

rected by Masaki Kobayashi. One of the major characters in *Kwaidan* was “Hoichi the Earless”, a blind monk biwa (a Japanese lute) player, who was of great renown for singing and narrating the tragic fate of the Heike in the final battle at Dan-no-Ura.

A picture of the blind biwa player’s sculpture was taken when I visited the Akama-Jingu Shrine at Shimonoseki City in March 2007.

Delbrück was not the only scientist influenced by Japanese Buddhism culture. By reading Lafcadio Hearn’s work, physicist Erwin Schrödinger was strongly influenced by Buddhism (Moore WJ. *Schrödinger: Life and Thought*. Cambridge University Press; 1992 [paperback edition]). Schrödinger studied the books of Buddhism and Indian philosophy approximately starting from the World War I years. And this influence lasted lifelong as it showed in his book *My View of the World* (1964. Cambridge, University Press).

Contrast to Schrödinger, Delbrück did not reveal the influence of Buddhism in his lectures and essays. The opening lines of *The Tale of the Heike* reflect the impermanence (*anitya* in Sanskrit) of all existence, which is one of the basic doctrines in Buddhism. Hence, Delbrück’s citation of this classical Japanese poem in the press conference is a singularity.

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## Pandemic influenza A (H1N1): Mandatory vitamin D supplementation?

A recent report of critically ill patients with influenza A (H1N1) infection in Canada [1] was notable for severe illness predominately occurring among young adults and children. More than a third of subjects were obese and two thirds were female. We hypothesize that vitamin D insufficiency plays an important role in this illness and suggest that mandatory vitamin D supplementation be implemented, particularly among premenopausal females, during this H1N1 pandemic.

The vitamin D receptor (VDR) is expressed in most types of immune cells, including natural killer (NK) cells [2], and vitamin D is necessary for optimal innate immune system responses [3]. Interestingly, serum vitamin D levels have been positively correlated with NK cell numbers and function in healthy subjects more than 90 years old [4]. NK cells have an important role in clearing the influenza virus which largely infects pulmonary epithelial cells, and animal studies demonstrate that the influenza virus can enter NK cells and lead to their functional impairment [5]. Young women compared to young men have lower NK cell function, and women taking oral contraceptives have the lowest NK cell activity [6]. Therefore, differences in NK cell function between young women and men might partially explain why a majority of the critically ill subjects in the Canadian cohort were female [1].

More than three quarters of the United States population is now vitamin D insufficient, defined by serum 25-hydroxyvitamin D (25[OH]D) levels below 30 ng/mL, and alarmingly, 97% of non-His-

panic blacks are vitamin D insufficient [7]. Moreover, serum vitamin D levels are inversely correlated with percentage body fat due to excessive storage of 25[OH]D in adipose tissue [8]. This might explain the disproportionate percentage of obese subjects in the Canadian cohort (24% of the general Canadian population are obese) [1].

Given that a large majority of the population is vitamin D insufficient and that we are presently in the midst of a H1N1 pandemic with younger individuals succumbing to critical illness, we suggest oral vitamin D3 supplementation for the general population at a dose of at least 2000–4000 IU daily (there is virtually no risk of toxicity in supplementing up to 10,000 IU of vitamin D3 daily) [9]. This is particularly important for females and obese subjects, whom are highly susceptible to the ravages of H1N1 infection. This should safely and inexpensively bolster the innate immunity of the entire population and rapidly halt the progression of the present H1N1 pandemic.

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