Podcast: Trans women in female-only sports; Men and women need distinct brain tumor therapies; Illegal GMOs in Peru

Should trans women be allowed to compete in female-only sports? It's a polarizing question with no easy answer in a society that wants to protect women's rights while also respecting the transgender community. A new study suggests that men and women require different glioblastoma therapies, indicating that there are hard-wired brain differences between the sexes. Peru is poised to renew its GM crop moratorium for 15 years to preserve it's status as a "GMO-free country." The problem? Peruvian farmers have been cultivating GM crops for years.

Join geneticist Kevin Folta and GLP editor Cameron English on this episode of Science Facts and Fallacies as they break down these latest news stories:

- Viewpoint: Transgender rights and sports: Should trans women be permitted to compete in female-only sports?

A society that believes in equality should allow transgender women to compete in female sports, right? No, say many female athletes, who feel they will be at a competitive disadvantage and may face an elevated risk of injury if they have to compete against trans women, who are stronger and faster than they are. "Transgender athletes deserve our respect," writes lawyer and competitive swimmer Sandra Bucha, "but that respect must be mutual:

> Women and girls are being displaced by biologically male athletes, who have clear physical advantages. Again, it is the female athlete who is being denied a spot on the team, the pursuit of a dream, and being told to watch from the sidelines. That's regression, not progress.

So, how does America advance the cause of transgender rights while also safeguarding the progress women have made over the past several decades? There may be no easy solution.

- Men and women require distinct brain tumor therapies, underscoring hard-wired differences in the brain

A new study, not yet peer-reviewed and published on the preprint server bioRxiv, has found that glioblastomas (the most aggressive tumors of the brain) occur at 60% higher rates in males and may have to be treated differently depending on the sex of the patient. The researchers say the differences are likely due to the unique effects of a gene called Brd4 observed in male and female patients. According to Dr. Liji Thomas:

> The current study shows that the sex differences in the tumor phenotype vary with the effect of the enhancer regulatory molecule bound to Brd4 on the course of stem cell-like differentiationin male and female [glioblastoma] cells. Inhibition of Brd4 by genetic and pharmacologicalfactors also varies in males and females …. Thus, GBM cells in males are less likely to formnew clones and tumors are less likely to grow, following Brd4 inhibition. The opposite occurs in female cells and tumors.

The study could enable physicians to better care for glioblastoma patients based on their unique biological characteristics. The more lasting impact of the research may be to underscore that disease treatments have to be developed with the hard-wired differences between men and women in mind.

- Battle over 15-year GMO ban extension rages in Peru as farmers breed and cultivate illegal biotech seed

Peru has officially outlawed the cultivation of GM crops for right around a decade, the goal being to preserve the country's brand as a source of organic food grown from natural seeds. To protect that reputation, the Peruvian Congress recently approved a 15-year extension of the country's moratorium. It's unclear if the new president will sign the legislation, but the situation is complicated by the fact that many farmers have been illegally cultivating GM, insect-resistant corn for since roughly 2010.

Although they are probably unfamiliar with biotechnology, these growers began breeding imported GM corn seed available in local markets with native varieties they have cultivated for many years. The result was an insect-resistant corn seed that required less insecticide application, less water and increased crop yields significantly. Will regulators and legislators learn from the experience of these smallholder farmers, or is Peru destined to continue its official pro-organic policy?

Subscribe to the Science Facts and Fallacies Podcast on iTunes and Spotify.

Kevin M. Folta is a professor in the Horticultural Sciences Department at the University of Florida. Follow Professor Folta on Twitter @kevinfolta

Cameron J. English is the GLP's managing editor. BIO. Follow him on Twitter @camjenglish