

MEDICAL BREAKTHROUGHS **RESEARCH SUMMARY**

TOPIC: BIONIC ARMS FOR KIDS: SAMI'S SUPERPOWER!
REPORT: MB #5114

BACKGROUND: Upper and lower limb reduction defects occur when a part of or the entire arm (upper limb) or leg (lower limb) of a fetus fails to form completely during pregnancy. The defect is referred to as a "limb reduction" because a limb is reduced from its normal size or is missing. Researchers estimate that about 1 in every 1,900 babies is born with a limb reduction defect in the United States. Some of these babies will have both upper and lower limb reduction defects. (Source: <https://www.cdc.gov/ncbddd/birthdefects/ul-limbreductiondefects.html#:~:text=Researchers%20estimate%20that%20about%201,and%20lower%20limb%20reduction%20defects>)

DIAGNOSING: A child with a congenital limb defect has an arm or leg that hasn't formed normally. The most common of these defects are no limb at all, part of the limb doesn't separate, often seen in fingers or toes, duplication, often seen as extra fingers or toes, the limb is much larger than the normal limb (overgrowth), or the limb is much smaller than the normal limb (undergrowth). The diagnosis of a congenital limb defect is made at birth. It may be linked to other bone conditions or syndromes. Always talk with your child's healthcare provider for a diagnosis. (Source: <https://www.stanfordchildrens.org/en/topic/default?id=congenital-limb-defect-in-children-90-P02752>)

NEW TECHNOLOGY: A new, first-of-its-kind clinical trial will examine how the brain adapts to advanced, bionic arms in children born without a limb, with the ultimate goal of improving children's control of their prosthetic. Limbitless Solutions, which Albert Manero co-founded as a graduate student at UCF along with John Sparkman '13 '15MS and Dominique Courbin '18, specializes in developing advanced, muscle-based biosensing technology, such as bionic limbs, to increase accessibility and empower children and adults in the limb-different community. The study is unique because it combines advanced imaging techniques with novel prosthetics and video-game-based training to evaluate motor cortex engagement. The Limbitless Solutions team is also partnered with Dr. Albert Chi of the Oregon Health and Science University in the study. Dr. Chi is trauma surgeon with expertise in biomedical engineering. (Source: <https://www.ucf.edu/news/new-clinical-research-will-test-brains-ability-to-adapt-to-advanced-bionic-limbs/>)

FOR MORE INFORMATION ON THIS REPORT, PLEASE CONTACT:

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If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at mthomas@ivanhoe.com