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A Shared Photoperiod-related Birth Seasonality Among Powerful Baseball Hitters and Lesbians with an Opposite Seasonality Among Gay Men: Maternal Melatonin May Affect Fetal Sexual Dimorphism

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Mid-20 century studies of schizophrenia (SCZ) found a disease incidence excess among people born around late-February and a *deficit* among those born six months later around late-August. Given that SCZ is associated with left-handedness and may result from deficits of cerebral asymmetries, we previously investigated hand preferences and month of birth among professional baseball players. The results led to a 'solstitial' hypothesis implicating maternal melatonin-mediated and other sunlight actions capable of affecting left-right brain differentiation in the four-week-old neurulating embryo (Marzullo & Fraser, 2005, 2009; Marzullo & Boklage, 2011). Further studies of the same baseball players have now suggested that the same melatonin-mediated sunlight actions could also affect testosterone dependent male-female differentiation in the four-month-old fetus. Independently of hand-preferences, the baseball players (n=6,829), and particularly the stronger hitters among them, showed a unique birth seasonality with an excess around early-November and an equally significant *deficit* around early-May. In two smaller studies, American and other northern-hemisphere born lesbians showed the same strong-hitter birth seasonality while gay men showed the opposite seasonality. Interestingly, the late-fourth-month fetal testosterone surge – which is critical for sexual dimorphism-- coincides with the summer-solstice in early-November births and the winter-solstice in early-May births. A 'melatonin mechanism' is proposed based on these coincidences coupled with evidence that in seasonal breeders maternal melatonin imparts 'photoperiodic history' to the newborn by direct inhibition of fetal testicular testosterone synthesis. The present effects were thus suggested to represent a vestige of this same phenomenon in man (Marzullo, 2014: Psychiatry Res 216, 424-431).