

# THE MAGNESIUM GROUP

Dr. K. Alamarselvan



	IA																	VIIA
1	H																	He
2	Li	Be																Ne
3	Na	Mg	IIIB	IVB	VB	VIB	VIIIB	VIIIB	VIIIB	IB	IB							Ar
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
6	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
7	Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Uuh	Uuu	Uub						

▼ Lanthanoid Series

Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tm Yb Lu

▼ Actinoid Series

Th Pa U Np Pu Am Cm Bk Cf Es Fm Md No Lr

Alkali Metals

Alkaline Metals

Transition Metals

Nonmetals

Other Metals

Noble Gases

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# Introduction

- It is a metal.
- Periodic table group ***IIa; s***-block
- Atomic No.: 12; Wt- 24.312
- Other members ; alkaline earth group
  - Beryllium
  - Calcium
  - Strontium
  - Barium
  - Radium

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4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr				
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe				
6	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn				
7	Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Uun	Uuu	Uub										
Lanthanoid Series			Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu						
Actinoid Series			Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr						

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## Earth's crust



1.94 % as  
carbonates (dolomite)  
silicates (talc)  
chlorides (carnalite)  
sulphates (kieserite)  
in mineral springs, "bitter water"



## Sea water

0.30 % Mg chloride  
0.04 % Mg bromide  
0.18 % Mg sulphate

## Plants

Chlorophyll



# Introduction

- Discovered by Sir Hamphry Davy
  - Na, K, Mg, Cl, Ba, BO,
- Greek word – Magnesium
- A district in *Thessaly* called *Magnesia*





# Introduction



## ■ Uses

- Refractory material in furnace linings for producing iron, steel, glass, cement; to make alloys; to make low wt electronic devices; aerospace; photoengraved plates; airplanes missiles; fire works, ect..





# Biological aspects

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- Magnesium is an essential element in biological systems.
- It occurs typically a Mg ion
- Present in every cell type



# Biological functions



- Intracellular ion
- It is useful in signaling, enzyme activation, and catalysis
- Biological membrane are impermeable to Mg ion.
- So it need a transport protein.
- Magnesium deficiency in a subcellular compartment, the mitochondria , leads to 'a disease state'







# Nutrition

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- Daily requirement :- 300-400 mg/day
- Upper tolerated supplemental magnesium 350 mg/day
- Mag.chloride & Mag.Citrate are absorbed efficiently



Age		Recommended intake of Mg (mg/day)	
		m	w
<b>Infants</b>			
			
0 - under 4 months		40	
4 - under 12 months		60	
<b>Children</b>			
			
1 - under 4 years		80	
4 - under 7 years		120	
7 - under 10 years		170	
10 - under 13 years		230	250
13 - under 15 years		310	310

Age	Recommended Intake of Mg (mg/day)	
	m	w
<b>Adolescents/Adults</b>		
15 - under 19 years	400	350
19 - under 25 years	350	300
25 - under 51 years	350	300
51 - under 65 years	350	300
65 years and older	350	300
<b>Pregnant women</b>		300
<b>Nursing mothers</b>		375

Source: Deutsche Gesellschaft für Ernährung (DGE): 5th revision 1991, 1st corrected reprint 1993



# Nutrition

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- Deficiency :- Muscle spasm –associated with CVS disorder, DM, HTN, Anxiety Disorder, migraine & osteoporosis
- Excess intake :- oral – diarrhea
  - Adult kidney can withstand it removes Mg
  - In infants & CRD Pt decreased elimination

## Causes



### Reduced intake

Dieting, unbalanced diet, "depleted foods".

### Impaired absorption (malabsorption)

Gastrointestinal diseases.

### Increased excretion

Alcoholism, laxative abuse,



# Nutrition

## ■ Food source

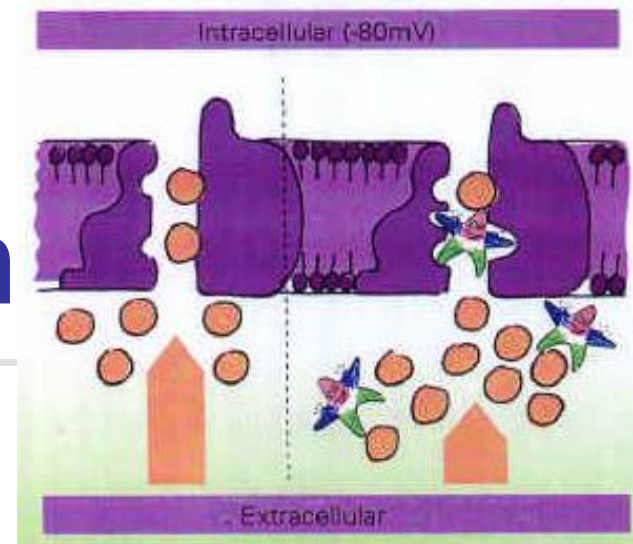
- Green leafy vegetable—spinach
- Nuts - cashew, almonds, garbanzo beans, lima beans, soybeans, pumpkin seeds
- Whole grains Buckwheat flour, Barley,
- Fish
- low-fat vanilla
- Yogurt



# Physiological action

- Actions

- Signaling molecule
- Helps in reaction needs ATP
  - ATP-Mg is biologically active
- Catalytic reaction
- Stabilize the DNA & RNA
- Controls hereditary expressions
  - hence it is one of the deep acting constitutional medicine







# Medicines in Magnesium group

- Common medicines
  - Magnesium Carbonicum
  - Magnesium Muriaticum
  - Magnesium Phosphoricum
  - Magnesium Sulphuricum
- Lesser known
  - Magnesium bromatum
  - Magnesium fluoricum
  - Magnesium iodum



# General features



- Deep acting constitutional medicine
- Expression of all four MIASM
- Mind is the central core
- At physical level it is close to Calcarea
  - Both tubercular miasm
  - Children prone to worm infestation
    - Diarrhea & malnutrition and who are flabby or emaciated & potbellied
  - Per menstrual breast engorgement
  - Relaxation of tissues, slowness dullness



# General features

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- Tendency to spasmodic affection
- Tendency to relaxation
- Poor reactions
  - Suppuration & scar formation, hypertrophy, tumors
- Affection of nutrition

# General features



- Pains
  - Crampy, constricting, sensation of band, tearing, stitching, boring, cutting.
  - Pains > heat, pressure, binding, rubbing  
< touch , pressure (Liver)
- Periodicity – every 2<sup>nd</sup> day and every 21<sup>st</sup> day
- Affection of glands



# General features

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- Discharges
  - Protracted, foul, profuse, fishy, black, thick, sticky, lumpy, green, scanty, tarry, pitch like
- Cravings:- Meat, Vegetables, Sour, Fruits, Bread, Sweets, Buttermilk
- Aversions:- Meat, Bread, Coffee & milk

# **MIND**

**HYPERSENSITIVE**

**FEELS HURT EASILY**

**DOSEN'T EXPRESS**

**DEMAND OF LOVE & CARE  
FROM PARENTS FOR SURVIVAL**

**LACK OF LOVE**

**REJECTED & FORSHAKEN**

**INTERNAL ANXIETY &  
INSECURITY**

**REPRESSION**

**PHYSICAL**  
• **PSYCOSOMATIC DISEASE**  
• **METABOLIC DISORDER**  
• **MUSCLE & NERVE DISEASE**

**MIND**  
# **DREAMS OF BEING  
ALONE / LEFT ALONE**  
# **RESERVED**

**CANNOT STAND FOR ROWS  
AND VILOENCE  
EXTREMELY DISTURBED BY VIOLENCE**

**PASIFISM**

**REACTION**

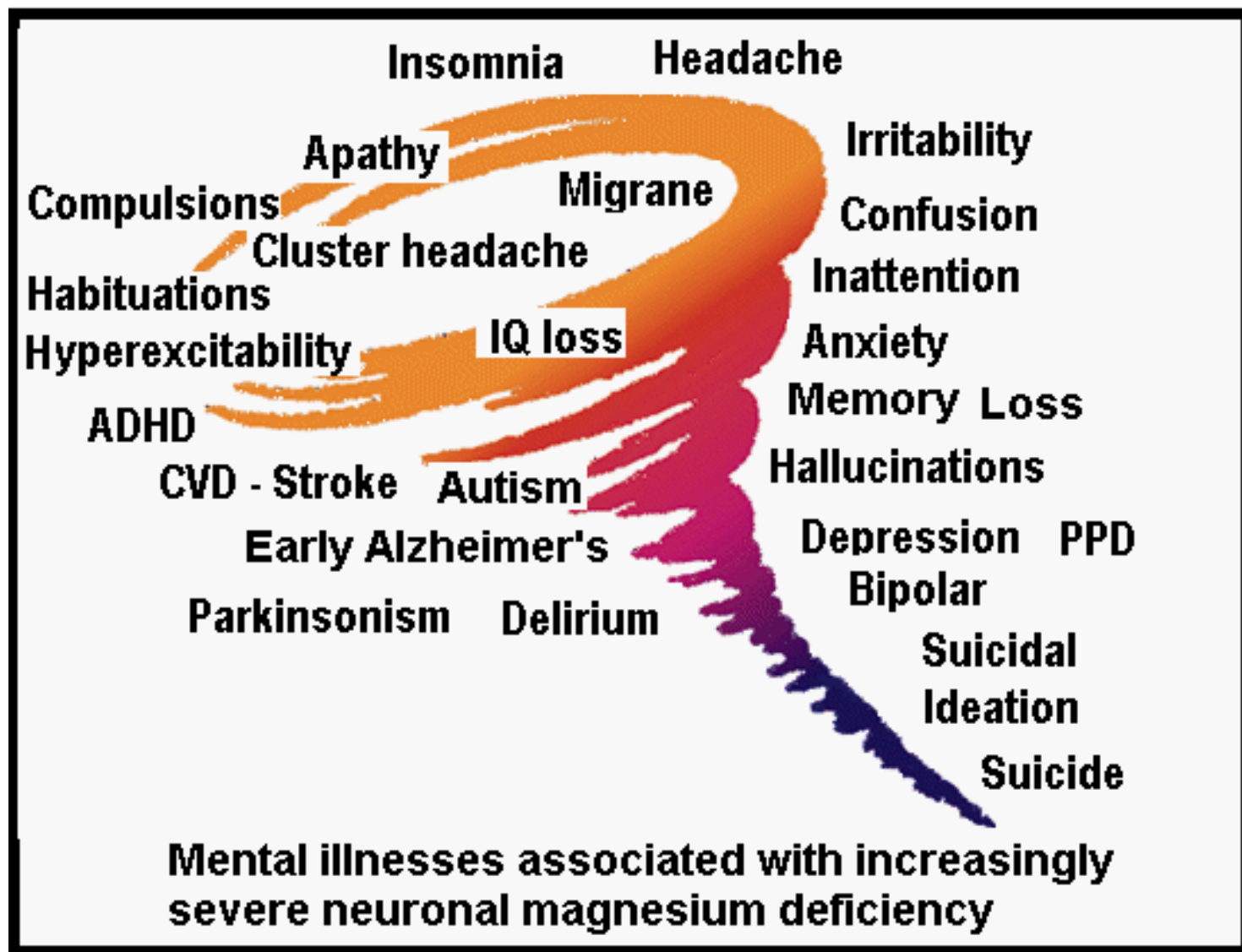
**AGRESSION**

**VILOENT  
ILL EMPERED  
ERRATIC**

**FEARFUL &  
DEPRESSED**

**NO EXPRESSION**







# MAGNESIUM CARBONICUM

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- Mind:- anxious, fearful, excessive care and worry, exhausted nerves
- Pains:- neuralgic, insupportable, <left side >walking
- Nervous irritable children with sour diarrhoea sour smelling body
- Cr meat Av milk
- Chilly
- Diarrhoea green frothy [like a scum of frog pond]
- White lumpy, flots like tallow on watery stool
- Intensive neuralgic toothache and nausea during menses
- Dreams of anxious ; dead persons



# MAGNESIUM MURIATICUM

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- Sad taciturn sulky –weeps readily
- Worse at seashore, sea bathing, salty food, cannot digest milk
- Liver hard , worse touch & lying down
- Anxious nervous restlessness Fidgety all over
- Yellow all over. Yellow sclera, tongue, urine. Teeth takes imprint of yellow
- Stool hard knotty like a sheep dung crumbling at verge of anus
- Palpitation and cardiac pains while sitting > moving about, lying on left side
- Cardiac affections with liver enlargement
- Esp adapted to women – indigestion with uterine displacement
- Agg:- immediately after eating, lying on right side, sea bathing
- Better ;- from pressure, motion, open air, (except headache)



# MAGNESIUM PHOSPHORICUM

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- Right side
- Pains:- cutting, stitching, lightening, intermittent, rapidly shifting,
- Great dread of cold air, of uncovering, of touching, the affected part of moving
- Complaints of children during dentition, spasm without fever
- Toothache better by heat and hot liquids
- Flatulent colic > bending double, rubbing, warmth, pressure, with eructation without any relief
- Cramps of extremities, during pregnancy, of writers, of piano players or violin
- Worse:- cold air, cold draft, motion
- Better:-bending double and heat



# MAGNESIUM SULPH

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- The skin, urinary, female symptoms are marked
- Small pimples all over the body that itch violently, suppressed itch, warts, epithelioma
- Thick leucorrhoea as profuse as menses with pain in the back
- Stitching and burning in urethra after urinating
- Violent pain in small of back
- Great thirst with diuretic action hence usefull in diabetes



# MAGNESIUM IODUM

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- SYPHILIS; HEAT; GOITRE;
- Menstrual concomitants Dark, pitch like indelible discharge





# RELATIONSHIP

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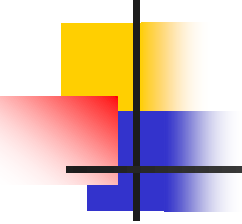
- CHRONIC

- All alkaline earth group metals
- CALCAREA
- SILICEA
- BARYATA, BERYLLIUM, CARBONS. & FLOURIC ACID – Degenerative

- ACUTE

- Miasmatic

- SYPHILITIC - Nit.ac. Merc. -SYCOTIC Thuja, Nat. sulph TUBER- Tuberc. Bacill.

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- 
- Orphaned at an early age, Oliver Twist is forced to live in a workhouse lorded over by the awful Mr. Bumble, who cheats the boys of their meager rations. Desperate yet determined, Oliver makes his escape to the streets of London. Penniless and alone, he is lured into a world of crime by the sinister Fagin, the mastermind of a gang of pint-sized pickpockets.



A Roman Polanski Film  
**OLIVER TWIST**



IN THEATERS SEPTEMBER 30

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