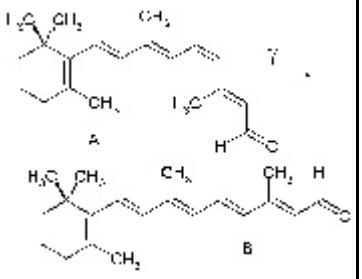
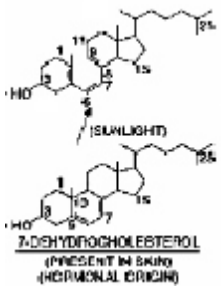
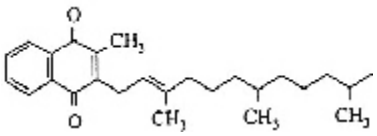
VITAMINS II: OIL SOLUBLE VITAMINS; FOOD SOURCES

rvsd 5/2/94, 5/4/98, 29 April 1995, 5/4/98, 26 April 2002, 1 May 2002, 2 May 03, 5 May 2004, 7 May 2008, 4May09, 11May09, 30Apr10, 2May11
Campbell's 5th; pp: 792-796, Campbell 6th: p 854, 1066, 7th: 851, Sadava 8th: 886 (D), 1074 (C, etc), 56-57

OIL SOLUBLE VITAMINS: Oil soluble vitamins are stored in the body, high levels may be toxic.

vitamin	ltr	sources	function	deficiency
retinol p 56	A	DGLV, liver, carrots beta carotene	1) **epithelial maintenance** 2) Component of rhodopsin, detection of light: ***cis* retinal** complexes with **opsin** to form **rhodopsin**. Light converts *cis* retinal to *trans* (see figure to R) Dissociation of rhodopsin generates nervous impulse See p 1066	 night blindness, xerophthalmia
calciferol (0.01 mg/day) p 886, 57	D	liver, sunlight Technically it is a hormone. It can be synthesized in the skin, acts on distant organs.	Two functions: 1) required for **Ca uptake** 2) **ossification** Diagram the change of 7 dehydrocholesterol to calciferol when exposed to UV:  	rickets
alpha-tocopherol	E	whole grains, esp wheat germ oil, nuts, seeds	**antioxidant**, oil phase	male infertility possible anemia
phylloquinone	K	DGLV (Gut bacteria can also make it.)	required for the synth of **prothrombin** in the liver 	prolonged clotting time analogs of this vitamin (**dicourmarol, coumadin** or warfarin) cause decreased clotting, DeCon, or so-called "blood thinners" (NOT)

Anti cancer vitamins are all antioxidants (A, C and E).

TABLE OF GOOD SOURCES OF VITAMINS

WATER SOLUBLE	DGLV	whole grains	fruit	legumes	yeast	dairy	eggs	liver	meat	fish
ascorbic acid	++		++							
Thiamine	+	+		+	++	+				
Riboflavin	+	+				+	+	+	+	+
Niacin	+	+			++			+	+	+
Pantothenic acid	+	+			++			++	+	+
Pyridoxine	+	+		+		+	+	+	+	
Folic acid	+	+	+	+				+		
cyanocobalamine						+	+	+	+	+
OIL SOLUBLE										
retinol	+					+	+	+		+
calciferol						+				+
α tocopherol	+	+				+	+		+	+
phylloquinone	+									