

Hyperkyphotic Posture Predicts Mortality in Older Community-Dwelling Men and Women: A Prospective Study

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FROM ABSTRACT:

Objectives: To determine the association between hyperkyphotic posture and rate of mortality and cause-specific mortality in older persons.

Design: Prospective cohort study.

Participants: Subjects were 1,353 participants from the Rancho Bernardo Study who had measurements of kyphotic posture.

Measures:

Kyphotic posture was measured as the number of 1.7-cm blocks that needed to be placed under the participant's head to achieve a neutral head position when lying supine on a radiology table.

Demographic and clinical characteristics and health behaviors were assessed at a clinic visit using standard questionnaires.

Participants were followed for an average of 4.2 years, with mortality and cause of death confirmed using review of death certificates.

Results:

Hyperkyphotic posture, defined as requiring one or more blocks under the occiput to achieve a neutral head position while lying supine, was more common in men than women (44% in men, 22% of women).

In age- and sex-adjusted analyses, persons with hyperkyphotic posture had a 1.44 greater rate of mortality. [144%]

In multiply adjusted models, the increased rate of death associated with hyperkyphotic posture remained significant.

In cause-specific mortality analyses, hyperkyphotic posture was specifically associated with an increased rate of death due to atherosclerosis.

Conclusion:

Older men and women with hyperkyphotic posture have higher mortality rates.

THESE AUTHORS ALSO NOTE:

Hyperkyphosis, commonly known as the dowager's hump, is frequently observed in older persons.

“Hyperkyphosis is associated with restrictive pulmonary disease and poor physical function, suggesting that hyperkyphosis might be associated with other adverse health outcomes.”

This study “hypothesized that hyperkyphosis, assessed using a simple clinical measurement of the occiput-to-table distance (when lying supine on an examination table), would be associated with increased mortality in older men and women.”

Kyphotic posture was measured with participants lying recumbent on an x-ray table and the distance from the occiput to table was measured by adding 1.7-cm blocks under the participants' heads. [About 3/4 inch]

Individuals with hyperkyphosis cannot lie flat with their heads touching a flat surface unless they hyperextend their necks.

The greater the number of blocks 1.7-cm blocks required for the subject to reach a neutral head position, the greater the amount of hyperkyphotic posture.

These authors then determine the association between hyperkyphotic posture and subsequent mortality.

“Subjects were defined as hyperkyphotic if they required one or more blocks to achieve a neutral head position while lying flat.”

“To assess for a possible dose-response relation between

hyperkyphotic posture and mortality, subjects were also classified into four groups: those who required no blocks (referent group), one block, two blocks, and three or more blocks."

RESULTS

The kyphosis measurement ranged from zero to 10 blocks (17 cm).

"In age-and sex-adjusted analyses, persons with hyperkyphosis defined as needing one block to achieve a neutral head position had a 1.44 times greater rate of mortality than those without hyperkyphotic posture."

[44% increase death rate with 1.7-cm of hyperkyphosis.]

"With increasing kyphotic posture, there was a trend towards greater mortality."

"Men with hyperkyphosis had the lowest overall survival rates."

"In the multivariable analyses, hyperkyphosis remained a significant predictor of increased all-cause mortality."

"In models adjusted for age and sex, hyperkyphosis was significantly associated only with deaths due to atherosclerosis."

"For deaths due to atherosclerosis, even in the full model, participants with hyperkyphotic posture had a significant 2.4 times greater rate of death." [WOW!]

DISCUSSION

"Older community-dwelling persons with hyperkyphotic posture had greater mortality rates, with increasing severity of hyperkyphotic posture associated with greater rates."

"Hyperkyphotic posture was associated with an increased mortality rate due to atherosclerosis and possibly pulmonary causes in particular."

Although hyperkyphosis is generally thought to be due to osteoporosis, this study did not support that thinking. **[Very Important For Chiropractors.]**

"These study findings place new importance on the clinical finding of hyperkyphotic posture."

"Men were about twice as likely to be classified as hyperkyphotic, with upwards of 40% of the men and 20% of the women meeting the criterion of one or more block."

"Furthermore, even at this mild degree of hyperkyphotic posture, there was a definite greater rate of earlier mortality." **[Very Important]**

"Although it is currently thought that hyperkyphotic posture mainly affects women and that on its own is not clinically important, this study suggests otherwise."

"It is possible that hyperkyphotic posture reflects an increased rate of physiological aging," explaining why hyperkyphosis is independently associated with increased mortality rates.

"Those with hyperkyphotic posture were approximately two times more likely to die from pulmonary causes."

"Those with hyperkyphotic posture had a 2.4 times greater mortality rate from atherosclerosis."

This suggests that there "might be an underlying pathology that is common to atherosclerosis and hyperkyphosis."

[Here is mine: Hyperkyphosis alters the mechanical inhibition of the thoracic sympathetic nervous system, increasing sympathetic traffic, which contributes to atherosclerosis.]

"This study demonstrates that hyperkyphotic posture disproportionately affects older men and that hyperkyphotic posture predicts increased mortality."

"The realization that hyperkyphosis is not synonymous with vertebral fractures may lead to interventions specifically targeted at improving posture, possibly resulting in reduced mortality rates." **[Very Important for Chiropractors]**

KEY POINTS

- 1) This study shows that hyperkyphosis is not primarily caused by osteoporosis.
- 2) Hyperkyphotic posture is more common in men than women (44% in men, 22% of women).
- 3) Hyperkyphosis is frequently observed in older persons.
- 4) In the study, persons with even slight hyperkyphosis had a 1.44 times greater rate of mortality than those without hyperkyphotic posture.
- 5) Hyperkyphosis is significantly associated with deaths due to atherosclerosis.
- 6) Hyperkyphosis increased deaths due to atherosclerosis by 2.4 times.
- 7) In these seniors, the greater the hyperkyphotic posture, the greater the rates of death.
- 8) The hyperkyphotic posture reflects an increased rate of physiological aging. [Very Important]
- 9) Atherosclerosis and hyperkyphosis have a common underlying pathology. My explanation is: Hyperkyphosis alters the mechanical inhibition of the thoracic sympathetic nervous system, increasing sympathetic traffic, which contributes to atherosclerosis.
- 10) **Hyperkyphotic posture predicts increased mortality.**
- 11) Interventions specifically targeted at improving hyperkyphotic posture could result in reduced mortality rates." [Very Important]