

Research Handout **Answers**

1. How does arthrogyrosis prevent the joints from moving?

The disease is characterized by multiple joint contractures. A contracture is a condition of shortening and hardening of muscles, tendons and other tissues. The shorter and harder tissue prevents the joints from working properly.

2. What are some of the products are already available to help a person with arthrogyrosis? Briefly explain what each one does.

[There is not much out there. If students say that they cannot kind find anything — that's fine. The idea is that students understand that many situations exist for which biomedical engineering could be of help.]

3. What is a biomedical engineer?

A biomedical engineer is someone who applies his or her knowledge of engineering principles to the medical field to improve healthcare diagnosis and treatment. They need a strong understanding of engineering and must have a good understanding of medicine and biology.

4. What are devices that biomedical engineers design?
List five items and briefly explain what each does.

bioinstrumentation devices (such as MRIs and ultrasounds)
biomaterials (such as titanium)
orthopedics (such as hip or other joint replacement or repair devices)
rehabilitation (such as wheelchairs, physical therapy tools)
prosthetics (such as for arms, legs, feet and hands)
centrifugal blood pump
artificial heart valves and pacemakers
stents
and many more...