Females between the ages of 9 and 12 years will experience rapid changes in growth and development.

During this period, both soft tissue (i.e. fat and muscle) and bone are constantly changing as part of physical maturation.

Previous studies have suggested that changes in soft tissue may affect bone development in young girls.

The goal of this study is to determine how changes in body fat affect the way bones develop by looking at the role body fat plays in regulating the body's blood sugar and inflammation, both important in bone development.

You have an opportunity to learn more about science and contribute to future programs and medical practice by participating in this study.

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Supported by:
Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

An Institutional Review Board responsible for human subjects research at The University of Arizona reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.
**Aims of the Study**

1. To identify factors that impact bone strength in adolescent girls.

2. To make sure that programs in the future are able to provide the best possible advice for bone health in young girls.

This study involves measuring bone density and body composition, as well as blood sugar, insulin and inflammation factors in the blood. Questions about diet and physical activity will also be asked.

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**Study Design**

If your daughter enrolls in this study she will:

- Fill out questionnaires regarding her diet and physical activity level
- Have her body composition measured by DXA
- Have the bone density in her arm and leg measured by pQCT
- Wear a small device, similar to a pedometer, to measure movement and activity for 7 days
- Have her blood drawn to measure fasting blood sugar (glucose), insulin, and inflammation factors

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**Eligibility**

- Girls 9 to 12 years old
- Ability to answer questions about diet and physical activity
- Ability to sit still for up to 30 minutes for measurements
- Not taking any medications related to bone, growth, or type 2 diabetes
- Ability to have transportation to the University of Arizona
- Parental consent to participate

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**Girls receive $50 for participating**

Reimbursement of $10 will also be given to parents/guardians for travel to the University of Arizona for study-related appointments.

Parents and guardians are welcome to stay in the lab during measurements and can be present with children during all measurements.

There is no obligation to enroll in the study. Additionally, study participants may withdraw from the study at any time.