

MALE AND FEMALE NEUROBIOLOGY: DIFFERENCES THAT MATTER

Ricardo Luzondo, MD
Director, Office for Parish Life
Family Renewal Ministries

It is an irrefutable scientific fact that men and women are different. This fact is especially evident in their neurobiology. This presentation addresses the sexual dimorphism in the brain that expresses in cognition and behavior. Although sexual differentiation studies have taken place for over a hundred years, they have undergone dramatic changes since the emergence of functional neuroimaging and neuropsychological testing. Morphologic differences have been demonstrated in men and women in the prenatal, pre and post-pubertal. Male brains are on average 10% larger than females with regional sex differences in both volume and tissue density. Female brains show higher rates of cerebral blood flow, higher percentage of white matter tissue and higher inter-hemispheric connectivity. Male brains show a higher percentage of white matter and greater intra-hemispheric connectivity, as well as higher glucose metabolism in limbic regions. The core biological causes of sex differences in the brain are the integrated result of sex chromosome effect, and the organizational and activational gonadal hormones effect. The aging process is also notably different in men and women. As well, women display a higher level of tolerance to brain injuries and a faster rate of recovery than men. These biological differences between men and women's brains translate in different occupational interests, vocations, emotions and behaviors in action and reaction. Though men and women may certainly learn the abilities of the other, and can function in life alone, science can support that they were created to thrive in complementarity and mutual collaboration. Their differences matter.