During the past decades, in vitro fertilization (IVF) has become a routine procedure in reproductive medicine to overcome subfertility problems in couples all over the world. Since the first IVF birth in 1978, an estimated three million children have been born worldwide after IVF or related assisted reproductive technologies. Nowadays, there is a substantial body of evidence that IVF children are at increased risk for adverse perinatal outcome. In addition, various studies suggested an increased incidence of congenital abnormalities and rare imprinting diseases among IVF children. Nevertheless, several studies indicated that IVF children do not differ from spontaneously conceived controls in terms of mental and psychomotor development. There is still no consensus on whether observed health problems are related to the IVF procedure itself, the underlying subfertility problems of the parents, or a combination. Due to the lack of systematic follow-up of these children during the past years, it is largely unclear whether IVF treatment in humans is associated with substantial developmental consequences in later stages of life in conceived offspring. The present thesis addressed a broad scale of developmental aspects which are important during childhood and adolescence in IVF singletons and spontaneously conceived controls born to subfertile parents. Various cardiovascular measures were examined in view of the "developmental origins of health and disease" hypothesis.