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**Item ID Number** 01654

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**Report/Article Title** Table: Fat Biopsy Study Cases

**Journal/Book Title**

**Year** 0000

**Month/Day**

**Color**

**Number of Images** 10

**Description Notes** Lists place-mode-duration of exposure; dates & symptoms/diagnosis; occupation/subsequent toxin exposure; and family symptoms. Names of study participants are not provided.

F A T B I O P S Y

Spec. #	Name and Age	Soc. Sec. #	Place-Mode-Duration Dates Exposure	Dates & Symptoms/Diagnosis	Clinical Laboratory -
1 (II) 0	<i>CFE</i> <i>II</i>	<i>Thailand</i> <i>Ninh</i> <i>Thuan</i>	Air Force-Cam Ranh Bay Oct. 1967 - 13 days Headquarters personnel No definitive exposure known	Astrocytoma- craniotomy 10/7/76-Asymptomatic 1979 "kidney condition" unknown diagnosis	Hematol- Liver- Renal-
6 (II) 5-3 ②	<i>I</i>		Marine-Ba Nang and Phiipul 1966-1968 Field and foxhole machine gunner in rice paddies Drank from local lakes No protective gear on maneuvers. Claims mild direct exposure skin contact & ingestion	Fragment wound scars face, arm and thumb. Acoustic neur- oma-occipital craniotomy 2/16/79, Thyroid nodule 4/18/79. Total thyroidectomy & reimplant parathyroid Left orbital headaches 161/2 years.	Hematol- Chest x-ray- Liver- Renal-
8 (II) 5-3 ②	<i>I</i>		Chu Lai-Army. Cutting trails & setting camps in jungle-after spraying 2-3 days exposure-mild direct early 1970- skin contact.	Chronic ulcer, lt. index fin- ger, 2-3 mths. after break- ing beer bottle in hand February 1979	Hematol- Chest x-ray- Liver- Renal-
9 (II) 0			Landing zone Song Be Nay Nov. 1969. Drove water truck from lake to L 2, Agents orange & white stored in the area-he drank & ate from lake water & feels water was contaminated. Army was in vehicle entire time of exposure. Ingestion- mild-prolonged	Fever & fatigue, 16 years Diffuse numbness and tingling of extremities, muscle fatigability claimed 8/9/78 not mentioned on 12/1/69. Had workup for claim of "rhinitis" & "back condition" "Sex & psychiatric problems"	Hematol- Liver- Renal- Electromyogram Nerve conduction studies Muscle enzymes Neurologic consultation

SEEDY CASES

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and History	Military Record Data	Record
	X-ray Rx. & Chem Rx., post craniotomy 1976 Chlorine-worked for city in well maintenance. 3 pkts. cig/da-14yr	None		AP 1 0001
	Radiation Tonsils 1950 15 pkts./yrs. cigarettes	None		
	Construction worker-no toxic exposure documented. Non-smoker	None Single		
No myasthenic pattern End point nystagmus, bilateral				

F A T B I O P S Y

Spec. #	Name and Age	Soc. Sec. #	Place-Mode-Duration Dates Exposure	Dates & Symptoms/Diagnosis	Clinical Laboratory
10 (H) 23-4 (A)			Army-helicopter crew Many exposures handling bulk chemical & spraying from helicopter in northern I camps May 69-May 1970. Severe, direct repeated prolonged exposure agents orange, blue. No protective gear. Ate and drank from contaminated water. Skin contact, inhalation, ingestion.	Back pain-"pinched nerve" 1 month abd. pain & mild epigastric tenderness on PI Plantar wart, rt. foot	Hematol- Liver Renal- Upper GI - Normal
11 (H) 3-7 (1)			Army helicopter door gunner and sprayer, & herbicide loader Socfran & Bach Gia 9-12 hr. Dir. exposure every 4-5 days. Prolonged, severe contact and inhalation & ingestion, 9 months, 1968-69.	Chest pain, shortness of breath for 2 yrs. Urinary frequency and nocturia 2 yrs Claims infertility	Hematol- Liver- Renal- Sperm Count Pul. function & lung
12 (H) 9-3 (6)			Plinky Aakhy-Army 7 months 1968-combat medic in sprayed fields-direct mild repeated exposure to sprayed area.	Occasional transient butterfly rash over face after alcohol or anxiety-frequent before Vietnam duty. Papular rash, malar prominences & forehead	Hematol- Liver- Renal- Dermatology-
13 (H) 0			Army-Camp Hallowsy perimeter of demilitarized zone. 30 contact exposures to aircraft spraying as perimeter supervisor. Drank water from Dong Ho river in Coale after spraying of	1978 lt. mastectomy for gynecomastia. 200 experiences, swollen eyelids and conjunctivitis. Nervous with hand tremor "past several years" Plantar warts. Tingling fingers & toes.	Hematol- Liver- Renal-

STUDY CASES

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and Diseases	Military Record Data	Record
	Student  None  12/pack years smoking	Grandfather died of cancer		
Alexion Bros. Hospital scas Elk Grove, Ill.	Student & construction worker	Wife miscarried @ 3-4 months 2 1/2 yrs. ago Uncle died of cancer, ? site @ 65 yrs.	Army #54829192 Vietnam 8/26/68- 10/28/69, Military policeman & door gunner, Dec. 68-May 69 Record Name James J. Benczeki	
	Technical equip- ment company representative	Father- 2 coronary attacks Mother-high blood pressure	Army #347420607 Vietnam 1/26/70 to 8/30/70/ Medical specialist	
	TP4 exposure during military duty 3/4 pk. cig./day several years Heroin & Methadone 3 yrs up to 4 yrs ago.	None		

AP-0002

Spec. #	Name and Age	Soc. Sec. #	Place-Mode-Duration Dates Exposure	Dates & Symptoms/Diagnosis	Clinical Laboratory
14 (M) 4-5 ①			Army scout plane pilot-helicopter. Flew through spray on 4 occasions. Plane & man showed visible moisture precipitated from spray I & III corps areas 1968-69.	Sarcoidosis mediastinal node Rt. inguinal hernia. History of renal stones 1975-Fatigue and sick 3-5months. Pneumonia 2 years ago. Diarrhea 3 mths. Said to have had small patch of atelactasis 1969. Spleen palpable & liver slightly tender. People working with him also had diarrhea & vomiting. Aching pain in thumb, lt. shoulder & upper arm. (shoulder injury as teenager) Bright stool, blood 2 weeks.	Hematol- Liver- Renal-
15 (M) 7-4 ②			Army-10 exposures. Hand sprayer use on base perimeter CUCHI-field exercise in sprayed areas 1 month. Ato & drank in rice paddies. Direct contact, respiratory, ingestion. Vietnam April 66-April 70.	Rash on legs & diarrhea in Vietnam. "Jungle rot" of toenails & groin skin. "Nervousness" since 1972. "Breakdown". Allergic to merthiolate. Darvon & tobacco Leg swelling (phlebitis with muscle biopsy-Univ. Chicago. Diag. by private MD-Rx for schizophrenia and auditory hallucinations.	Hematol- Liver- Renal- Dermatology Consult Fungus cultures
16 (M) 0			Army-Base repeatedly sprayed Dong Ha. Nov. 1967-68. Worked unprotected in sprayed areas - direct contact repeatedly. Possible ingestion via eating utensils & water Bunker guard at base.	Problems with feet with operation contracture, left great toe. Foot trauma & pain, rt. 2nd metatarsal-cellulitis foot. Dermatomyofascioma, bilat. since 1969. "Cyst in lung operated 20 years ago.	Orthopedic consult Dermatology consult Chest x-ray - Rt. Apex

STUDY CASES

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and Diagnoses	Military Record Data	Record
	Lawn fertilizer Photographic & farm chemicals 10 & 1/2 pack/ yrs. cigarette Construction worker	None	Army #3160029 Vietnam 5/6/68- 6/29/69. Helicopter pilot 1st squadron, 9th cavalry, 1st air cavalry div., 1st battalion 40th artillery 108 artillery group.	AP 1000
	"Cleaning agents Machine repairs man for Cater- pillar Tractor 1-2 packs/day for 18 yrs. "Heavy alcohol intake"	Wife miscarried once between 1969-75.		
Dermatophytosis  densities consistent with abdominal inflammatory disease Multiple healed rib fractures.	Pipefitter No exposure toxins	Son born 1971 with congenital heart problems Surgery recommended		



F A T B I O P S Y

Spec. #	Name and Age	Soc. Sec. #	Place-Mode-Duration Dates Exposure	Dates & Symptoms/Diagnosis	Clinical Laboratory -
19 (L)			Air Force-mixing & loading chemicals on aircraft and base maintenance use in hand sprayer-direct frequent contact. Binh Hoa May 68-July 69. Clothes often soaked, 12-14 hrs per day. DDT-240624T Evening showers & clothing change only protective moves.	Painful edema of feet and lower extremities, increasing recently-varicose veins, bilat.	Hematol- Liver- Renal-
24 (NS)			Army-spraying & drank from contaminated streams No protective moves	History of lt. inguinal hernia Hemorrhoids. Leg wound in Vietnam-now occasional knee & leg swelling with exercise. Low back pain. Liver palpable 1 cm. below RCl	
25 (NS)			Army-Field installations telephones in sprayed areas. Defoliants fell on shoulders & head, March Oct. 1969. Camp Evans Also insecticide spray contact.	Fatchy dry areas of skin, back & shoulders, come & go since 9/13/79. Cholecystitis-cholecystectomy, July 79. Hypertension, fatty liver. Arthritis, Lt. knee-past injury. Peptic ulcer history-no symptoms. Hypertension 150/100.	Hematol- Liver-Bx.-Portal fibrosis Bilirubin 0.6 (Alb. 4.5) Ca 9.5 SGOT 30 LVA 141 Cholesterol 90.0 Renal-Uric acid 6.2 Upper GI-consult-lack of gastric entrom Dermatology-Tinea

STUDY CASES

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and Diagnoses	Military Record Data	Record
	None	None	Air Force #17199136 Vietnam 8/31/68- 7/5/67 and 8/3/68-10/3/69. Payment maintenance supervisor. Pho Cat Air Base.	AP-0004
	Tailor smoking 1/2 PPD 15 yrs. 6 pack beer/day Heroin one to 3 years ago	Mother & Father have heart dx.	Army #5482966 Vietnam 7/29/68- 8/1/69. Wounded 3/13/69 Infantryman.	
<p>&amp; marked fatty change Total prot. 7.2 Phos 3.6 AlkPhos 121 Creatinine 1.2</p> <p>distensibility</p> <p>verrucular scalp.</p>	Auto mechanic Smokes 1 PP day Raised on farm in Mississippi-pro army. (exposed to insecticides.)	None	Army #53411750 CLines # 25349240 No records at MPRC	

## F A T B I O P S Y

Spec. #	Name and Age	Soc. Sec. #	Place-Mode-Duration Dates Exposure	Dates & Symptoms/Diagnosis	Clinical Laboratory -
26 (MS) 6-4 ①			Air Force-Chief herbicide unit-daily direct repeated contact, respiratory & skin "swam in it" 1 yr. 1968 Agents Orange, White, blue No protective gear or action.	Crampy abd. pain-4months allergy to fish and IVP dye. Rectal itch, 1 year. Occasional generalized skin 2-3 hrs since 1968. Itch	Hematol- Chest x-ray- Liver- Renal- Dermatology consult-
27 (L) 12-4 ④			Army-Flekin Aug67-Aug69 open field duty in areas sprayed-1 spraying caused actual contact. No protective action-often in open jeep. Bathed in bomb craters & rivers after spraying.	6 weeks post exposure tingling & swelling hands & feet-stiffness fingers & toes Insomnia, now Raynauds reaction hands & toes & weakness of extremities with hand and toe ache-bilateral limp	Hematol- Chest x-ray-
28 (L) 8-3-4 ⑤			Army-Cam Rahn Bay Saigon & Dalat & convey duty central highlands in open vehicles passing through areas. Processed quantities & ate some fruit & vegetables from sprayed areas. No specific exposures, no protection. June70-March 71	Presently asymptomatic No PE abnormalities	Hematol- Chest x-ray- Liver function-

STUDY CASES

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and Diagnoses	Military Record Data	Record
"Puritis Ani" un- related to Agent Orange	Artist	None	Vietnam 7/12/67-7/7/68 Bien Hoa Air Base Air Force mechanic with 12th Air Combat squadron.	AF-6005
	1/2 pack cigarettes/day	None		
	None VA administration clerk	Mother-brain tumor-1950 Single		

F A T B I O P S Y

Spec. #	Name and Age	Soc. Sec. #	Place-Mode-Duration Dates Exposure	Dates & Symptoms/Diagnosis	Clinical Laboratory -
29 (NS)			Army-Can Bahn Bay & environs several times. Walked through recently sprayed jungle. Ate local vegetables(fresh) 1967-68. No definite direct exposure. Lived with Vietnamese on local economy. No protective action.	Amebic dysentery & pleurisy for 2 months in Vietnam. Cramping abd. pains 1976. Polycystic kidney-hypertension. Weak in arm, dropping tools, etc. Duodenitis-superpublic and perumbilical pain intermittently for several year. BP 150/100. Hemorrhoids with constipation.	Hematol- Liver-creatinine 1.3 Renal-CA 150, Uric acid 33 Neurology-No abnormality Dermatology-No abnormality Urology-No abnormality Nephrology-No abnormality Gastrointestinal-gastrodeformed duodenal bulb
30 (NS)			Army-1969, 1970. Sprayed by planes 2-3week over extensive period-ate & drank contaminated water-food. Clothes & skin contaminated often. Long Binhport III Corps-Truck operator for 1st STRATCOM signal brigade.	Nervousness. Intermittent skin rash over arms began Vietnam cough & asthma-ages at 24th evacuation hospital Huchula-Vietnam. Now expiratory rhenchi & history of asthma.	Hematol-
34 (NS)			Army-Vietnam, Jan67-Nov67 Dong Tuong & Long Ben Air mobile infantry-open fox holes. Field & helicopters in sprayed areas-no protection. Contact, inhalation & ingestion, direct & indirect.	Chest pain, chronic anxiety stomach pain, flushing of face, multiple lipomas all over body, shortness of breath(occasional), intermittent blurred vision with anxiety, "water blisters skin under eyes," heart palpitations. Hypertension 140/84.	

10-4  
⑤

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S T U D Y   C A S E S

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and Diagnoses	Military Record Data	Record
Phosphate 720 Porphyrin  Polycystic kidney not confirmed  scopy-edematous &	Carpenter - None	"Familial anxiety"		AF 6006
	Tankloader in oil refinery & local fire dept. Benzene & Toluene	None listed		
	Carpenter-No chemical exposures			

FAT BIOPSY

Spec. #	Name and Age	Soc. Sec. #	Place-Mode-Duration Dates Exposure	Dates & Symptoms/Diagnosis	Clinical Laboratory -
5 (H) ①			No exposure defoliants.	Rt. ing. hernia Herniorrhaphy Biopsy abd. wall fat 4/13/79	
7 (H) ①			Air Force- No exposure defoliants.	Adenocarcinoma of rectum Abdomino-perineal resection 4/19/79	
17 (L) ①			Army-Black forest near Fleiku-Vietnam. Dioxin exposure. Worked in field 18 days as heavy equip. operator-caught between 2 jeeps, - pelvic fx.	Epigastric hernia, acute lumbar strain. 100% SC for sacroal, pubic & iliac fx. in Vietnam. Varicosities. Epigastric herniorrhaphy & fat biopsy 6/26/79. Sterile as result of fracture Several operations on bladder as result of pelvic fracture.	Hematol-Hbg. 14.6, Hct. 43 Chest x-ray-Normal Renal-BUN 11, Urine 5 to EKG-Normal Sperm Count-1st done 1973
18 (L) ①			No exposure defoliants	Rt. ureteral lithiasis & hypertension - stone extraction ureterolithotomy Abd. wall fat biopsy 6/15/79.	Hematol-Normal Liver- Renal x-ray-Rt. hydro- hematuria
20 (L) ①			Army-9/14/47-7/27/51 No exposure defoliants	Lt. ureterolithiasis. Ch. disc syndrome. Back pain, diarrhea, vomiting, dysuria hematuria. Hist. gout 12 yrs ago. Hypertension. Sliding hiatal hernia. Esophagitis. 7/6/79 ureterolithotomy & abd.	Hematol-Hbg. 15, Hct. 44.6 Liver- Renal-hematuria,

CONTROL CASES

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and Diagnoses	Military Record Para	Record
	Unemployed		Service # 16725294 No record available.	
	Unemployed 4 yrs Federal office employee before then.		C19310293 Air Force Svc. 8/29/51-8/15/55 Service serial 19245470 No Vietnam svc.	AP 1 0007
WBC 9,600  10 WBC		Grandfather died of cirrhosis of liver.	16981053 Vietnam 10/7/61- 12/19/67. Machine operator 299 engineering battalion. Retired to disability 3/21/69.	
nephrosis			14136247 WWII service Deceased 4/9/69 ?	
WBC 13,400  proteinuria			C16409483	



F A T B I O P S Y

Spec. #	Name and Age	Soc. Sec. #	Place-Mode-Duration Dates Exposure	Notes & Symptoms/Diagnosis	Clinical Laboratory -
21 (L) u (5)			Navy-3/18/54-1/17/58 No exposure defoliants	Non-functioning, rt. kidney (multicystic) hypertension	Hematol-Hbg. 17.3gr., Chest x-ray-Normal Liver-creatinine 1.7 Renal-5,000 colonies Ecol.
22 (NS) o			No exposure defoliants.		
23 (MS) o			Army-duty entirely at Ft. Polk, LA. 8/68-10/71 No Vietnam service.	Hiatus hernia with reflux esophagitis. Nissen fundoplication & abd. wall fat biopsy 1966 & fistula 6/26/77. Bronchial asthma now. Old trauma, rt. elbow with pain. Obesity	Hematol-Hbg. 17.0, Hct. Chest x-ray-Normal Liver- Renal-
31 (MS) u (7)			Army-Not exposed-military duty in Frankfurt Germany	Traumatic dislocation hip Fusion of hip	Hematol- Chest x-ray- Liver- Renal-

CONTROL CASES

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and Diagnoses	Military Record Data	Record
<p>otherwise normal</p> <p>calcium 7.4</p>				AP-0007
50.4	<p>Foreman, meat cutting Co. Denies drugs &amp; smoking. No other exposure toxins.</p>	None	<p>C67144367 Duty 8/29/68- 7/28/71</p>	
	<p>Sheet metal machine operator Denies chemical exposure.</p>			

## F A T B I O P S Y

Spec. #	Name and Age	Soc. Sec. #	Place-Mode-Duration Dates Exposure	Dates & Symptoms/Diagnosis	Clinical Laboratory
32 (WS)  0			Air Force 1963-79 Marines 1954-59 Korea, Thailand, Philip- pines, Japan, Taiwan	lt. ing. hernia-Herniorrhaphy & abd. wall fat biopsy 8/27/79 Ext. hemorrhoids. Dermatitis lt. foot. arthritis 8/22/79 Herniorrhaphy & abd. wall fat biopsy.	Hemacol- Chest x-ray-normal Liver- Renal- Cardiology consult-
33 (H)  1 <sup>st</sup> 0			No exposure defoliants.	Cholelithiasis	

CONTROL CASES

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and Diagnoses	Military Record Data	Record
No abnormality	"Chronic smoker" 1 1/2 pks/day for years. "occasional" alcohol.		Lake Mead & Las Vegas during nuclear tests, 1950's.	AP 0009
	Auto repair shop manager.			

F A T B I O P S Y

Spec. #	Name and Age	Sex, Sec. #	Place-Mode-Duration Dates Exposure	Dates & Symptoms/Diagnosis	Clinical Laboratory
2 (R) 5-2 ②			1056 hrs documented. March 1973-77. Ecological studies in field, plot samples in field. TCDD dusting studies, site monitoring. Project Facer No. Severe, direct, repeated, prolonged exposure plants soils, cocontaminated animals. Contact, inhalation, ingestion, some protective masks, boots, coveralls, gloves-often impractical to wear any. Worked on biodegradation and site cleanup 6 years. Never chloracne.	No symptoms, signs or abnormalities except questionable scars, lt. axilla 1973 - 246 hrs. 1974 - 212 hrs. 1975 - 64 hrs. 1976 - 68 hrs. 1977 - 360 hrs. 1978 - 106 hrs. 1979 - to April 10th-20 hrs.	Hematol- Liver- Renal-
3 (R) 4-1 ③			6,608 hrs. documented 1969-April 1979 (76% skin contact, 24% inhalation) severe, direct, repeated, prolonged In research where animals were studied with TCDD. Exposed gloves & masks were used.	"Bronchiectal problems" with congestion 2 yrs ago with influenza-none since. Allergic to penicillin. 1969-2,000 hrs 1974-390 hrs. 1970-2,200 hrs 1975-300 hrs. 1971- 510 hrs 1976-332 hrs. 1972- 180 hrs 1977-110 hrs. 1973- 338 hrs 1978-211 hrs. 1979-April - 37 hrs.	Hematol- Chest x-ray- Liver- Renal-
4 (R) 6-2 ④			1,046 hrs. documented. 1976-1978-atr. soil, & stream sampling, moving & cleaning cylinders & drums 6 days & nights aboard ship during incineration. 1976 - 138 hrs. 1977 - 905 hrs. 1978 - 3 hrs.	Occasional periorbital acne 3 yrs. 3 moles, skin of groin past 10 months- similar skin of arm. Spastic colon, past 10 years. ? rheumatoid arthritis.	Hematol- Liver- Renal-

AIR FORCE VOLUNTEERS

Consultations	Occupation Subsequent Toxin Exposure	Family Symptoms and Diseases	Military Record Data	Record
	Exposure to 2-4-D & 2-4-5T as child growing up on farm & ranch areas. Also chlordane, lindane, toxaphene.	None known	Lt. Col-USAF Active duty Research, occupational & environmental health.	
	Prior to active duty. Ph.D. studies on effect 2-6D & picloran. On active duty also exposed to malathion, dursaban, chlordane & lindane.	Father died cancer of lung	Major-USAF Active duty Research, occupational & environmental health.	
	10 pk/yr smoking 14 oz. wine some occasions.	Uncle died of skin cancer. Brother died coronary at 34 yrs.	Major-USAF Active duty Research, occupational & environmental health.	

AP-CCIC