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**Centre for Menstrual Cycle and Ovulation Research (CeMCOR)**  
***published scientific achievements over 15 Years—2002 to 2017***

CeMCOR takes a science-based but refreshingly practical approach to women's menstrual cycles and what is important for every woman to know and understand about her own reproductive lifecycle from **adolescence** to **premenopause** to **perimenopause** to **menopause**.

Simply by asking basic, often previously unasked questions and doing the necessary scientific studies, CeMCOR in its 15 years has discovered and published important new data:

- Peak areal bone mineral density (BMD) at the total hip and femoral neck sites, that is related to later-life fracture risk, occurs during **adolescence** for young women based on prospective, **population-based** data from Canada (Canadian Multicentre Osteoporosis Study adult and youth cohort data—CaMOS)<sup>1</sup>
- **Adolescent** women who take combined hormonal contraception ("The Pill") are at risk for less hip region BMD gain to peak bone mass and for disturbed maturation to ovulatory menstrual cycles based on a physiological review<sup>2</sup>
- In the first prospective population-based study Canadian **adolescent** women (from CaMOS) monitored over 2-years showed that those who ever used combined hormonal contraception ("The Pill") tended to have less positive gains in hip region BMD than young women not using it<sup>3</sup>
- A younger age at menarche (first period) during **adolescence** is related to an importantly higher adult weight (and risk of obesity) in a **population-based** sample of Canadian women ages 15-90<sup>4</sup>
- In **athletic premenopausal** women, a randomized controlled trial (RCT) on use of "The Pill" (with 35 micrograms of ethinyl estradiol) was associated with a significant five percent decrease in maximal exercise performance (VO<sub>2</sub>max) compared with placebo<sup>5</sup>
- **HIV positive premenopausal** women experienced more past fractures than local **population-based** age-similar controls in a CaMOS-controlled Canada-wide observational study<sup>6</sup>
- **Population-based premenopausal** women with regular, normal-length menstrual cycles on no hormonal contraception were anovulatory in a random tested cycle more >33% of the time based on a too-low serum progesterone level (>3000 women in a semi-rural county in mid-Norway)<sup>7</sup>
- Healthy younger **premenopausal** women (n=123) prospectively recording menstrual cycles, ovulation, spinal and total hip BMD changes and cognitive dietary restraint (a mild but stressful kind of eating disorder with normal weights and diets) over 2-y documented that less positive spine and hip BMD changes related to higher restraint scores; these were related to ovulatory disturbances (anovulation and short luteal phase cycles)<sup>8</sup>
- A systematic review and **meta-analysis** of 1-year prospective studies of **premenopausal** women's cycles, ovulatory characteristics and spinal BMD changes showed that ovulatory disturbances within regular cycles related to significant (almost -1%/year) of spinal BMD loss<sup>9</sup>
- **Premenopausal** women with chronically disturbed ovulation despite regular cycling are at increased risk for early heart disease vs normally ovulatory cycles—a hypothesis-based review<sup>10</sup>
- Negative moods changes are not characteristic of the premenstrual phase in 62 healthy, initially-ovulatory **premenopausal** women completing a Menstrual Cycle Diary® daily over one year<sup>11</sup>
- **Premenopausal** women with a biological relative who had a fragility fracture are otherwise similar to those without a family history of osteoporotic fracture but lose trabecular (honey-comb-like centre of vertebrae) spinal bone at a significantly more rapid rate<sup>12</sup>
- In midlife women with night sweats but regular, normal-length menstrual cycles who prospectively recorded one or more cycles using the Daily Perimenopause Diary®, in what we now call "Very Early **Perimenopause**," night sweats and breast tenderness increased cyclically around flow<sup>13</sup>
- Midlife women with regular menstrual cycles are often symptomatic with very heavy menstrual bleeding, night sweats and increased premenstrual symptoms—we created a table of 9 experience changes any 3 of which allowed a diagnosis of Very Early **Perimenopause**<sup>14</sup>
- A paradigm shift is needed in current understandings of women's midlife transition—women in **perimenopause** have *higher* rather than the expected decreasing estrogen levels<sup>15</sup>

- A unique work of fiction tells the real life stories of eight symptomatic **perimenopausal** women and their interactions with a Dr. Madrona in a woman-empowering science-based, award-winning (Finalist Independent Publishers Book awards 2006) book—*Estrogen's Storm Season—stories of perimenopause*<sup>16</sup> (reprinted in 2007, second edition published in ebook formats in 2017)
- Conjugated equine estrogen and medroxyprogesterone (a progestin) as documented using the Daily Menopause Diary© are equally effective for treatment of hot flushes during in a 1-year (y) **RCT** in **menopausal** women who began therapy immediately following premenopausal hysterectomy and bilateral removal of both ovaries<sup>17</sup>
- Soy phytoestrogens in soy milk given to **menopausal** women with *treated breast cancer* in a **RCT** was not more effective than rice milk control for treatment of hot flushes and night sweats<sup>18</sup>
- Oral progesterone in a 3-month **RCT** is more effective than placebo for treatment of hot flushes and night sweats in healthy **menopausal** women 1-11 years since their last flow<sup>19</sup>
- In a 3-month **RCT** with women early in **menopause**, oral progesterone has positive effects on endothelial function (the fundamental cardiovascular health indicator that controls blood flow—non-significant trend) and causes no changes in healthy blood pressure, weight, waist circumference, fasting glucose or lipids, inflammation or blood clotting levels<sup>20</sup>
- Community dwelling older men and **menopausal** women >75 y at baseline have similar 10-year rates of incident hip fracture (~7%) based on prospective population-based data in CaMOS<sup>21</sup>
- Progesterone causes a small but significant increase in free thyroid hormone levels (FT4)—this was shown for the first time in a placebo-controlled **RCT** in healthy **menopausal** women<sup>22</sup>
- In a **meta-analysis** of **RCT** that directly randomized **menopausal** women to estrogen versus estrogen-progestin/progesterone therapy (without regard to hysterectomy status), the estrogen alone caused a significant increase in spinal bone density but progestin therapy added to the estrogen effect a highly significant 0.68%/year suggesting progestin/progesterone increases bone formation<sup>23</sup>

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