmol/L)	4.3	3.8	3.8	4.3	4.2
	Nov 2024	Jun 2025	Jan 2026	Feb 2026	Apr 2026

Tab. 1: Expanded table with an additional data point for the index patient approx. 7 weeks after the February measurement (approx. week 12 after discontinuing supplements while maintaining a low-Mg diet). It shows only a slight progressive reduction in RBC-Mg. Serum Mg and serum potassium deviate only marginally. The vertical orange line separates values during chronic magnesium supplementation from those during the subsequent depletion (washout) phase.

The laboratory follow-up 12 weeks after discontinuing Mg supplementation and starting a low-Mg diet shows values largely constant compared to the blood levels approx. 7 weeks prior. The RBC-Mg value continued to decline only slightly by 0.04 mmol/L, after this value had dropped by 0.42 mmol/L following 5 weeks of Mg abstinence. How this development is to be interpreted remains unclear. It could mean that the acute Mg pressure into the tissue, caused by significantly reduced Mg intake in the first 5 weeks, led to a clear clearance of the extracellular space, whereas the stage of predominantly intracellular clearance has now been reached, which progresses significantly more slowly.

This could be interpreted under the assumption that the erythrocyte value acts as a kind of manometer for the tissue or intracellular pressure of Mg. Confirmed data on this are lacking so far, as intracellular accumulation in otherwise metabolically healthy individuals simply has not occurred in general clinical consideration until now.

The index patient provides the profile of an excellent test subject without any medical history, who undertook an involuntary self-experiment through the chronic intake of common Mg supplement amounts. His story is, in a sense, an echo in medical history—the pathophysiological embodiment of Sachet's clinical warnings.

The course of the index patient reveals symptomatic evidence dating back at least two years, which, however, can only be interpreted as magnesiotoxic in retrospect. For many years, the patient had lived a very plant-based lifestyle and maintained the habit of consuming real cocoa at least once a day. Nuts were a regular snack in the sense of "superfoods" for athletes. The anamnesis certainly allows for the conclusion that his Mg system was saturated and literally tipped into toxicity with the first supplemental dose.

Toxic Mg accumulation in healthy individuals under guideline-compliant chronic supplementation is still denied by established medicine, despite the publication by Husain et al. Paul Sachet's warnings have been largely buried in the clinical-scientific undergrowth. Jean Durlach himself seems to be an involuntary prosecutor against the views he represented, as he himself reports on patients with characteristic symptoms and elevated RBC-Mg despite normal or even low serum Mg. However, he does not permit the interpretation of toxic accumulation and instead theorizes a different type of utilization disorder ("depletion").

The index patient began Mg supplementation when he initially misidentified a symptomatic vitamin D deficiency. Guided by the general narrative "magnesium cannot do any harm," he first reached for the supposed panacea magnesium, believing it to be at least a harmless background medication. There may be a significant connection here: calcium regulation could have been so disturbed by the vitamin D deficiency, in addition to the general energy crisis, that it indirectly led to an intracellular Mg utilization disorder, causing the mineral to accumulate intracellularly while calcium availability was simultaneously reduced.

In this context, one should note the paradoxical relationship of established medicine, which on the one hand appears to be in a constant state of alarm regarding vitamin D administration and fears overdoses, but on the other hand recommends Mg supplements almost carelessly. Yet, vitamin D possesses a therapeutic range situated significantly above international reference intervals [8] and is recognized as a deficiency nutrient of great epidemiological importance worldwide [9]. It also holds true for vitamin D supplements that they must be handled with care, because they ultimately represent an artificial nutrient intervention and toxicity can occur with misuse.

Clinical Implications

If one considers the general perception of Mg as a supposed panacea and contrasts this with the contradictory scientific evidence and indicators, as well as the biophysical properties of the mineral, a great potential epidemiological significance of a widely clinically unrecognized Mg toxicity emerges.

Physically active individuals are more likely to notice the limitations imposed by magnesium overload than those with a sedentary lifestyle. Moreover, active people tend to respond to perceived weaknesses in form with even greater physical effort, which—under continued magnesium supplementation—only serves to accelerate the decline in overall strength.

It does not necessarily have to involve an invalidating manifestation or massive restriction of quality of life. It begins with chronic neck tension, which suddenly appears as a harbinger of a deeper problem, even if it does not truly impair daily life itself. If such a patient seeks diagnostic clarification, magnetic resonance imaging is almost inevitably ordered. In such cases, no direct morphologic correlate is found; general degenerative changes are suspected by process of elimination, and an unnecessary diagnosis-treatment spiral begins. Meanwhile,

the problem is not addressed. On the contrary, there is a very real danger that magnesium preparations would be specifically used to treat the tension. Given the diffuse range of symptomatic possibilities due to occult Mg toxicity, further similar doctor-patient interactions are conceivable, which ultimately only worsen the problem and, moreover, generate significant financial costs.

Mg deficiency is unlikely to be a problem for the healthy general population due to our dietary habits, as was also argued by Paul Sachet. Although defined risk groups for Mg deficiency exist, such as diabetics, assuming a deficiency in healthy people across the board and advocating the mantra "Mg cannot do any harm" can trigger the negative spiral outlined above.

For the lifestyle sector of "longevity," the role of Mg could turn into its opposite, as the risk of clinically effective accumulation fundamentally increases with age due to the increasing loss of metabolic flexibility.

Successes with purely meat-based diets, in turn, may also be due, at least in part, to the clearing of an occult Mg burden in the body. The Mg content of meat is clearly limited. Additionally, there is a lack of insulin activity. Insulin is a strong physiological promoter of intracellular magnesium uptake(10). Conversely, this highlights the potential danger of a plant-based and rather Mg-rich diet, which usually relies on carbohydrate-rich foods.

The diffuse complaints in chronic Mg toxicity could lead to exclusion diagnoses such as "psychologically induced" or fibromyalgia. Based on the experiences of the index patient, the latter seems to be within the realm of possibility, as he complained intermittently of discomfort in the right shoulder and hip joints, which was suppressible with increased biotin doses (from 10 mg per day). Both disease entities are clinically linked rather positively with additional magnesium intake, which would thus encourage the perpetuation of the respective disease state.

In terms of routine diagnostics, there has been a standstill for decades. Although serum Mg is generally known to be unreliable, it is nonetheless regularly relied upon in the supposed absence of better routine procedures. At the very least, the Mg level should also be measured in whole blood, controlled for haematocrit, with the indispensable mathematical determination and critical evaluation of the magnesium content in the individual erythrocyte. The determination of RBC-Mg is the exact method and has proven to be a clear

signal of toxicity in the case report. The currently defined reference ranges seem critical, particularly at the upper end, and also belong under review.

Since the musculature appears to be the primary clinically effective compartment for chronic Mg enrichment, non-invasive procedures for determining intramuscular Mg content should be evaluated; primary optical-spectroscopic methods would be conceivable. Magnetic resonance spectroscopy is experimentally established but is a technically complex procedure.

Duty to Inform

Swissmedic, the Federal Office of Public Health of Switzerland (FOPH/BAG), the Swiss Nutrition Society, the Federal Institute for Risk Assessment of the Federal Republic of Germany (BfR), the German Nutrition Society (DGE), and the European Food Safety Authority (EFSA), as well as the top health authority of the USA (NIH).

So far, feedback has only been received via email from Swissmedic [11]; both cases have been indexed as suspected cases under the following codes:

CH-SM-2026-02257

CH-SM-2026-02258

Prof. Cicero Coimbra from São Paulo has been informed by registered mail. Patients treated according to his protocol might, against the background of this case report, possibly benefit from a correction of their daily Mg intake. Furthermore, the SDRM [2] as the central research body has been notified by email, and Ms. Chandler Marrs [12] and Mr. Elliot Overton [13] have been notified via the contact form on their homepage about possible Mg accumulation as a cause for a relative deficiency of B vitamins.

Publication Medium

Zenodo [14], operated by the European Organization for Nuclear Research (CERN) in Geneva, has proven to be a suitable publication medium for this controversial topic. In the author's conviction, the culpably forgotten topic of chronic magnesium siltation of the muscular

locomotor system would be a suitable topic, at least as a note, for media such as *The Lancet*. The editorial board of *The Lancet* issued a desk reject for the submitted document.

An open server may act as a correction to the 'error bar fetish' in medical literature. The clean clinical pattern stands for itself and does not need to be embedded in statistical noise. While statistics focus on the average, the individual patient suffers from the deviation. Occult hypermagnesaemia is precisely such a phenomenon— one that remains invisible, as in the case of the female patient presented in this series, who exhibited the index patient's characteristic symptoms while her red blood cell-magnesium value remained in the upper region yet within the statistical reference range, masked by the very norms that define clinical 'normality'. The clear clinical phenomenon defines the patient count, rather than being characterized by it.

Platforms like Zenodo offer an informal opportunity to make scientific treatises available to the general public. The fact that formal constraints are dispensable gives the author an additional freedom that is denied by the rigid and sometimes pseudo-serious requirements of established journals. Zenodo maintains an advantage over a server like MedRxiv in terms of institutional openness; that is, independent researchers without an institutional address also get the opportunity to present their communication directly to the scientific community. It would be desirable for Zenodo to allow a discussion forum under the respective articles to enable direct technical discussions and critiques of the article, thereby countering the potential accusation of a lack of peer review.

Conclusion

The significantly improved clinical condition of the patients presented in the case report [7] confirms chronic Mg poisoning through the intake of supplements according to guideline recommendations. Further research into magnesium research, particularly in France, confirms the case findings well beyond the level of clinical anecdotes. Furthermore, under considerations of academic policy, a competitive situation between the opposing schools of Paul Sachet and Jean Durlach can be reasonably suspected. As a result, Sachet's warnings were buried under medical undergrowth—or literally 'packed into a sachet' (the French term for pharmaceutical packets)—where they remained obscured until recently.

Chronic magnesium accumulation should be included in the array of differential diagnoses for chronic disease states. Initial technical diagnostics should at least consist of a whole blood analysis with RBC-Mg back-calculated on the basis of the haematocrit as a supplement to serum diagnostics. More exact, but more complex, is the direct measurement of the Mg concentration in the erythrocyte.

In the case of a pseudo-dogmatically solidified conviction, the first step toward overcoming it is the counter-statement brought into the relevant research community. Free research servers are an uncomplicated medium for the presentation of even unpopular data. For the medical and also technical research community, occult chronic Mg toxicity offers a broad field for scientific activity, which can currently still be cultivated without competition.

Disclosures and Declarations

Conflicts of Interest: The author declares that there are no monetary, business, or personal conflicts of interest in connection with the contents of this work. The investigation and documentation of the case series were carried out independently and without support from the pharmaceutical industry or other interest groups.

AI Disclosure: In the preparation of this document, generative Artificial Intelligence (LLM model: Gemini 3.x) was used supportively - like in the former article referenced here (7). The use of AI related to literature research in digital databases, the translation of text drafts, and the medico-historical reconstruction of sources. The critical examination of the data, the scientific evaluation of the clinical findings, and the formulation of the conclusions are the sole responsibility of the author.

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