

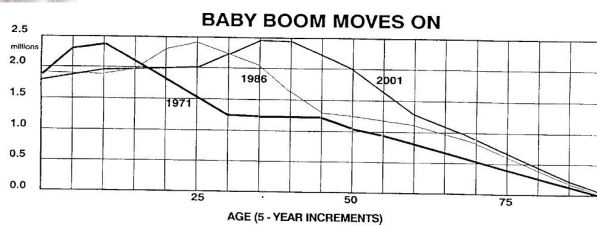
CONDITIONS OF THE WORKFORCE

ADJUSTMENTS FOR AGE



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Aging baby boomers will change the workforce demographics



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CHEMICAL HAZARDS

- Newborn and infant animals show more or less sensitivity than adults (biotransformation).
 - The range of sensitivity for newborn animals is from 0.002 - 15 times adult sensitivity
 - DDT is less toxic to newborn rats while organophosphates are more toxic

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CHEMICAL HAZARDS

- The elderly show a decline in metabolic dependant clearance and aerobic capacity.
 - Related to reduced metabolic clearance due to reduced hepatic blood flow

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PHYSICAL HAZARDS

- The older worker can adapt well if allowed to set own pace.
 - Due to reduced oxygen uptake in older workers (20 - 30% reduction between ages 30 and 65)

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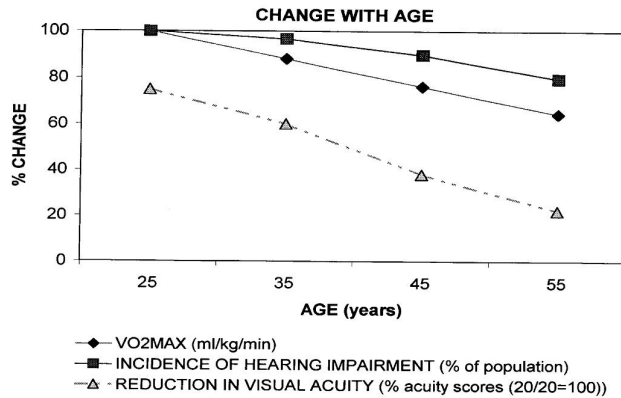
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- In general, there is little evidence on the effect of aging between extreme ages in the population and those that make up the workforce.
- There is less of a difference between ages within the workforce.

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Although there is little to suggest aging itself is a problem, the potential effects cannot be ignored.

- Effects of past workplace exposures
- The effects of degenerative diseases than can accompany age
- The effect of drugs used to combat the above issues.

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The Healthy Worker Syndrome

- Workers tend to be in better health to begin with than those who are not in the workforce.
- Many people "select" themselves out of jobs that they find they are not able to adapt to.
- After a working lifetime exposed to workplace exposures, the once healthier than normal workers can lose their advantage.

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**Five leading chronic conditions (1987)
shown as the expected number in 1000
persons**

CONDITION	AGE		
	45-64	65-74	75 plus
Arthritis	273.3	463.6	511.9
Hypertension	252.0	392.4	337.0
Heart disease	184.7	423.7	473.3
Hearing impairment	135.6	264.7	348.0
Deformity or orthopaedic impairment	155.0	154.9	182.0

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HEALTH CONDITION	MATERIALS THAT MAY HAVE AN INCREASED EFFECT
Kidney diseases	Excessive sodium in diet, fluoride, lead, other heavy metals
Liver diseases	Carbon tetrachloride DDT other insecticides PCBs
Chronic respiratory diseases	Respiratory irritants, nitrogen dioxide, ozone, sulfates, sulfur dioxide
Heart diseases	Cadmium, carbon monoxide, fluoride, respiratory irritants, ozone, sulfur dioxide sodium
Liver diseases	Heavy metals, organic solvents

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**The Treatment of Illnesses May
Aggravate Workplace Exposures**

Workplace Chemical	Drug with the same material
Phenol	Antiseptics Throat lozenges Calamine lotions Antacids
Fluoride	Fluoride supplements Decongestants Tooth paste/mouthwash
Aluminium	Antacids
Arsenic	Homeopathic medicines
Mercury	Chinese patent medicine

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Adjusting TLVs for Older Workers

- What are the exposure levels in the workplace?
- What are the worker symptoms?
- If you have significant exposure levels (>10% of the TLV), and older workers showing illnesses that could be work related, you have a potential problem.
- Since you are dealing with an individual worker's health, **you must work with a physician.**

Adjusting TLVs For Older Workers

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