

Oncofertility: The Preservation of Fertility Options for Young People with Cancer

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Cancer is now a disease with a variety of treatment options, which are leading to longer and more productive lives by survivors. Globally, there are 10 million people diagnosed with cancer. 10% of these newly diagnosed men and women are under the age of 45 years old. Infertility can be a consequence of many of the more aggressive chemo- and radiation therapies that prolong and save lives. The ability to easily preserve sperm prior to cancer treatment provides hope at the time of diagnosis and families later in life for male survivors. A notable example is Tour de France winner Lance Armstrong who has three children conceived using sperm frozen days before he underwent the massive chemo- and radiation therapy that saved his life. Unlike sperm, the female germ cell, the oocyte or egg must be retrieved surgically. Moreover, the vast majority of collected oocytes will be immature and cannot be used immediately by a woman who is ready to start a family. The *overall hypothesis of the program* is that effective fertility-extending options can be provided to young women undergoing life-preserving cancer treatment. The purpose of our work is to bring physicians, medical ethicists, social scientists and basic scientists together to develop new strategies for fertility preservation for female cancer survivors under the new discipline of *oncofertility*. And even as the lexicon is being established, complex bioethical issues face both providers and parents. At the basic science level, complex issues of ovarian function and preservation must be addressed including the problem of follicle growth and development *in vitro*. Our investigative group has pioneered the development of a 3-dimensional system that supports follicle development, largely, we believe, because the links between the egg and its surrounding cells are maintained. Using a tissue-engineered approach, we have developed an *in vitro* follicle growth system that supports the maturation of the enclosed oocyte, which can be fertilized and results in live, healthy and reproductively competent mice. The goal of our program and the broader Oncofertility Consortium is to explore and expand the reproductive options available to young people facing a fertility-threatening but life-preserving cancer treatment.

The Oncofertility Consortium logo is a **trademarked advocacy ribbon** that reflects the growing concern for the reproductive future of cancer patients. The intertwining spring green and hearty purple represents **blossoming hope** and **uncompromised dedication** to improving fertility preservation options for cancer patients. The lower tip of the ribbon emerges shows an emergence of eggs or embryos, as well as sperm, **welcoming the translation** of current research to the improvement of fertility options for all cancer patients. The ribbon has a slightly 'bowed' shape, providing a subliminal imagery of a **fertile state**.



Exploring and expanding options for the reproductive future of cancer survivors.

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<http://oncofertility.northwestern.edu/>