

## Table of Reported Drugs with Mitochondrial Toxicity

Pharmacologic Category	Toxin	Action	Symptoms
1. Anticonvulsants	Valproate (Depakote)	Sequesters carnitine; decreases fatty acid oxidation, Krebs, ETC activity and oxidative-phosphorylation; complex IV inhibition	Hepatopathy
2. Psychotropic			
a. Antidepressants	Amitriptyline (Elavil)	Causes autonomic dysfunction	
	Amoxapine		
	Fluoxetine (Prozac)		
	Citalopram (Cipramil)		
b. Antipsychotics	Chlorpromazine (Thorazine)		
	Fluphenazine (Prolixin)		
	Haloperidol (Haldol)		
	Risperidone (Risperdol)		
c. Barbituates	Phenobarbital	Reduces mito protein synthesis; dec # and size of mitochondria	
	Secobarbital (Seconal)	Inhibits NADH dehydrogenase (complex I)	
	Butalbital (Fiorinal)		
	Amobarbital (Amytal)		
	Pentobarbital (Nembutal)		
d. Anxiety meds	Alprazolam (Xanax)		
	Diazepam (Valium, Diastat)		
4. Cholesterol meds	Statins	Reduce endogenous coenzyme Q10	Myopathy
	Bile acids-cholestyramine	Inhibits ETC	
	Ciprofibrate	Inhibits complex I	

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	Fenofibrate		
5. Analgesic/anti-inflammatory	ASA (Aspirin)	Inhibits ETC and uncouples oxidative-phosphorylation	Reye syndrome (hepatic failure)
	Acetaminophen (Tylenol)	Increases oxidative stress	Hepatopathy
	Indomethacin (Indocin)		
	Naproxen (Aleve)		
	Diclofenac		
6. Antibiotics	Tetracycline, minocycline	Inhibit beta-oxidation; inhibit mito protein synthesis	
	Chloramphenical	Inhibits mito protein synthesis	
	Aminoglycosides	Impair mtDNA translation	Hearing loss; cardiac toxicity; renal toxicity
	Linezolid (Zyvox)		Lactic acidosis, optic and peripheral neuropathy
7. Anti-arrhythmic	Amiodarone	Inhibits beta-oxidation	
8. Steroids		Reduce transmembrane mito potential	Reports of deterioration in Kearns-Sayre syndrome
9. Anti-viral	Interferon	Impairs mtDNA transcription	
10. Anti-retroviral	Zidovudine	Impairs mtDNA replication which causes mtDNA depletion; decreases complex I and IV activity	Carnitine deficiency; lactic acidosis; lipodystrophy; neuropathy; myopathy; hepatic dysfunction
11. Cancer meds	Doxorubicine (Adriamycin)		
	Cis-platinum	Impairs mtDNA transcription	Hearing loss; cardiac toxicity; renal toxicity
	Tamoxifen		

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12. Diabetes meds	Metformin	Inhibits oxidative-phosphorylation; enhanced glycolysis	Lactic acidosis
13. Beta-blockers		Causes oxidative stress	Decreased exercise tolerance
14. Immunizations		No scientific data on oxidative- phosphorylation adverse effects	