Therapy with riboflavin

- Usual therapeutic dose ranges from 1.7 to 100 mg/day;
- Corrects conditions that result from riboflavin deficiency;
- Used to treat conjunctivitis, glaucoma & growth retardation;
- Prevent & reverse developing cataracts;
- Enhances iron absorption, protecting against anaemia;
- With B-6, B-2 may help in treatment of carpal tunnel syndrome;
- Boosts physical performance by making efficient energy production possible during intense physical activity & preventing free radical damage;

VITAMIN B-3

(Niacin = Nicotinic Acid; Niacinamide = Nicotinamide)

General  water-soluble; anti-pellagra factor;

- Deficiency disease of niacin — pellagra — was known in 1735 by physician to Philip V of Spain;
- Virtually unknown in North America until beginning of 20th century;
- 250,000 annual cases of pellagra reported world-wide from 1910 to 1935;
- Niacin, nicotinic acid, niacinamide & nicotinamide are equivalent in niacin activity;
- “Niacin Equivalents” in dietary tables = sum of these 4 forms + tryptophan, that human cells can convert to niacin;
- History: obtained from oxidation of nicotine in 1867; identified as pellagra preventive factor in 1937; transformation of tryptophan to niacin understood in 1945;

Nutrition

- Sources: brewer’s yeast; liver; lean meats, fish & poultry;
- Absorption: rapid, from small intestine; circulates freely in body;
- Stability: stable to heat, light, acid, alkali & oxidation;
- Storage: in all cells; slightly higher amounts found in liver, brain, heart, skin & gut;
- Excretion: through urine;
- Metabolism: about 65% of RDA can be made from the amino acid tryptophan; sugars & starches increase requirement;
- Interactions: alcohol, antibiotics increase need;

Functions of niacin & niacinamide

- Co-factor (NAD, NADP), energy-producing reactions of carbohydrates, lipids, proteins;
- Maintains normal growth rates; needed in synthesis of DNA, fats, proteins & cholesterol;
- Promotes production of bile salts & metabolism of fats & fat soluble vitamins;
- Regulates synthesis of sex, thyroid & pancreatic (insulin) hormones;
- Maintains healthy nervous system & brain function, skin, mouth & digestive tract;
- Niacin, but not the amide form, increases blood flow to the extremities, accompanied by “flush” reaction; improves circulation & skin health;
• Reduces cholesterol production in the body;
• Part of dehydrogenase (hydrogen acceptor) enzymes, carrying out many vital reactions within all cells;
• Functions antagonized by: alcohol, excess carbohydrates, stress, prescription antibiotics, strenuous physical exertion & pregnancy;

Quantities

- **Measurement**: 60 mg tryptophan = 1 mg niacin = 1 NE (Niacin Equivalent) = 1 mg niacinamide;
- **Optimum**: (SONA) average ranges from 25 to 30 mg/day;
- **Individual optimum** must be determined individually; should parallel caloric intake; minimum about 7 mg/1,000 calories;
- **Minimum**: (DRI) set at 16 mg/day;
- **Less than RDA**: 30% of population, according to a U.S. government survey;
- **Deficiency** can result from lack in the diet; excess alcohol or carbohydrates; stress; antibiotics; intense physical exertion; pregnancy; poor absorption; inordinately high requirement;
- **Symptoms** include: four D’s of pellagra: dermatitis, diarrhoea, dementia & death; skin symptoms aggravated by sunlight;
- **Sub-clinical deficiency** symptoms include lassitude, mild skin rash, irritability, headache, anorexia, memory loss, anger, depression &/or fear, insomnia; tongue: red tip, enlarged taste buds, white coating, false pigmentation; rough inflamed skin;
- **Toxicity**: niacin: non-harmful “niacin flush” - reddened, itchy skin & chills, lasting 15 to 40 minutes, from niacin’s release of vasodilating histamine;
- **Large doses** (more than 1,000 mg) are best monitored by a health professional; may produce stomach pain, diarrhoea, cardiac arrhythmia, itching & nausea; may increase blood sugar levels in diabetics, elevate blood pressure, worsen gastric ulcer, worsen gout by increasing uric acid levels;
- **Timed-release high-dose niacin**: may impair liver function;
- **Niacinamide produces no flush**; but has slightly higher liver toxicity than niacin;

Therapy with vitamin B-3

- Usual therapeutic dose: 20 - 1,000 mg/day; up to 3,000 or even 6,000 mg/day in cardiovascular disease & schizophrenia;
- Alleviates all deficiency symptoms;
- Helpful in returning non-functioning schizophrenics to (tax-paying) functionality;
- 100 mg of oral niacin given 3x/day may help provide relief from chronic acne;
- Niacin (not niacinamide) may reduce alcoholics’ craving for alcohol; may help remove pesticides, PCBs & other toxins from body (used with saunas & exercise);
- Lowers high blood cholesterol & triglyceride levels; increases beneficial HDL cholesterol; improves circulation;
- With chromium, may be helpful in diabetes;
- Reduces high blood pressure in some people;
- Large doses may relieve migraine headaches;
- Reverse dysperception & delusions of people suffering from mental disorders; may relieve vertigo characteristic of Meniere’s syndrome through improved circulation;
- In conjunction with high protein diet, 250 mg, 6x/day helps overcome pain & stiffness of arthritis;