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### Massage in Physiotherapy Departments

SIR—Perhaps your readers could enlighten us as to the current status of massage in physiotherapy departments? When I received my MRCP 1937, the following techniques were recommended (Tidy NM, *Massage and remedial exercise in medical and surgical conditions*, 3rd edn): Friction, Claquement, Pincement, Kneading, Pétrissage, Malaxion, Hâchure, Foulage, Sciage, Pointed Vibrations, Rotation, Flexion Extension, Seccouses, Deep Vibrations, Traction, Tapôte, Frolement, Swooping and Spider.

My wife, who was a physiotherapist at Guy's, tells me that this list left out 'Effleurage' and, of course, in addition, we had diathermy, wax, infrared, ultraviolet, faradism and, fortunately, exercises!

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### Severe Hypercalcaemia Syndrome with Daily Low-Dose Vitamin D Supplementation

SIR—At present, the prevention of osteoporosis is a major topic in medicine. For prophylactic treatment, daily use of 400 IU vitamin D is generally considered a safe measure [1, 2]. We report an elderly patient who developed a severe hypercalcaemia syndrome during

daily use of low-dose vitamin D, i.e. 400 IU cholecalciferol.

An 85-yr-old woman was referred to the rheumatology out-patient clinic because of a mild rheumatoid factor-positive oligoarthritis which had already been treated with 10 mg prednisone a day by her GP during a period of 4 yr. Because of low back pain due to compression fractures of the second and fifth lumbar vertebrae, and transient ischaemic attacks, the GP had also prescribed the daily use of 38 mg acetosal, 100 mg/400 µg diclofenac/misoprostol, 1000 mg acetaminophen and 400 IU cholecalciferol (Devaron<sup>®</sup>) since 2 months. The patient then started to complain of severe thirst, fatigue and malaise; she had to be admitted because of severe dehydration. Laboratory analysis: calcium 3.31 mM (normal range 2.10–2.55 mM), paraproteinaemia was excluded; further data are presented in Table I. On admission, cholecalciferol was discontinued and rehydration started. Because her clinical condition improved too slowly, pamidronate was given: 30 mg i.v., followed by 2 dd 150 mg orally during 3 weeks. Within 1 week, plasma calcium normalized and remained normal (see Table I). Further analysis did not reveal hyperparathyroidism, malignancy or an alternative causative explanation for the hypercalcaemia.

To our knowledge, this is the first publication reporting that low-dose vitamin D supplementation in the elderly evoked a severe hypercalcaemia syndrome. The blood vitamin D level normalized within 2 months after cessation of supplementation. Only a few reports on the actual level of 1,25(OH)<sub>2</sub> vitamin D in cases with vitamin D intoxication have been reported [3]. Toxic effects including hypercalcaemia have been reported during daily supplementation with 2000–5000 IU a day (50 µg) [1] and at higher, more pharmacological dosing regimens [4]. In the elderly, it is generally advised that the daily vitamin D intake should be at least 200 IU (5 µg), for reasons of altered vitamin D metabolism and limited exposure to UV irradiation. The patient described, however, proved that supplementation with low-dose vitamin D can be the cause of a severe hypercalcaemia syndrome.

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TABLE I  
Time course of biochemical parameters with normal values in parentheses

	Pre-treatment	Time in months				
		0 (admission)	2	4	6	
Calcium	(2.10–2.55 mM)	2.47	3.31	2.34	2.35	2.42
Phosphate	(0.87–1.45 mM)	1.43	1.62	1.29	1.18	...
Creatinine	(50–80 µM)	...	160	105	109	109
Parathyroid hormone	(0.1–15 mM)	...	<2	5	7	...
25(OH)D <sub>3</sub>	(19–126 nM)	...	62	35	40	34
1,25(OH) <sub>2</sub> D <sub>3</sub>	(40–140 pM)	...	257	78	81	130

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