Abstract — Medicine, Science, and Research is a study on the research done by Dr. Michael Langworthy’s exploration into the creation and use of a bio-jello containing molecules that can break down to form and spur new bone growth, as well as osteoarticular cartilage.

I. INTRODUCTION

This document is meant to describe the creation of a bio-jello containing specifically Calcium and Phosphate ions along with water specifically spaced in a matrix through a 3D printer. From that point on the bio-jello can be inserted into bone which can then break down to form bone growth rapidly. Complications include monitoring infection as well as furthering research to find ways to create bio-jello for osteoarticular cartilage which in turn could wipe away the need for metal and plastic prosthetics.

II. METHODS

Inside cartilage lies Proteoglycons which are wrapped by collagen fibers. These fibers are meant to be very strong and make up tissue that is cartilage. Through trial and error of attempting to create osteoarticular cartilage through the bio-jello, it lead to the finding that the bio-jello can be inserted into bones to spur bone cell growth. Using specifically spaced matrices, the bio-jello can be created by the use of solar or wind powered 3D printer. Injections of the bio-jello into bone can help form new bone.

III. RESULTS

The creation of a Calcium and Phosphate ion based bio-jello through a 3D printer has enabled surgeons to safely and effectively spur bone cell growth within the human body. With bone fractures and rotting so prevalent in human health in today’s world, the use of a bio-jello that can be easily created and implemented is the future of bone health.

IV. DISCUSSION

Dr. Michael Langworthy and his teams’ exploration into the creation of a bio-jello based bone injection has revolutionized the way that bones can be treated. In addition to his advancement into bone regeneration, he has opened the door for many other medical endeavors: one being the creation of an osteoarticular cartilage, in which metal and plastic prosthetic joints can be avoided and healthy cartilage can be produced.

The advantages to the bio-jello are immense. The bio-jello is compromised of Calcium and Phosphate ions as well as Sea Salt Water, which are easily accessible. The use of 3D printing can be quite expensive, but by lowering energy costs through solar and wind energy, the expenses can be offsetted in the long run.

REFERENCES