

ACCOMMODATIVE STIMULUS DIOPTRER HOURS & VISION
DETERIORATION

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WORKING DISTANCE & HABITUAL ACCOMMODATIVE STIMULUS
DIOPTRER HOURS, AS RISK FACTORS FOR EYE & VISION
DETERIORATION

WORKING DISTANCE & HABITUAL ACCOMMODATIVE STIMULUS
DIOPTRER-HOURS AS RISK FACTORS FOR BINOCULAR FUSION
DETERIORATION & PERIPHERAL-FIELD FUNCTIONAL PHOTOPHOBIA or
OCULAR HYPERTENSION & REFRACTIVE CHANGE

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Abstract

Habitual accommodative stimulus stress is determined by the \log_{10} {estimated average daily closework time involvement in hours} X {[the inverse of the **working distance** measured in meters] minus [the total dioptric power for the controlling eye of any prosthetic lens minus the spherical-equivalent best-acuity subjective refractive power of the controlling eye]}. A series of case-control studies by this researcher has resulted in the following statistically significant conclusions: **1)** After excluding patients on medications, invalids, alcoholics, and persons suffering from dietary indiscretions, we found that controls not subjected to sustained daily repeated closework accommodative stimulus stress (as measured in diopter-log-hours) present a normal Gaussian curve of distribution of binocular fusion scores, relative freedom from the syndrome of binocular facilitation of peripheral-field glare hypersensitivity, a normal Gaussian distribution curve of relatively low normal intraocular pressure (IOP), and a comparatively stable refractive history. **2)** Subjects who habitually engaged themselves in long hours of daily repeated, sustained closework with substantial accommodative stimulus stress because of a lack of an intrinsic plus-dioptic add (—an intrinsic add as in uncompensated myopia—) or lack of an extrinsic add (as in reading glasses) either (a) suffer time-indexed deterioration of binocular fusion and coordination as measured in terms of a Binocular Convergence Variance scoring protocol and (b) experience time-indexed depression in discomfort-glare threshold **or** (c) retain binocular coordination, but adaptively develop significant elevation of IOP and increasing myopia or decreasing hyperopia. **3)** These relationships are easier to see when we control for nutriture status, including concentrations of red-blood-cell chromium and vanadium, tissue and dietary calcium in ratio to phosphorus, and to dietary intake of food folate, total intake of ascorbic acid, and the ratio of supplemental sugar and refined carbohydrates (CHOs) to total CHO intake. **4)** In untrained individuals, poor posture scores are more common in those with higher intake ratios of refined CHOs relative to complex CHOs.

Key Words: Accommodation, ascorbic-acid, asthenopia, binocular-fusion, carbohydrates, chromium, convergence, eyeglasses, intraocular-pressure, myopia, photophobia.