

Of crucial relevance are the processes determining transmission of genetic material from one generation to the next.

ADAPTATION TO STRESS

Stresses may be defined as those conditions which impose measurable consequences upon individuals and populations. Stresses involve both stimulus deficiencies and excesses, are specific to individuals, and are recognizable by behavioral, physiological, morphological, and ultimately, genetic manifestations.

An inventory of stresses significant to historical and current phenotypical adaptation and selection in man includes large numbers of physical, nutritional, disease, and behavioral factors. Studies of interest to the Subcommittee on Human Adaptability encompass virtually all, although in some areas, such as noise, work to date has been initiated only in limited ways. Studies of the following areas are proposed:

1. Environmental Stresses

a. Cold tolerance

Comparative studies of whole body cooling and metabolic adjustments to standard cold stresses, local vascular adjustments to cold, and cold pressor tests.

b. Heat tolerance

Comparative studies of temperature, regulatory responses of limited numbers of subjects under standard work-heat stress, and of larger groups of subjects performing standard work (marching) under field conditions in hot climates, with standardized subjects serving as controls.

c. High altitudes

Comparative studies of hematology, body fluid components, metabolism, respiratory function, and circulatory responses of subjects under basal conditions and in standard work tests.