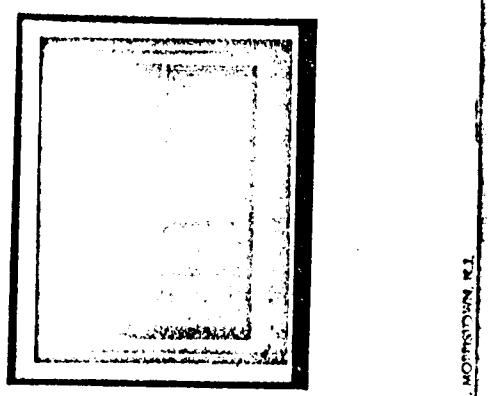

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DOSE TO THE RESPIRATORY TRACT FROM PERSONAL, OCCUPATIONAL AND COMMUNITY AIR POLLUTANTS

ENVIRON LETTERS 1(1): 29-39; 1971

CORN, M

PURPOSE: AIR POLLUTION CAN BE ARTIFICIALLY DIVIDED INTO 3 CATEGORIES: AMBIENT, OCCUPATIONAL, AND PERSONAL (I.E., SMOKING). IN THIS PAPER, THE CHEMICAL DOSES OF POLLUTANTS TO THE RESPIRATORY TRACT FROM EACH CATEGORY ARE CALCULATED FOR COMPARISON TO EVALUATIONS BY OTHERS OF THE RELATIVE EFFECTS OF THESE THREE TYPES OF POLLUTION ON INCIDENCE OF LUNG DISEASE.

METHODS: THE CONCENTRATIONS OF CERTAIN SELECTED POLLUTANTS PRESENT IN AIR OR CIGARETTE SMOKE ARE CALCULATED ON THE BASIS OF 1) THE DATA OF WYNDER AND HOFFMANN (SMOKE); 2) THRESHOLD LIMIT VALUES SET BY THE GOVERNMENT (OCCUPATIONAL ENVIRONMENT); AND 3) STATE AIR QUALITY STANDARDS (AMBIENT AIR). BENZO (A) PYRENE CONCENTRATION IS BASED ON MEASUREMENTS OF US URBAN AIR.
CHALLENGE TO THE RESPIRATORY TRACT WAS CALCULATED AS CONCENTRATION X TIME OF EXPOSURE [redacted] HR/DAY FOR OCCUPATIONAL EXPOSURE; 24 HR/DAY FOR AMBIENT [redacted] 20 CIGARETTES/DAY). DAILY AIR REQUIREMENT WAS TAKEN AS 10 M³/DAY [redacted]

FINDINGS: "(F)ROM A PHYSICO-CHEMICAL STANDPOINT, THE DOSE FROM CIGARETTE SMOKING IS AN OVERWHELMING CHALLENGE TO THE RESPIRATORY TRACT "COMPARED TO THE OTHER POLLUTANTS. THIS CONCLUSION EXTENDS TO PARTICULATE MATTER, NITROGEN OXIDES, AND CARBON MONOXIDE, PARTICULARLY THE LAST." THE MAGNITUDE OF THE POLLUTANT CHALLENGE...DECREASES IN THE ORDER CIGARETTE SMOKE, OCCUPATIONAL AIR, AMBIENT AIR."

DISCUSSION: "THE CALCULATION OF THE DOSES FROM A 20 CIGARETTE PER DAY, 5 MINUTE PER CIGARETTE SMOKER IS SUBJECT TO QUESTION ON THE BASIS OF WHETHER OR NOT THIS IS A REPRESENTATIVE DOSE FOR THE 'AVERAGE' CIGARETTE SMOKER. THIS MAY NOT BE A REPRESENTATIVE DOSE, BUT IT IS A [redacted]

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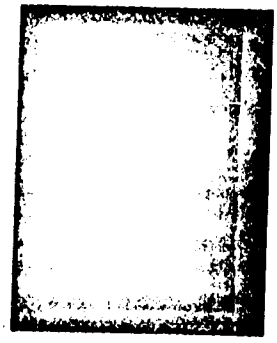

CONVIENT MARKER ('A PACK A DAY SMOKER') AND THE CALCULATED DOSES CAN EASILY BE SCALED ACCORDING TO SMOKING HABITS."

"AS IS WELL KNOWN, THE POPULATION AT RISK IN OCCUPATIONAL ENVIRONMENTS IS A HEALTHY, ADULT, GENERALLY MALE POPULATION. THE POPULATION AT RISK FROM CIGARETTE SMOKING AND EXPOSURE TO COMMUNITY AIR POLLUTION IS COMPOSED OF ALL AGE GROUPS, AND INCLUDES INDIVIDUALS WITH ALL DEGREES OF RESPIRATORY HEALTH, INCLUDING THOSE WITH DIAGNOSED RESPIRATORY IMPAIRMENTS.

"...[T]HE RANKING ASSIGNED [THE POLLUTANT CHALLENGES] SEEMS TO AGREE WITH THE ASSIGNMENTS GIVEN TO SMOKING AND URBAN FACTORS FOR THEIR CONTRIBUTIONS TO MALE LUNG CANCER AND IMPAIRMENT OF PULMONARY FUNCTION...[SUGGESTING] THAT REGULATORY ACTION...SHOULD BE IMMEDIATELY EXTENDED TO SOURCES OF PERSONAL AIR POLLUTION."

/PH/

U PITTSB GRAD SCH PUBL HEALTH, PITTSBURGH, PA

MATHEMATICAL STUDY, STATISTICAL STUDY, AIR POLLUTION STUDY, CIGARETTE SMOKING, RESPIRATORY DISEASE, [redacted] POLLUTION EXPOSURE, AIR POLLUTANTS, ENVIRONMENTAL POLLUTION, C[redacted]ATI[redacted] AIR POLLUTION, PERSONAL AIR POLLUTION, AIR POLLUTION HEAL[redacted]AZARDS, SMOKING HEALTH HAZARDS, INHALANT DOSE/
AUTOMOBILE EXHAUST, DOMESTIC AIR POLLUTION, INDUSTRIAL AIR POLLUTION, TOBACCO SMOKE, CIGARETTE SMOKE NITROGEN OXIDES, CIGARETTE SMOKE CARBON MONOXIDE, CIGARETTE SMOKE TAR, CIGARETTE SMOKE PARTICLES, AIR CARBON MONOXIDE, AIR NITROGEN OXIDES, AIR OZONE, CIGAR SMOKING, PIPE SMOKING, AIR PARTICULATE MATTER, LUNG CANCER MORTALITY INCREASE SMOKING CAUSATION 1, AIR BENZO A PYRENE, CIGARETTE SMOKE BENZO A PYRENE, AIR LEAD CONTENT, AIR COTTON DUST CONTENT, AIR COAL DUST CONTENT, AIR DUST CONTENT, THRESHOLD LIMIT VALUE, AIR POLLUTANTS INHALATION, LUNG VENTILATION, URBAN FACTORS, SMOKING AMOUNT, LUNG CANCER MORTALITY INCREASE URBAN FACTORS CAUSATION 1, METHODOLOGY CONCESSION, SMOKING HABITS CONCESSION, STATISTICS VALIDITY HI/