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美國勞工安全衛生及健康保健研究趨勢考察報告

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摘要

歐、美等先進工業化國家，從事有關勞工安全衛生研究工作具有相當的經驗，本次考察行程重點：一、藉由參觀學校及美國國家勞工安全衛生研究所，了解美國目前勞工安全衛生研究主要的研究趨勢；二、考察美國大學及健康促進中心，探討無論在校園、社區、工作場所中及研究工作中健康促進推動的主要項目及推動方式，以了解對於健康進推動的現況。參觀行程中包括了美國國家勞工安全衛生研究所位於辛辛那提三個實驗室、位於洛杉磯的三所大學及兩個進康促進中心。整個行程中獲益良多，可以提供未來研究的參考。

目的

職業衛生研究工作為探討工作環境中的危害因子，危害因子包括化學性、物理性及生物性等相關危害，這些不同因子造成的危害及如何有效並即時性的處理，並且避免讓勞工暴露於危害因子的威脅中。歐、美等先進工業化國家，從事有關勞工安全衛生研究工作具有相當的經驗，本次考察乃拜會美國國家勞工安全衛生研究所，了解其位於辛辛那提的實驗室部門現階段的研究趨勢及重點，以作為未來研究的參考。

由於慢性病問題及勞工的年齡層老年化的問題，健康促進問題也越來越重要了，希望能了解國外健康促進目前的研究、執行狀況、推動情形及推動重點，此次考察拜會一些美國健康促進研究及推動的機構，以了解現況。

本次考察行程主要針對一、美國目前勞工安全衛生研究主要的研究趨勢；二、健康促進：無論在校園、社區、工作場所中及研究工作中健康促進推動的主要項目及推動方式。

訪問過程

本次考察行程主要針對一、美國目前勞工安全衛生研究主要的研究趨勢；二、健康促進：無論在校園、社區、工作場所中及研究工作中健康促進推動的主要項目及推動方式。因此考察的範圍包括美國國家安全衛生研究所、一些從事健康促進或勞工安全相關研究的研究機構及推動健康促進的健康中心。行程如下：

日期	地點	工作項目
12/3-4	台北→洛杉磯→辛辛那提	資料準備及前往訪視地點
12/5	辛辛那提	美國國家勞工安全衛生研究所 參觀監視部門及應用研究及技術部門
12/6	辛辛那提	美國國家勞工安全衛生研究所 參觀教育及資訊部門
12/7	辛辛那提→洛杉磯	辛辛那提轉移至洛杉磯 資料收集及整理
12/8	洛杉磯	參觀 LomaLinda University
12/9	洛杉磯	整理參觀資料
12/10	洛杉磯	整理參觀資料
12/11	洛杉磯	參觀 University of California, Irvine 及 California State University, Pomona
12/12	洛杉磯	University of California, LA
12/13-14	洛杉磯→台北	返程

訪問心得

一、拜會美國國家安全衛生研究所

本次參觀的部門包括位於辛辛那提的應用研究及技術部門、監視部門、教育及資訊部門。

美國國家政府機構可分為下列數個機構（如圖一），其中疾病管制署下的勞工安全衛生研究所勞工安全衛生相關的事宜。NIOSH 總部位於華盛頓 DC，共有 4 個辦公室及八個實驗室，八個實驗室分別為應用研究及技術組（Division of Applied Research and Technology Cincinnati, Ohio, DART）；呼吸疾病組（Division of respiratory Disease Studies Morgantown, West Virginia, DRDS）；監視危害評估及現場調查組（Division of Surveillance, Hazard Evaluations, and Field Studies Cincinnati, Ohio, DSHEFS）；安全研究組（Division of Safety Research Morgantown, West Virginia, DSR）；教育訓練組（Education and Information Division Cincinnati, Ohio, EID）；健康影響實驗室（Health Effects Laboratory Division Morgantown, West Virginia, HELD）；匹茲堡研究實驗室（Pittsburgh Research Laboratory Bruceton, Pennsylvania, PRL）；Spokane 研究實驗室（Spokane Research Laboratory Spokane, Washington, SRL）（如圖二）。這些研究部門分別位於 4 個不同的地方，本次參觀以位於俄亥俄州辛辛那提的 DART，DSHGS 及 EID 為主。

NIOSH 在辛辛那提共分為兩棟建築，其中 FID 及 DART 位於同一棟建築中。所是在一處風景秀麗的山坡地上，EID 所負責的業務為發展並傳播資訊以防止職業病及傷害的發生；共分為資訊傳播（information Dissemination Branch），政策、技術及教育文件發展（Development of Policy, Technical, and Educational Documents Branch）等 4 個部門。EID 本身有提供有網路、免費電話等多項服務，並且有圖書室及出版部門供各項資料的查詢。EID 具有一些專責人員從事有關統計分析的工作，在過去曾經進行 Diesel Exhaust、1,3-Butadiene、Dioxin、Chrysotile Asbestos、Coal Dust、Methylene Chloride、Silica、Noise、injuries、Concordance of Risk Estimates Across Species、Fiber.....等多項物質的風險評估，提供作為一些標準

制定上的參考依據,有關風險評估的相關出版品包括:NIOSH Pocked Guide, IPCS/WHO Safety Cards;在教育訓練方面,EID 也一直在發展找尋一套方法,使訓練更有效,而且他們認為安全衛生的觀念越早接觸越好,設定教育項目包括 School to Work;Tech-prep;National Skills Standards;Blood.....。EID 的出版品部門,出版的資料相當的多,雖然倉庫並不大,可是參觀者可由目錄中選取所須的資料,並協助郵寄的工作。

DATR 共分為四個部門(圖三):(1)化學暴露及偵測部門(Chemical Exposure and Monitoring Branch)(2)生物偵測及健康評估(Biomonitoring and Health Assessment Branch)(3)工程控制及物理危害(Engineering and Physical Hazards Branch)(4)組織科學及人體因子(Organizational Science and Human Factor Branch)所從事的重點包括暴露評估方法(Exposure Assessment Method);健康評估方法(Health Assessment Method);機械及控制技術(Engineering and Control Technology);物理危害(Physical Hazard; work Organization);人因工程(Ergonomics);健康服務(Health Service Research)。在分析方法的建立,人體的暴露的生物偵測,人體遺傳基因的影響,聽力損失、壓力、人因工程及輪班、女性的影響都有研究,目前他們一些研究所採用的方法為與學校共同執行或是因合約實驗室協助進行實驗分析的工作。但也有實驗室的設立。主要研究對象包括農藥的暴露、救火人員。

DSHEFS 共分為四個分部(圖四)(1)危害評估與技術支援部分(Hazard Evaluations and Technical ASST, Branch)(2)工業現場調查(Industry wide Studies Branch)(3)監視(Surveillance Branch)(4)健康相關能量研究(Health Related Energy Research Branch)。

此部門的主要工作中包括對於與職業相關的疾病、死亡、傷害及對健康的危害進行統計分析;也針對醫學、流行病業與工業衛生進行評估;並參與一些現場的調查工作;血液相關疾病、能量相關健康效應評估。目前所進行的研究,有多項針對農藥及救火人員。

DSHEFS 一些研究上分析的工作也是有合約實驗室協勵,其中有關動物實驗室的部分,亦由其他實驗室協助進行。目前 DSHEFS 執行健康危害評估的計畫(Health Harzard Evaluation Program, HHE),此計畫主要是針對一些已知或新興的可能危害物進行評估,可由下列人員出申請(1)受僱人員①特定工作場所②三個以上的員工簽名提出(如果工作場所少於三個人,一個人代表即可)(2)工會代表(3)僱主(代表或管理人員)。一般而

言，經 NIOSH 的人員評估，如果需要，可能會進行一次現場訪視，再進行危害分析，在調查過程中將進行觀察製程，員工工作狀況，進行空氣採樣，員工個別問差調查，員工醫學、健康檢查，最後配合環境檢測、健康檢查資料、分析勞工的疾病、傷害記錄進行危害評估。HHE 這部分的工作相當的重要，藉由這樣的一個過程可以實際協助工作場所人員，免於健康危害的發生。

參觀該單位，該並與相關研究人員進行多方面討論，提供未來研究的參考。

二、拜會 LomaLinda University 健康促進中心 (Center for Health Promotion)

參觀 LomaLinda University 拜訪健康促進中心，該中心成立了二十年以上，該中心的組成人員，由一位醫師負責成員，包括醫護人員、檢驗人員、營養師及助理人員。該中心本身位於大學校區的醫學院的地區，佔地很廣，所以空間的安排很舒適，可以提供每一位求診的客戶一個優良的醫療場所。

該中心執行的業務包括預防學及健康促進，這次參觀的主要目的在於了解健康促進推動的狀況。該中心健康促進課程包括有體重控制班、戒煙班、戒酒班、工作人員的健康促進及壓力管理班。參加健康課程人員的來源包括社區、學校的學生、工廠工作的員工（目前該中心也有協助一些公司、工廠進行健康促進的諮詢）及健康計畫的成員。該中心針對一些企業所做的整體健康促進計畫進行方式，接受企業的諮詢，評估企業的需求，到工作現場進行工作場所的健康評估、現場演講、危害風險評估、生活型態調查，並進行設計整體的健康計畫。（目前該中心有協助外商的汽車公司、麥當勞的合約廠商.....等，進行健康促進課程的安排。）國內目前也有一些健康中心，與該中心不同點為，該中心的特色在於由醫療的觀點介入健康促進，整體計畫由醫師主導，並且直接與公司接觸，值得我們參考。

該中心設有健康諮詢中心、營養室、藥物諮詢室、生化檢驗、

聽力檢查、牙科診療室、心理諮商、健康體能室及身體組成測量室……(圖五~九)。各項設備及諮商中心如照片所示。該中心較特殊的地方包括有水中身體組成測定的設備，以及營養課程。在營養課程方面，中心內設有營養教室，除了一般的營養諮詢、營養課程及飲食評估外，並利用現場實際教授的方式教導參加課程者如何改進烹飪技術及方法。在國內的一些營養諮詢，往往是採用口頭教導的方式，很少會採用現場指導的方式，其實一些飲食習慣不良的人員，往往是基本烹調方式上就有一些不正確的觀念，藉由現場指導的方式，較易改善根本飲食製備的觀念，而達到改善營養的目的，這種想法很值得我們參考。

三、拜會 University of California, Irvine 人類技能研究中心 (Human research facility)

University of California, Irvine 人類技能研究中心的研究包括一些針對特定疾病的人(例如智力障礙)進行運動設計；也針對一些特定的動作探討如何預防傷害的發生。(圖十~十三)

該中心一些測試所用的儀器，部份為針對特定需求所設計的儀器(如附圖)；測試時，有時也是直接進行人體的測試。為了進行人體的測試，並需由受測者簽訂測試同意書才可進行，關於同意書的內容，該中心也有特定的設計。到底哪些類型的測試，需要受測者簽署同意書同意後進行，值得注意。

附圖為與該中心及 California State University, Pomona 的人員於中心合攝。(圖十四)

四、拜會 California State University, Pomona，拜會學生健康促進中心及運動生理及健康促進研究所

(一) 健康促進中心

該校有學生診所及健康促進中心的設立。診所由醫療人員組成提供學生的醫療諮詢，健康促進中心則由一些運動生理及營養等相

關人員共同負責，對象主要是針對學校的人員。該健康中心負責的業務包括健康諮詢、體重控制、戒煙、戒酒....。與 LomaLinda University 的健康促進中心比較，前者為由醫療人員負責，California State University, Pomona 則為非醫療人員負責（包括：運動生理及健康遠進學系、營養學系....的老師及學生）；在執行健康促進的過程中，如果需要一些醫療資源時，則由健康中心協助檢驗。該中心為平房，原先該區為馬匹飼養的地方，但目前以沒有動物的氣味。

針對健康促進項目而言，該校主要設計項目上很多偏向於體能的健康促進，該中心有一系列的電腦程式設計，可用於個人分析並設計符合參與者的健康計畫。針對身體組成分析，該中心除了重視體組成中脂肪組織、瘦肉組織的比例以外，也重視個體骨架大小的測定而造成的差異，在標準體重的設計上包括身高、體重、皮下脂肪厚度及骨架大小進行評估，這樣定義的肥胖組成比較完善。

該校的健康促進中心，由希望參與的人員先行預約，再由中心人員針對參與者設計課程，並經由一段時間執行後再評估成效，有依計畫持續進行者，一學期後有一份禮物，由該校的紀錄中呈現每周參與的人數由數十人至數百人次，相當踴躍。由中心負責人員口中得知，參與者相當的踴躍。該中心並有很多教育單張的設計，包括：飲食、運動、戒煙、戒酒、壓力管理、愛滋病、性教育.....。在這次參觀的過程中有帶回一些資料。有關健康評估的問卷（附件一）及健康促進課程介紹的宣傳資料如附件二。

（二）運動生理及健康促進研究所

該系主要的研究室針對運動及運動對人的影響，包括了運動教育及運動醫學。本次參觀主要為運動生理部份，該系於運動生理方面，主要探討運動與生理健康間的關係，營養與飲食也是該系的課程之一。有關健康促進的課程安排方面，內容包括評估生理健康、健康管理、健康計畫及或為一些特定的機構設計健康促進的課程。在一些適當的課程安排上包括：運動、營養、生活型態、壓力管理的課程，目的在於預防及治療一些特定的疾病，例如一些對社會有

很大影響的，心血管疾病、肥胖及壓力。本次參觀的實驗室包括一些生理的測定，附圖十五所示的機器可測量身體組成包括脂肪、瘦肉及骨密度。

五、拜會 University of California, LA 職業與環境衛生中心 (Center for Occupation and environmental health)

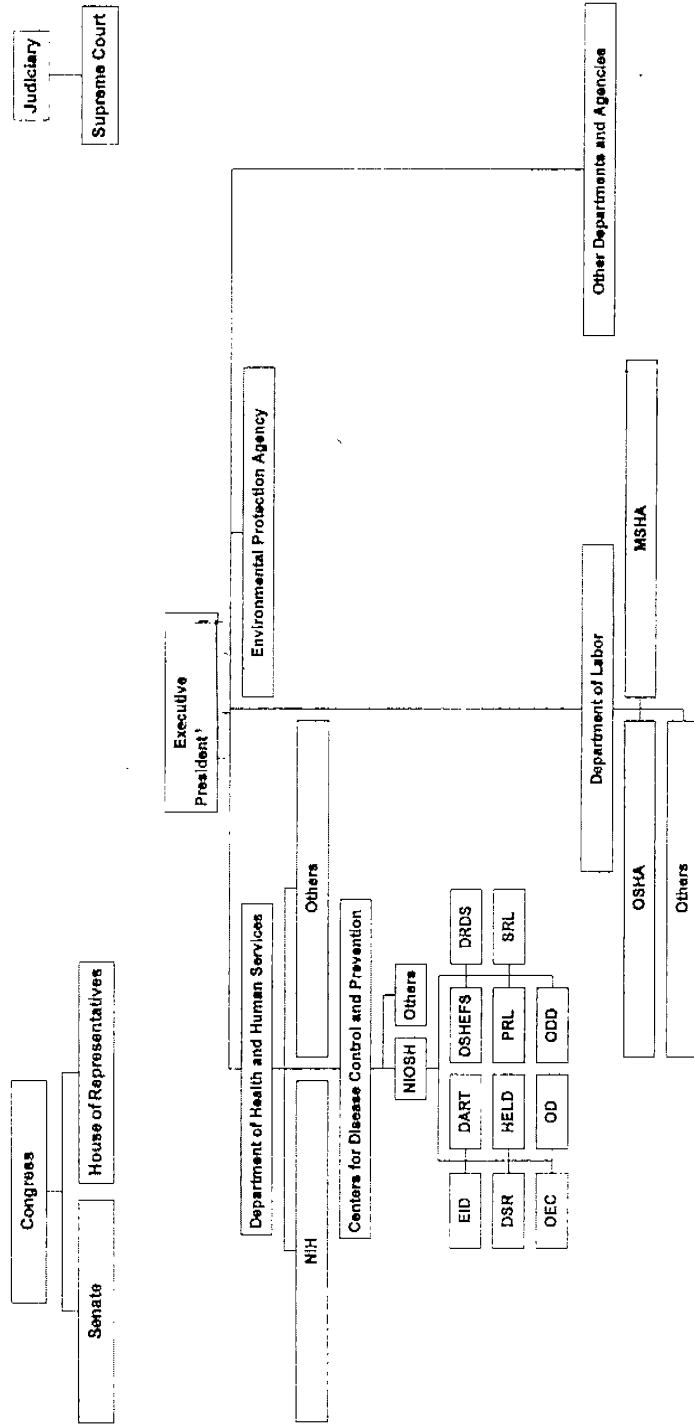
參觀 University of California, LA 的職業與環境衛生中心 Center for Occupation and environmental health (Environmental health Science) (圖十六)，該中心主要的工作為：辦理一些教育訓練課程（針對對象如：工業衛生人員、人因工程人員、職業及環境衛生人員、毒理學家、職業衛生護士……等）；研究調查包括加州地區職業及環境衛生問題；社區服務、訓練、繼續教育、一些疾病的預防、工作人員的醫療諮詢……等。這次主要參觀為該中心的人因工程及安全的實驗室。該單位研究方面為探討工作姿勢中存在可能的人因工程危害因子，該研究室進行的調查包括現場的評估及實驗室評估，現場評估方法上藉由到工廠拍攝一些現廠的工作實況，經由 3D 電腦軟體的分析，了解工作姿勢中存在的危害因子；或是利用實驗室的方法，探討一些重複性動作可能造成的危害，利用在實驗室模擬工廠中操作台的現場狀況，並藉由儀器直接偵測工作姿勢及肌肉活動狀況的變化，以探討存在的可能危害；該實驗室目前針對手套的適用性進行探討，探討手套材質對於操作上所造成的影響。該單位，並接受一些邀請擔任工廠顧問，到工作現場進行評估，分析工作中可能存在的危害因子，並協助調整工作狀況，重新設計工作姿勢，評估過程中運用快速上肢評估的方式(RULA)，將一些工作姿勢量化，分析危害性，了解須改善的工作中危害因子，進行再設計，並於現場執行，經現場改善後一段時間再次進行評估，了解改善後是否適用；在本所過去研究中也曾經使用過 RULA 評估工具，也曾發現部份工作場所存在一些危害因子，應可嘗試可否進一步改善。

建議

此次參觀包括了美國國家安全衛生研究所及一些從事與健康促進相關研究或工作的場所。了解美國現階段勞工安全衛生相關的研究及執行狀況，另一方面並且了解健康促進的研究及在美國目前推廣的狀況。

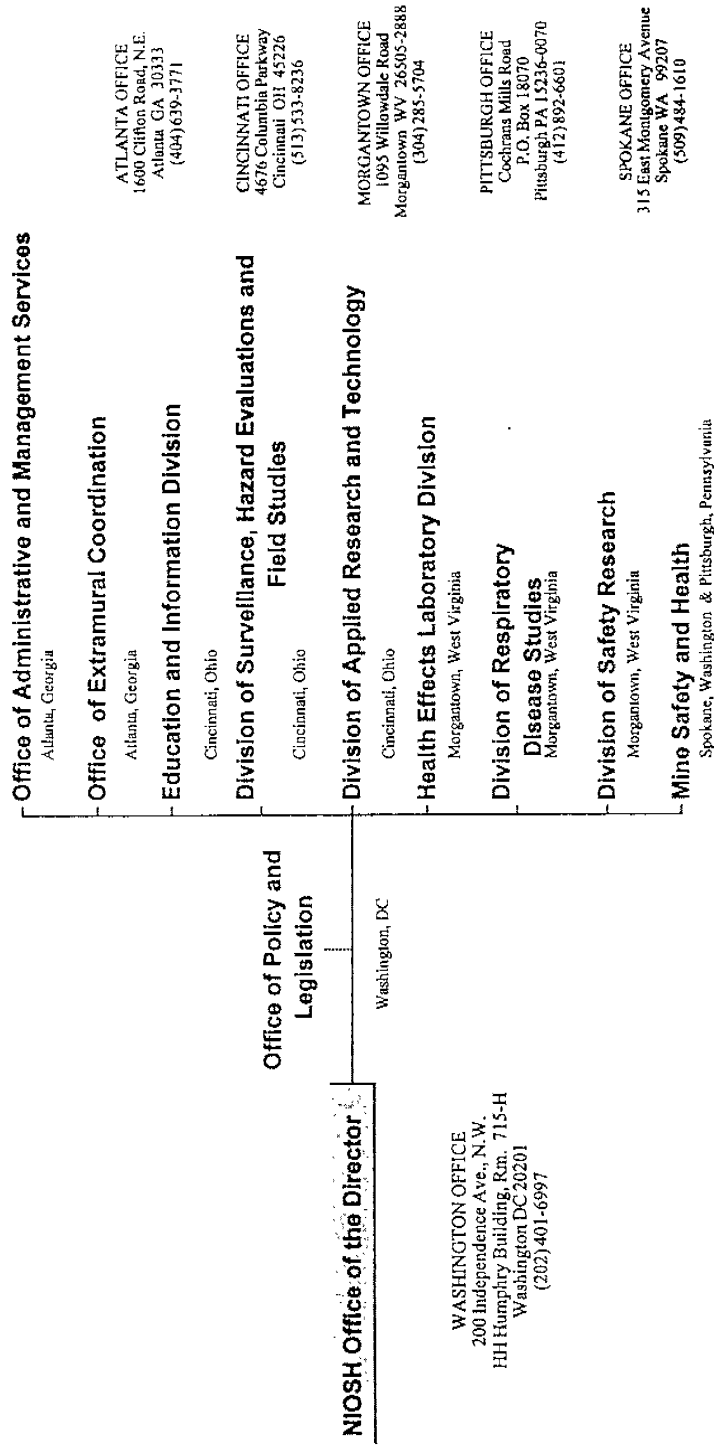
- (一) 可建立如 HHE 的調查制度，由事業單位或工廠人員提出一些特定的需求，經由評估其重要性，研究人員依重要性排列順序到現場，協助勞工進行調查，以了解工作中潛在的危害，免於勞工暴露於不良的工作場所中。
- (二) 就未來在勞工安全衛生的研究方面而言，一些例行性的研究工作，或是一些常規性的檢驗工作，應考慮建立合約實驗室的制度，以確保樣品檢驗資料的正確性。尤其一些可用一些儀器進行的檢驗工作，如果採行由固定的實驗室分析資料，可確保資料的一致性。
- (三) 我國勞工安全衛生教育的推廣，也應該朝社區化，學校化的目標推動，使安全衛生的觀念從根做起。
- (四) 我國對於安全衛生的推廣，相當重視，也有很多資料的提供，國內索取一些資料都很方便，應也可提供一些管道，提供國外相關人士索取。
- (五) 國內如果要在健康促進積極推動方面，應重視體能、營養及健康同時提升。因此參與的人員要包括運動，營養及醫師等相關人員，共同參與。
- (六) 目前國外許多健康進的課程偏向於，體重控制、戒煙，戒酒及壓力管理，國內一些健康課程的設計可以考慮朝這些方向努力。
- (七) 在健康促進課程的推動同時，要注意參與人員的持久性，不要設計太複雜的課程使參與意願下降。

THE UNITED STATES GOVERNMENT



圖一 美國政府機構組織圖

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH



Delivering on the Nation's promise: Safety and health at work for all people through research and prevention.
<http://www.cdc.gov/niosh/homepage.html>



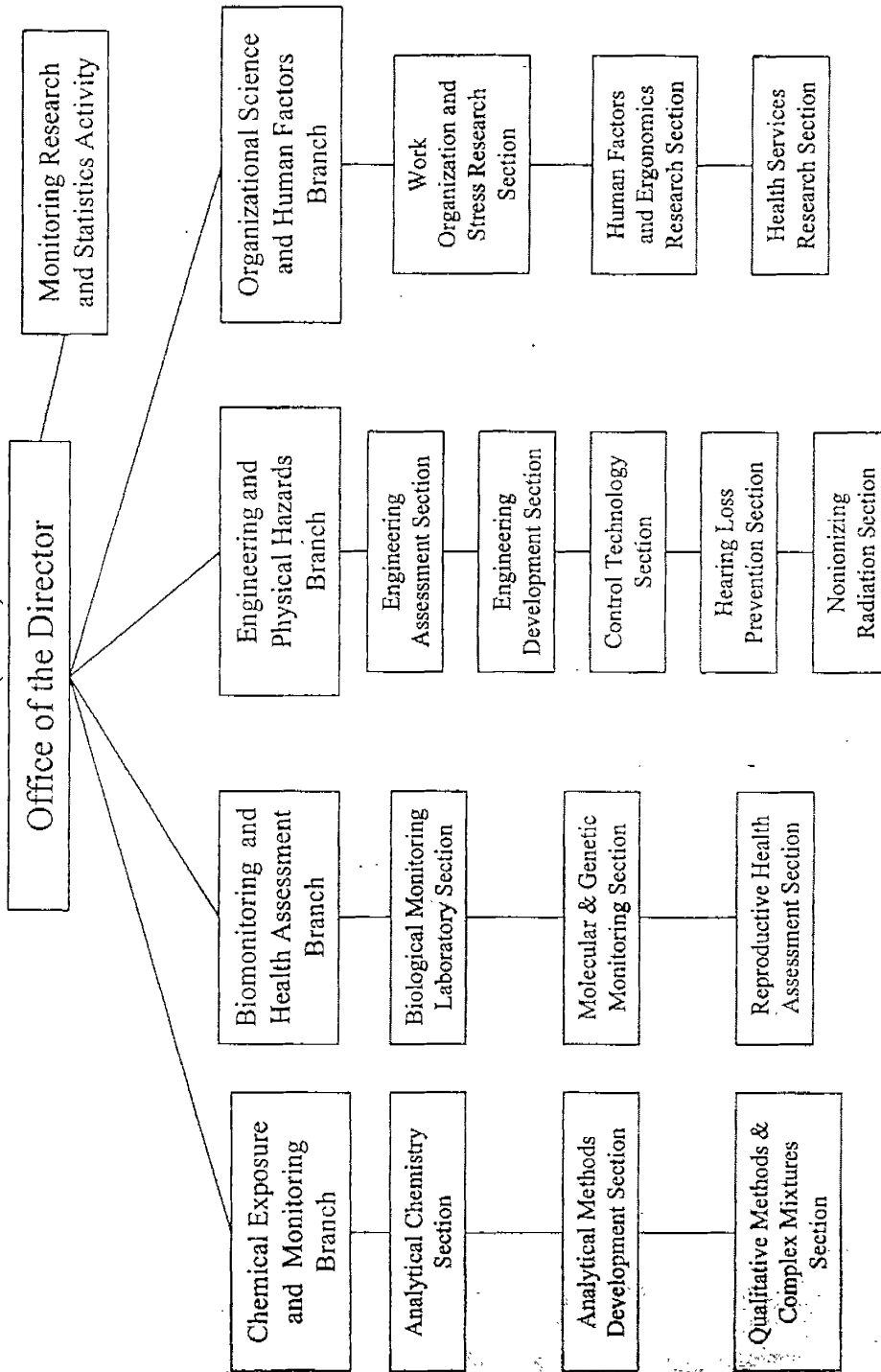
圖二 美國國家安全衛生研究所組織圖



Division of Applied Research and Technology



(8/3/99)

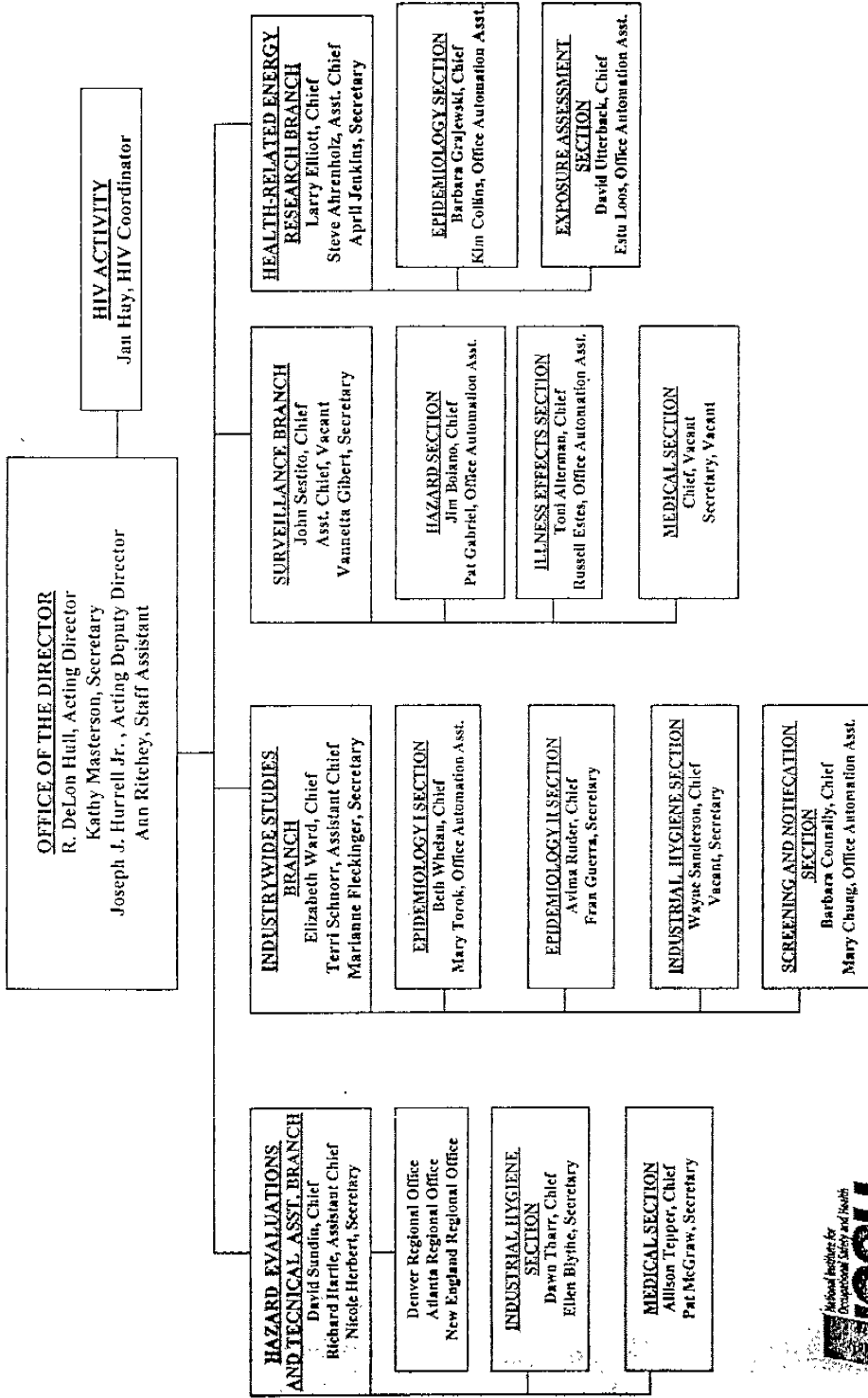


圖三 應用研究及技術組 (DART) 組織圖

DIVISION OF SURVEILLANCE, HAZARD EVALUATIONS AND FIELD STUDIES ORGANIZATIONAL CHART

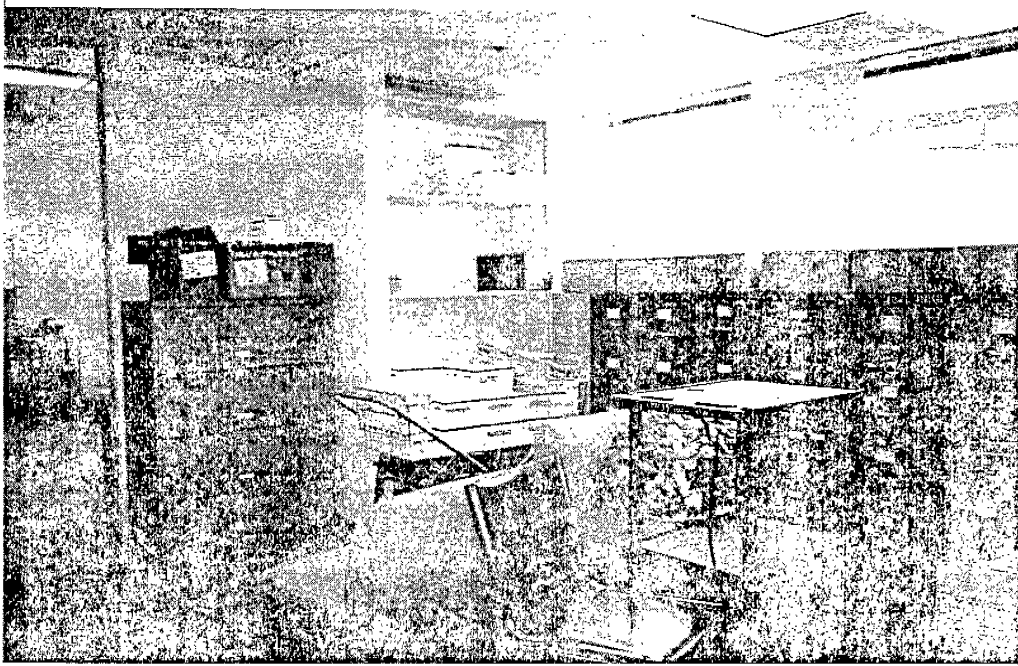


DECEMBER 2000

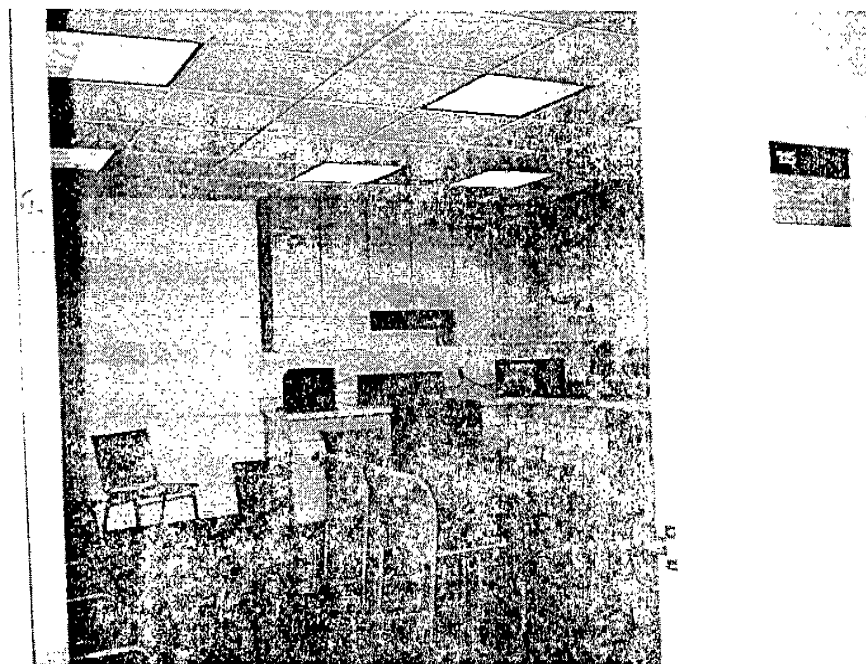


圖四 監視、危害評估及現場調查組 (DSHEFS) 組織圖

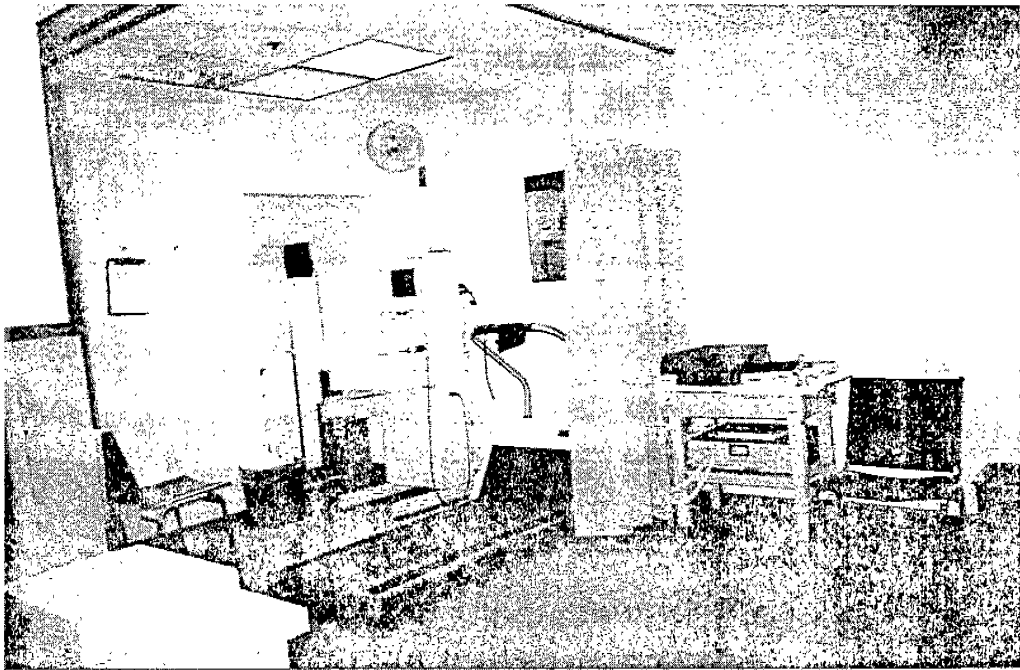




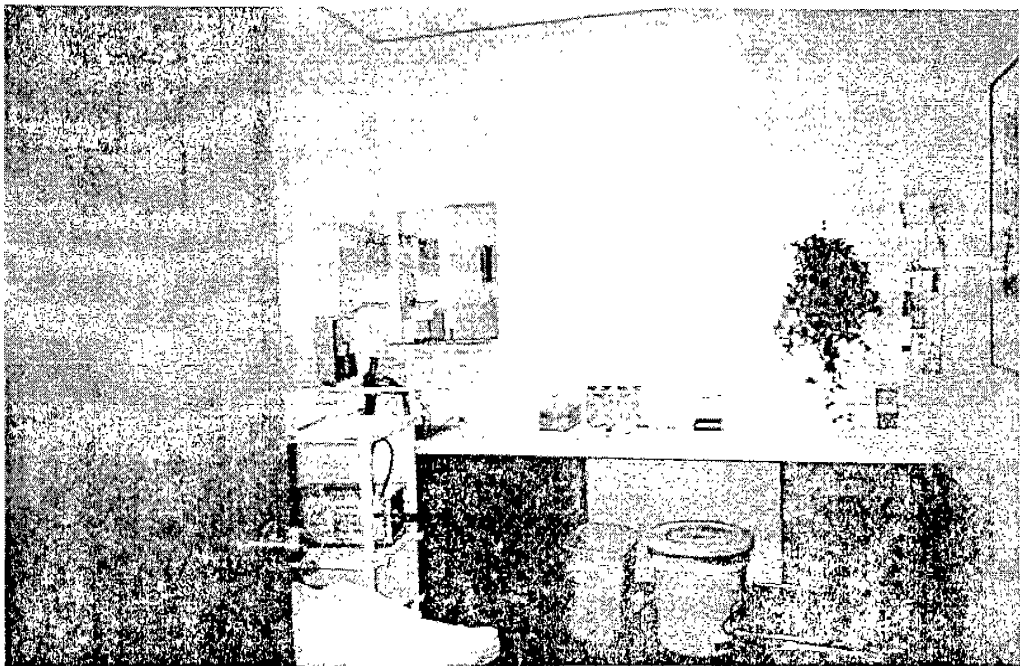
圖五 藥物諮詢室 (LomaLinda University Center for Health Promotion)



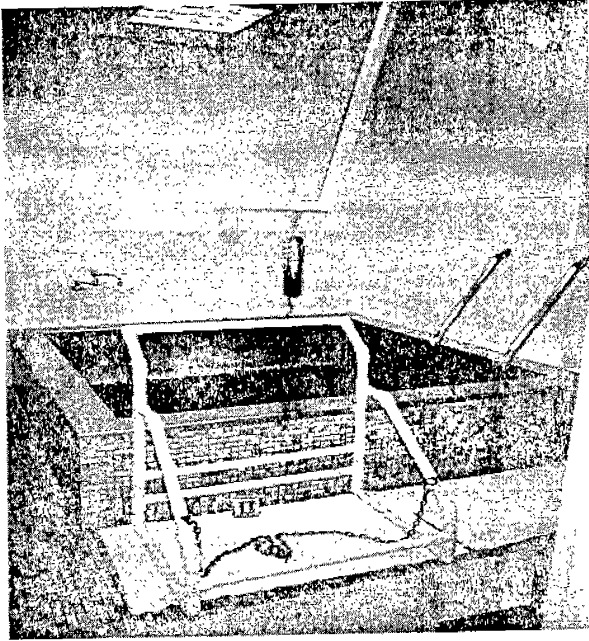
圖六 營養教室 (LomaLinda University Center for Health Promotion)



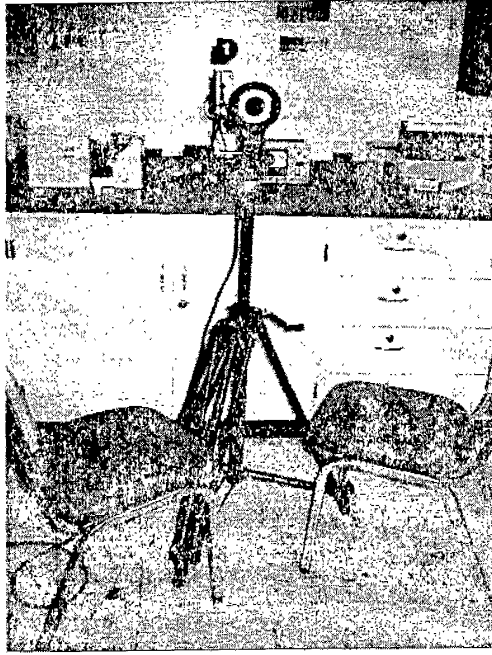
圖七 體能測定儀 (LomaLinda University Center for Health Promotion)



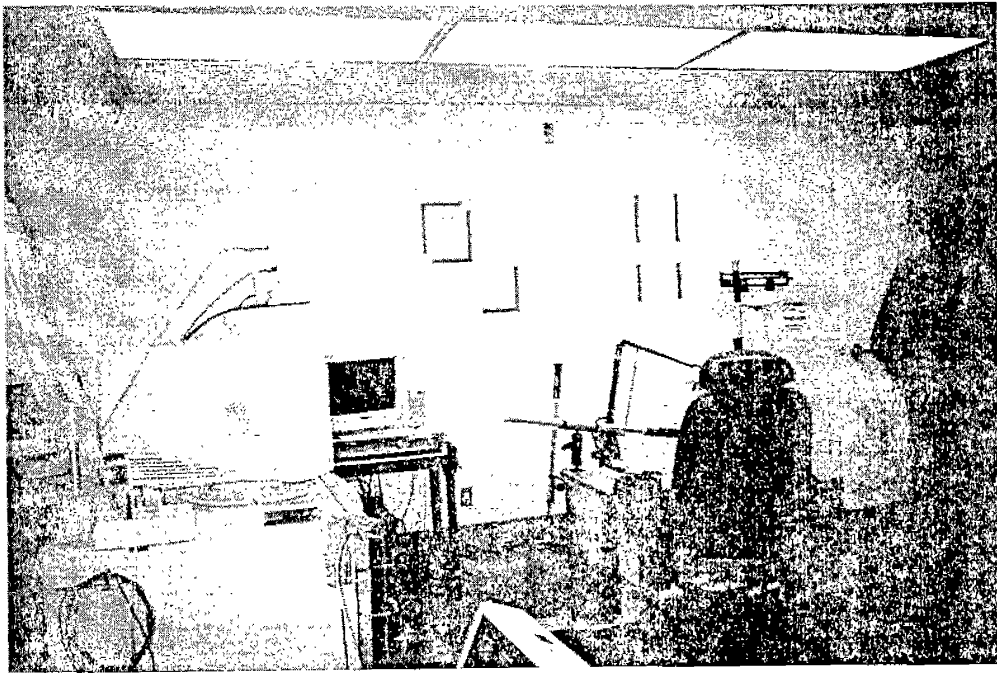
圖八 醫療檢驗室 (LomaLinda University Center for Health Promotion)



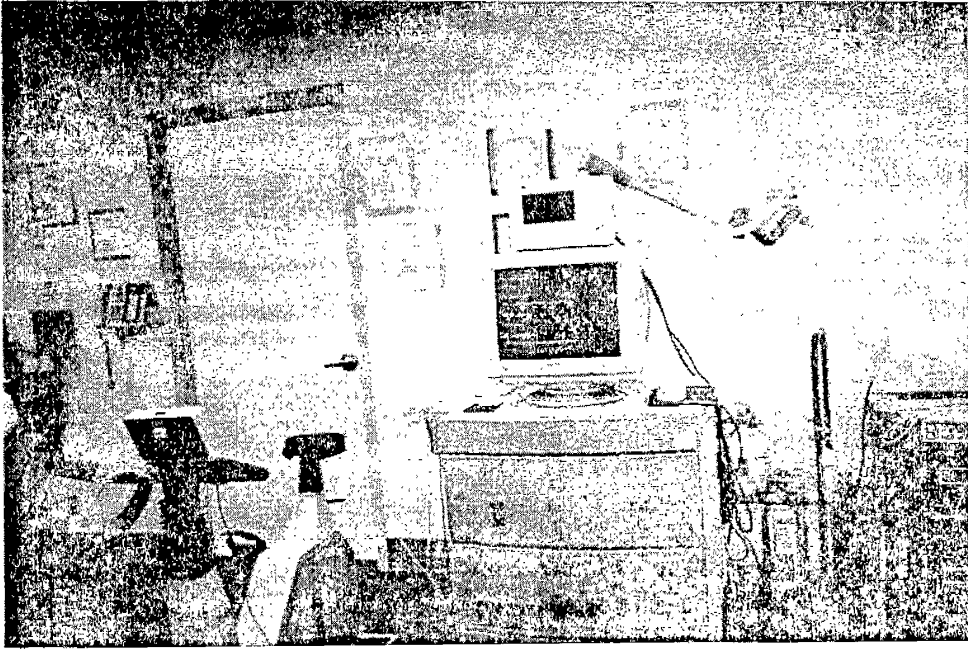
圖九 身體組成測定室，水中身體組成測定儀 (LomaLinda University Center for Health Promotion)



圖十 University of California, Irvine, Human research facility



圖十一 University of California, Irvine, Human research facility



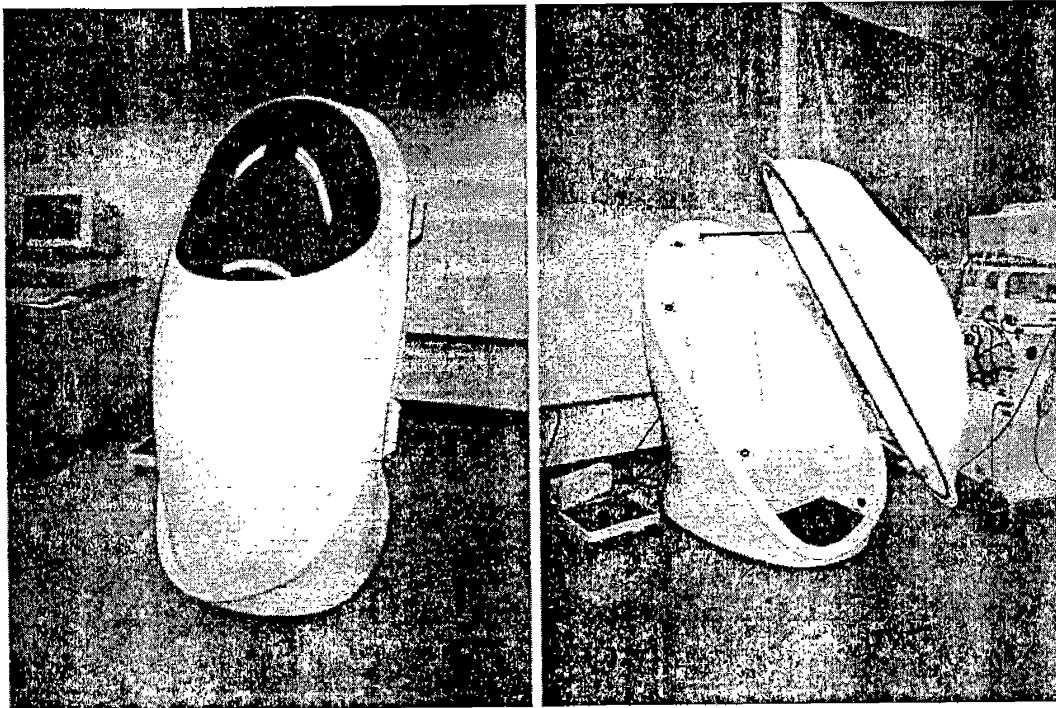
圖十二 University of California, Irvine, Human research facility



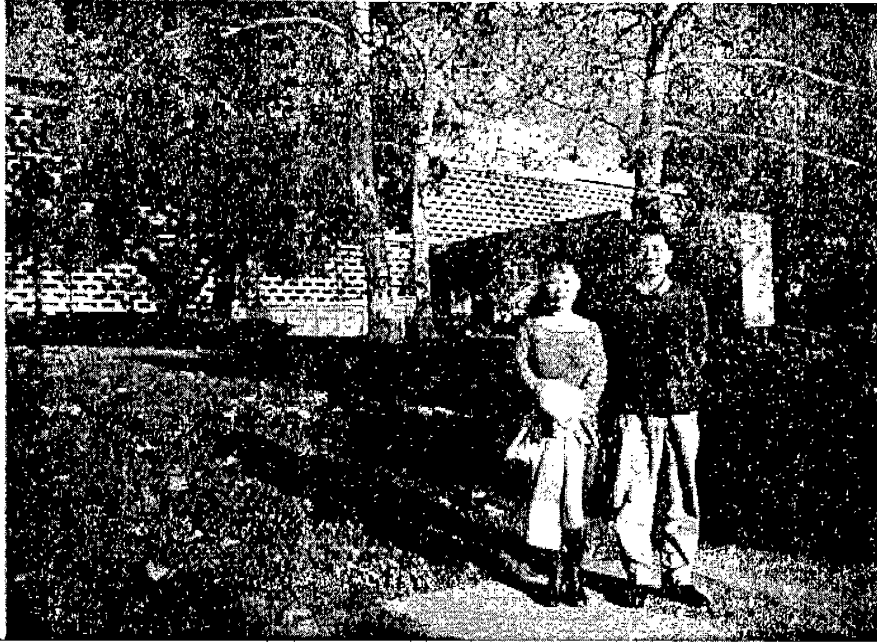
圖十三 University of California, Irvine, Human research facility



圖十四 University of California, Irvine, Human research facility 及 California Promona 人員合照



圖十五 身體組成，瘦肉，脂肪及骨密度測定儀（California State University, Pomona）



圖十六 與劉教授合攝於 University of California, LA, Center for Occupational and Environmental Health 門口



Health and Nutrition - Continued

Y N Do you eat foods nearly every day that are high in fat and cholesterol such as fatty meats, cheese, fried foods, butter, whole milk, ice cream, or eggs?

On average, how many servings of fruit and vegetables do you eat per day? (one serving = 1 medium fruit, 1/2 cup of chopped, cooked, or canned fruit/vegetable, 3/4 cup of fruit or vegetable juice)

On average, how many servings of bread, cereal, rice or pasta do you eat per day? (One serving = 1 slice of bread; 1 ounce of ready-to-eat cereal; 1/2 cup of cooked cereal, rice, or pasta, 3/4 cup dry cereal)

Lifestyle Habits

How have you been feeling in general during the past month?
In excellent spirits, In very good spirits, In good spirits mostly, I've been up & down in spirits a lot, In low spirits mostly, In very low spirits

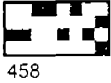
On average, how many hours of sleep do you get in a 24-hour period?
Less than 5, 5 to 6.9, 7 to 9, More than 9

How would you describe your cigarette smoking habits?
Never smoked, Used to smoke, Currently smoke
If you answered "used to smoke", indicate how long its been since you quit:
Less than 1 year, 1-5 years, 6-15 years, More than 15 years
If you answered "still smoke", indicate how many cigarettes per day you smoke on average:
1-10, 11-20, 21-30, 31-40, More than 40

How many alcoholic drinks do you consume on average? (A "drink" is a glass of wine, a bottle or can of beer, a shot glass of liquor, or a mixed drink).
Never use alcohol, 1 per day, Less than 1 per week, 2 to 3 per day, 1 to 6 per week, More than 3 per day

When driving or riding in a car, do you wear a seat belt:
Always, Most of the time, Some of the time, Rarely or never





Shade circles with **BLUE** or **BLACK pen** like this:

Shade circles like this:

Not like this:



Health Check Lifestyle Assessment - Cal Poly Pomona Student Health Services

The following questions are suggested by the US Centers for Disease Control and Prevention. They are from the Healthy People 2010 Health Goals for the nation and the National College Health Risk Behavior Survey.

How many alcoholic drinks, on average, do you consume per week? (A "drink" is a glass of wine, a bottle or can of beer, a shot glass of liquor, a wine cooler, or a mixed drink)	<input type="checkbox"/> <input type="checkbox"/>	How many alcoholic drinks, on average, do you think the typical Cal Poly Pomona student consumes per week? (A "drink" is a glass of wine, a bottle or can of beer, a shot glass of liquor, a wine cooler, or a mixed drink).	<input type="checkbox"/> <input type="checkbox"/>	How many times in the past two weeks have you had 5 or more (if you are a male) OR 4 or more (if you are a female) alcoholic drinks at one sitting or party? (A "drink" is a glass of wine, a bottle or can of beer a shot glass of liquor, a wine cooler, or a mixed drink).	<input type="checkbox"/> <input type="checkbox"/>
0 <input type="radio"/>		0 <input type="radio"/>		0 <input type="radio"/>	
1 <input type="radio"/>		1 <input type="radio"/>		1 <input type="radio"/>	
2 <input type="radio"/>		2 <input type="radio"/>		2 <input type="radio"/>	
3 <input type="radio"/>		3 <input type="radio"/>		3 <input type="radio"/>	
4 <input type="radio"/>		4 <input type="radio"/>		4 <input type="radio"/>	
5 <input type="radio"/>		5 <input type="radio"/>		5 <input type="radio"/>	
6 <input type="radio"/>		6 <input type="radio"/>		6 <input type="radio"/>	
7 <input type="radio"/>		7 <input type="radio"/>		7 <input type="radio"/>	
8 <input type="radio"/>		8 <input type="radio"/>		8 <input type="radio"/>	
9 <input type="radio"/>		9 <input type="radio"/>		9 <input type="radio"/>	

During the past 12 months, how many times were you in a physical fight?

0

1

2

3

4

5

6

7

8

9

During the past 12 months, how many sexual partners have you had with vaginal, oral or anal intercourse?

0

1

2

3

4

5

6

7

8

9

Answer the next 2 questions for sexual intercourse in the past 12 months. The last time you had intercourse:

did you or your partner use a condom?

Yes No Does not apply

(for vaginal intercourse) what did you use to prevent pregnancy? (mark all that apply)

No method used

Birth control pills

Condoms

Withdrawal

Some other method

Not sure

Does not apply

During the past 12 months, have you experienced any pressure to have sexual activity against your will? Yes No

Do you do strength or weight training (push/lift weights on machines or barbells) at least 2 times per week? Yes No

Have you used a time planner in the past 3 months?	What is your GPA?	What is your ethnicity? Please select one you identify with most.	Were you born in the US?
<input type="radio"/> Yes <input type="radio"/> No	<input type="checkbox"/> <input type="checkbox"/>	<input type="radio"/> African American, Black	<input type="radio"/> Yes <input type="radio"/> No
Do you have goals for what you want to be, do and have in 5 to 10 years?	0 <input type="radio"/>	<input type="radio"/> Alaskan, Native American	Which best describes your current relationship status?
<input type="radio"/> Yes, written	1 <input type="radio"/>	<input type="radio"/> Asian	<input type="radio"/> Never been married
<input type="radio"/> Yes, in my mind	2 <input type="radio"/>	<input type="radio"/> Chicano/Latino/Mexican American	<input type="radio"/> Married/domestic partner
<input type="radio"/> No	3 <input type="radio"/>	<input type="radio"/> Filipino or Pacific Islander	<input type="radio"/> Separated
	4 <input type="radio"/>	<input type="radio"/> White, Caucasian, European	<input type="radio"/> Divorced
	5 <input type="radio"/>	<input type="radio"/> I'm from more than 1 ethnicity	<input type="radio"/> Widowed
	6 <input type="radio"/>	<input type="radio"/> Other (please write it in)	
	7 <input type="radio"/>	<input style="width: 100px; height: 15px;" type="text"/>	
	8 <input type="radio"/>		
	9 <input type="radio"/>		

This is VERY important: Write one or two things you are serious about doing in the next 6-months to improve your health.

1.

2.

Page 4 Thank you for participating! You will receive a personalized report and this questionnaire within 5 weeks.

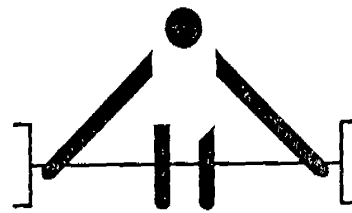


Beginning Body Building

Many Cal Poly Pomona students want to go beyond the health benefits of aerobic exercise and basic strength or weight training (See additional Self-Help Sheets). Nearly half of Cal Poly Pomona students do cardiovascular exercise at least three times per week. About 15% train with weights two or more times per week.

The following chart will help you begin a program that can increase the size, definition and strength of your muscles. The guidelines go far beyond the adult fitness program recommended by the American College of Sports Medicine. That recommendation (for one set of 8 to 10 exercises with 8 to 12 RM done twice per week) is described in another self-help sheet with the title, "Adult Strength Training."

Body building requires heavy sets, light sets, high reps, low reps and explosive movements, slow movements and rhythmic movements. Competitive body builders may do up to 20 sets and 200 repetitions per muscle group in a work out. Their workouts may be up to 6-hours, 6-days per week. With variety, each component of a muscle is worked hard enough for optimal growth. Components that help increase muscle size are: mitochondria, capillaries, sarcoplasm, connective tissue (ligaments and tendons) and myofibrillar elements.



Basic Exercises

You can do many exercises and use machines and free weights (barbells and dumbbells) Here are some standard exercises:

- Bench Press** - chest (pectoralis)
- Squats** - thighs (quadriceps)
- Shrugs** - top of shoulders (trapezius)
- Bent Rows** - upper back (rhomboids)
- Lateral Raises** - shoulders (deltoids)
- Pulldowns** - outer back (latissimus dorsi)
- Crunches** - stomach (abdominals)
- Toe Raises** - calve (gastrocnemius)
- Curls** - upper arm-front (biceps)
- Tricep Extensions** - upper arm-back (triceps)
- Stiff-Leg Deadlift** - lower back (erector spinae)

How to Achieve Body Building Goals

Always write your goals on paper and list the tasks you think you will need to try to do to achieve the goals. This will help you internalize your intentions. By writing your goals you will ask more questions, and learn more skill more often. Attend to the tasks you will need to do to get what you want. Get support and encouragement

Model Body Building Program to Maximize Gains in Muscle Size

WARM-UP: Do a 5-minute warm-up with a full-body aerobic exercise like using a rowing or cross-country ski machine or jogging. Another option is to do a set or two with medium or light weights before doing remainder of the sets.

Sets	Reps	Weight	Method
1 & 2	4 - 6 RM *	Maximum	Explosively, pausing between each repetition.
3 & 4	12 - 15 RM	Maximum	Moderate speed, with a relaxation pause between each repetition.
5 & 6	20 - 25 RM	Maximum	Perform each rep in a slow, sustained fashion (for example, keep continuous tension on the muscle throughout the lifting and lowering phases of moving a weight). No rest pauses throughout the entire set.

* RMs mean repetitions maximum. It means using a weight that allows you to reach muscle fatigue in the specified range of repetitions.

(Cont. Other Side)



CAL POLY POMONA

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from friends - write this as a goal also.

Strength Training for Women¹ FACT Vs FICTION

Historically, women have participated less in weight training, due in part to gender stereotypes but also to limited opportunities. With the advent of equal opportunity mandates, women have begun to participate more in sports and their interest in strength training has grown.

Below are a few myths that have perpetuated throughout the years, blocking some opportunities for women's participation:

1. Strength training makes women larger and heavier.
FACT: Rather, it improves a woman's body by helping to reduce fat and increases lean body mass.
2. Women need to use different training programs and methods than men.
FACT: There is no research to indicate that women need special equipment in order to decrease their chances of getting hurt.
3. Women should avoid high intensity or high-load training.
FACT: Women, like men, should train at high enough levels to cause adaptation in bone, muscle, cartilage, ligaments, and tendons.

In conclusion, women should train using the same methods and equipment as men, taking into consideration their differences in body size and level of strength. Added benefits to women include:

- ☞ Reduction of risk of osteoporosis and improvement in cartilage, tendon, and ligament strength
- ☞ Developed muscle is metabolically active, increasing the metabolic rate, fat oxidation and caloric expenditure
- ☞ Improvement to one's self-esteem.

Rev 2/99

¹Strength and Conditioning, December 1998, E. Paul Roetert, PhD

LOOK OUT



FOR HEALTHY STUDENTS

STUDENT HEALTH SERVICES
DIVISION OF STUDENT AFFAIRS

Exercises for Better Back Care

General Instructions

Your best back support is derived from your own back muscles! Faithful performance of back exercises often avoids the necessity of an external brace or corset. Back muscles can give you all the support needed if you strengthen them by routine performance of prescribed exercises.

Exercises

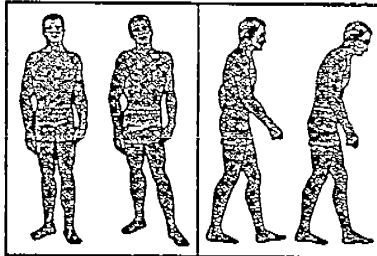
Follow the exercise routine prescribed by your doctor. Gradually increase the frequency of your exercises as your condition improves, but stop when fatigued. If your muscles are tight, take a warm shower or tub bath before performing your back exercises. This should diminish as your muscles become stronger.

Exercise on a rug or mat. Put a small pillow under you neck. Wear loose clothing; no shoes. Stop doing any exercise that causes pain until you have checked with your doctor.

Additional Instructions

Helpful hints for a healthy back

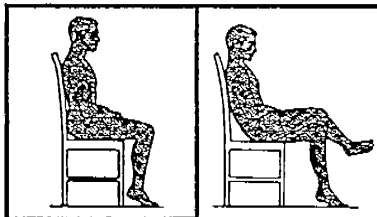
Standing and Walking



Correct-Incorrect Correct-Incorrect

Try to toe straight ahead when walking; put most of your weight on your heels; hold your chest forward and elevate the front of the pelvis as if walking up an incline. Avoid wearing high heels. Stand as if you were trying to touch the ceiling with the top of your head, eyes straight ahead. All the elements of good posture will flow from these simple maneuvers.

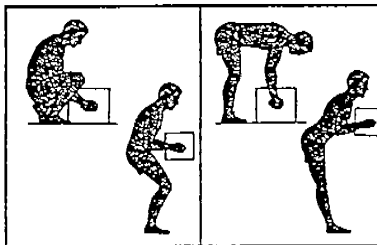
Sitting



Correct Incorrect

Sit in a hard-back chair with spine pushed back; try to eliminate the hollow in the lower back. If possible, elevate the knees higher than hips while sitting in an automobile. Secretaries should adjust posture chairs accordingly. Sit all the way back in the chair with your back erect.

Lifting



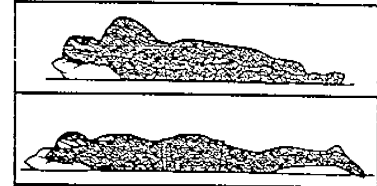
Correct Incorrect

Bend your knees; squat and lift with your thigh muscles, not your back. Never bend over with your knees straight and lift with

the upper torso. Move slowly and avoid sudden movements. Try to avoid lifting loads in front of you above the waist line. Avoid bending over to lift heavy objects from car trunks, as this places a strain on low back muscles.

Sleeping

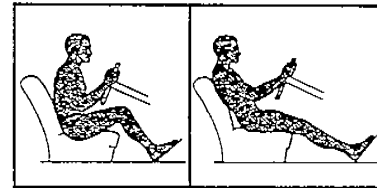
Correct



Incorrect

Sleep on a firm mattress; a 3/4 inch plywood bed board is helpful and should be used with all but a very firm orthopedic mattress. With acute back pain, sleep with a pillow or blanket rolled under the knees and a pillow under the head. Keep your knees and hips bent when sleeping on your side.

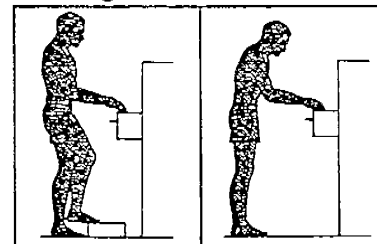
Driving



Correct Incorrect

Use a firm seat with a padded plywood or special seat support. Sit close to the wheel with knees bent. On long trips, stop every one or two hours and walk to relieve tension and relax muscles.

Working



Correct Incorrect

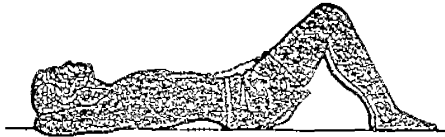
Try to avoid fatigue caused by work requiring long standing. Flex hips and knees by occasionally placing a foot on a stool or bench. Take exercise breaks from desk work by getting up, moving around and performing a few back exercises in the standing position.



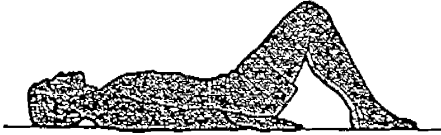
SEE BACK OF THIS PAGE FOR RECOMMENDED EXERCISES.

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1. Lie on your back with knees bent and hands clasped behind back. Feet flat on the floor. Take a deep breath and relax. Press the small of your back against the floor and lighten your stomach and buttock muscles. This should cause the lower end of the pelvis to rotate forward and flatten your back against the floor. Hold for five seconds. Relax.



2. Lie on your back with knees bent. Feet flat on the floor. Take a deep breath and relax. Grasp one knee with both hands and pull as close to your chest as possible. Return to starting position. Straighten leg. Repeat with alternate leg.



3. Lie on your back with knees bent. Feet flat on the floor. Take a deep breath and relax. Grasp both knees and pull them as close to your chest as possible. Hold for three seconds, then return to starting position. Straighten legs and relax.



4. Lie on your back with knees bent. Feet flat on the floor. Take a deep breath and relax. Draw one knee to chest. Then joint leg upward as far as possible. Return to starting position. Relax. Repeat with alternate leg.

NOTE: This exercise is useful in stretching tight hamstring muscles, but is not recommended for patients with sciatic pain associated with a herniated disc.

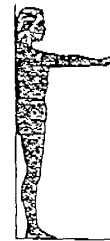
3.



a. Lie on your stomach with hands clasped behind back. Pull shoulders back and down by pushing hands downwards towards feet, pinching shoulder blades together, and lift head from floor. Take a deep breath. Hold for two seconds. Relax.



b. Stand erect. With one hand grasp the thumb of other hand behind back, then pull downward toward the floor; stand on toes and look at the ceiling while exerting the downward pull. Hold momentarily, then relax. Repeat 10 times at intervals of two hours during the working day. Take an exercise break instead of a coffee break!

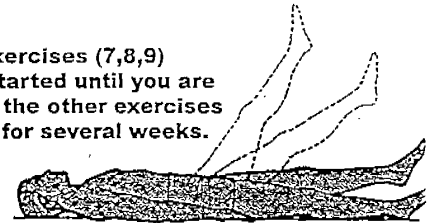


6. Stand with your back against doorway. Place heels four inches away from frame. Take a deep breath and relax. Press the small of your back against doorway. Tighten your stomach and buttock muscles, allowing your knees to bend

slightly. This should cause the lower end of the pelvis to rotate forward (as in Exercise 1). Press your neck up against doorway. Press both hands against opposite side of doorway and straighten both knees. Hold for two seconds. Relax.

The following exercises (7,8,9) should not be started until you are free of pain and the other exercises have been done for several weeks.

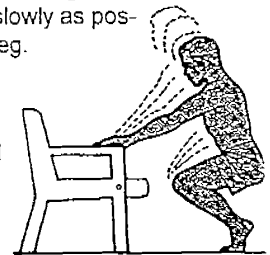
7.



Lie on your back with your legs straight out, knees unbent and arms at your sides. Take a deep breath and relax. Raise legs one at a time as high as is comfortable and lower to floor as slowly as possible. Repeat five times for each leg.

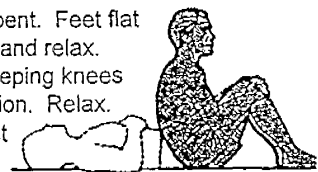
8.

May be done holding onto a chair or table. After squatting, flex head forward, bounce up and down two or three times, then assume erect position.

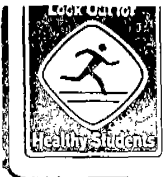


9.

Lie on your back with knees bent. Feet flat on floor. Take a deep breath and relax. Pull up to a sitting position keeping knees bent. Return to starting position. Relax. Having someone hold your feet down facilitates this exercise.



REV 1/59



- ◆ Go to bed only when you are sleepy.
- ◆ Establish relaxing pre-sleep rituals such as a warm bath, or 10 minutes of reading
- ◆ Exercise regularly. Exercise at least 3 hours before bedtime.
- ◆ Maintain a regular schedule. Regular time for meals, doing chores, schoolwork, sleep, and any other activities to help keep your "inner clock" running smoothly.
- ◆ Don't eat or drink anything containing caffeine, including chocolate before bedtime.
- ◆ Don't drink alcohol within several hours of bedtime, or when you are sleepy. Tiredness can intensify the effects of alcohol.
- ◆ Avoid sleeping pills, or use them conservatively.
- ◆ Try not to read or watch TV in bed.
- ◆ Get out of bed if you don't fall asleep within a half an hour.
- ◆ Go to sleep and wake up at the same time every day, even on the weekends.
- ◆ If you take naps, try to do so at the same time everyday. For most people, a mid-afternoon nap is most helpful. If you have trouble sleeping at night avoid daytime naps.

Helpful Web Sites:

American Academy of Sleep Disorders
<http://www.asda.org/>

National Sleep Foundation
www.sleepfoundation.org

Sleep Home Page at UCLA
<http://bisleep.medsch.ucla.edu/>

Sleep Information from the National Institutes of Health
<http://www.nhlbi.nih.gov/health/public/sleep/index.htm>

This web page has links to the following topics:

- Awake At the Wheel Materials
- Facts About Problem Sleepiness
- Facts About Insomnia
- Facts About Narcolepsy
- Facts About Restless Leg Syndrome (RLS)
- Facts About Sleep Apnea
- Test Your Sleep I.Q.

Sleepnet.com
www.sleepnet.com

Sleep Well
www.stanford.edu/~dement/

What to Do If You Can't Sleep
<http://www.vh.org/Patients/IHB/FamilyPractice/AFP/January1995/Insomnia.html>

Rev. 4/00



LOOK OUTSTUDENT HEALTH SERVICES
DIVISION OF STUDENT AFFAIRS

Best Aerobic Exercises

What is the Best Exercise for You?

Actually, it is the one you will do. However, there are several ways to make optimal use of your time depending on your health goals and your study schedule.

Two ways to determine your best exercises are in the charts below. For weight loss, try to burn 300 to 500 calories per exercise session and 900 to 1,500 calories per week. The other is to earn 10 "Aerobic Points" per session and at least 30 per week. Whatever choices you make, they all meet the American College of Sports Medicine guidelines for adult health and fitness.

Nearly Half of Cal Poly Pomona Students Do Aerobic Exercise Regularly

About 47% of Cal Poly Pomona students do aerobic (cardiovascular) exercise at least three times per week. That is 2½ to 6 times greater than the estimates for adults in the U.S. Only 8% to 19% of U.S. adults exercise regularly.

Time to Burn 300 Calories *

Type of Exercise	Time (minutes)	Aerobic Points
Run / Jog - 3 miles	19	26
Run / Jog - 3 miles	27	15
Swimming - 1/2 mile	25	7
Stair Climbing (150 floors)	30	4
Super Circuit Weight Training	33	9
Swimming - 2/3 mile	33	9
Stationary Cycle (high intensity)	35	21
Aerobic Dance (high intensity)	35	9
Walk - 3 miles	38	10
Racquetball	40	6
Basketball	40	6
Aerobic Dance (med intensity)	45	9
Circuit Weight Training	45	8
Stationary Cycle (med intensity)	50	15
Tennis (Singles)	50	3
Golf - 9 holes (not riding a cart)	70	3
Walk - 5 miles	75	14

Time to Earn 10 Aerobic Points *

Type of Exercise	Time (minutes)	Calories
Run / Jog - 1.5 miles	9	145
Stationary Cycle (high intens)	17	150
Swimming - 1/2 mile	17	153
Stair Climbing (210 floors)	30	409
Aerobic Dance (high intensity)	35	338
Stationary Cycle (med intensity)	35	221
Super Circuit Weight Training	38	342
Run / Jog - 3 miles	38	309
Walk - 3 miles	38	300
Swimming - 2/3 mile	43	381
Aerobic Dance (med intensity)	50	338
Circuit Weight Training	60	405
Basketball	65	551
Racquetball	65	512
Walk - 5 miles	95	320
Tennis (Singles)	150	920
Golf - 54 holes (not riding a cart)	8 hours	2,160

* Calories and aerobic points are based on Dr. Ken Cooper's equations for someone who weighs 150 lb.

NOTE: Most students under 30 years of age can safely begin a low-level exercise program. However, it is important to check with a doctor before embarking on a more vigorous exercise program. Students over age 30, overweight, who smoke, or have diabetes or a family member with heart disease should get a check-up. Visits with Student Health Center doctors are free to students.



CAL POLY POMONA

Rev 1/98

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Walking Your Way to Fitness

Fit To Study

Did you know that exercise doesn't have to be strenuous or of high intensity to be beneficial? It helps improve sleep, self-esteem, mood and alertness for studying. Even moderate intensity low-impact activity is effective in providing health benefits. This

Good News!

About 47% of Cal Poly Pomona students do aerobic (cardiovascular) exercise at least three times per week. That's two and one-half to six times the estimates for all adults in the US.

exercise is less likely to cause muscle, bone and joint injury.

Brisk walking is an ideal activity for students undertaking a regular exercise routine and can impart substantial health benefits. Studies find that men and women who engage in moderate exercise maintain healthier weights and incur benefits of good blood pressure numbers and increased HDL (good cholesterol). A regular brisk walking program also helps reduce the risk of osteoporosis (weak bones, an important issue for the future of all women).

Follow these steps to make brisk walking a part of your regular optimal health program.

1. **Most students under 30 years of age can safely begin a low-level exercise program.** However, it is important to check with a doctor before embarking on a more vigorous exercise program. Students over age 30, overweight, who smoke, or have diabetes or a family member with heart disease should get a check-up. NOTE: Visits with Student Health Services doctors are free to students.
2. **In your weekly planner, mark the specific time**

on at least 3 days per week you believe you can try to exercise. This will help you make exercise part of your weekly routine.

3. **Find places to walk.** On-campus you can follow a circular pattern past the residence halls and Student Health Services on University Dr., left on Temple Ave. to the University Village apartments, left onto S. Campus Dr. past the fields on your way to the 71 Fwy bridge and return to the residence halls. That's about 3.8 miles. Or, zigzag your way through campus. Walk the hilly streets and stairs near Kellogg West. For rainy days, try using the cross-country ski machines in the big gym (upstairs behind the bleachers). Be sure to think about your safety – walk with friends – that provides important social support.
4. **Write down realistic goals** for frequency, intensity and duration for your walking program. It would be ideal to build up to 30 continuous minutes each time you walk. NOTE: You can get almost the same benefits if you do 3 10-minute sessions of brisk walking on the same day.
5. **Get proper shoes.** Shoes should have thick, flexible, shock absorbing soles.
6. **To obtain optimal health benefits try to walk at least at a brisk pace.** This insures that you are working hard enough to get fit but not so hard that you will become tired and have to stop after only a few minutes. Most likely, if you're walking at a brisk pace, you will meet the "talk test" and be near your target heart rate. Be able to talk reasonably comfortably while walking.
 - ♥ The faster you walk, the more calories you'll burn per minute. You'll burn about 100 calories per mile no matter how slowly you walk. You'll burn them faster if you walk faster

7. **And, of extreme importance – Congratulate yourself for making the effort to go for optimal health with regular brisk walking.**



Rev 11/98



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Fitness Assessment Results for Women

Client: 0 0

Date: January 0, 1900

Aerobic Fitness

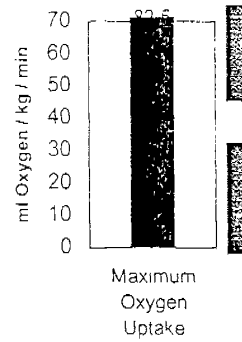
Maximal Oxygen Uptake 82.5 ml/kg/min

15-second Post Exercise Pulse Count 0 beats

The step test "score" is an accurate estimate of the largest volume of oxygen your muscles can consume at your present fitness level. High cardiorespiratory fitness and low pulse indicate reduced risk of heart disease and efficient functioning heart, lungs and muscles.

To maintain healthy aerobic fitness do moderate intensity aerobic exercise 4 or more days per week or vigorous aerobic exercise 3 or more days per week.

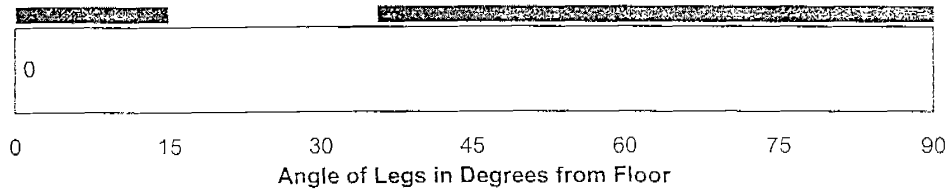
Weight 0 lb. Age 0.00



Abdominal Strength

Leg angle when small of your back came off the floor was 0 degrees.

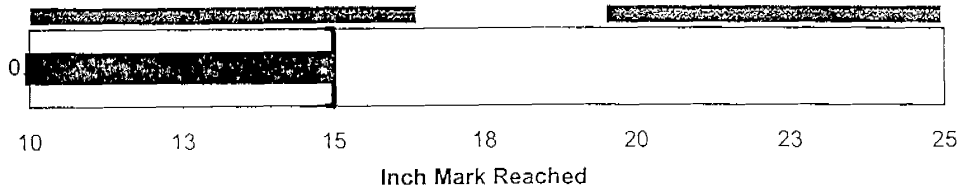
Stomach muscles with adequate strength will help you avoid low back pain. Do 1 to 3 1- to 2-minute sets of curl-ups or crunches 2 or 3 times per week.



Flexibility

Sit & Reach / Low Back & Hamstring Test distance 0.00

Flexibility is the range of motion at a joint. Flexible joints and elastic connective tissue aid good posture, efficiency of movement, and reduce risk of injury. Do stretching exercises 3 or more days a week. Hold each stretch for about 20 seconds.



The Health Educator helping you today was: 0

Fitness assessment developed by Jim Grizzell, MBA MA Certified Health Education Specialist - grizzell@cyberg8t.com

NOTE: Please DO NOT "Save" this file after entering data. Do "Save As" the client's name. Last First mm/dd/yy.xls
Save the file in sub-directory, My Documents\TWC\Fitness Test\Results. Print one copy for the client

Fitness Assessment Data Entry Sheet

Fitness Test Master.xls January 2000

Developed by Jim Gnzzell - MBA MA Certified Health Education Specialist

Enter today's date (mm/dd/yy)

Health educator conducting tests

Enter the name of your client.

First

Last name (or first letter of it)

How old is your client?

 years

What is your client's weight

 lb

What was the post step test pulse count?

 count

What was the leg angle in degrees for the ab test?

 degrees

What was inch mark for the sit & reach test?

 inches

To view and print results, click on the appropriate gender tab below