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Design Research Summary
Body Impact Response Detection Project

Project idea: Develop data collection protective gear for people involved in martial arts.

Motivating questions
- Who needs data about their Muay Thai training?
  Fighters and coaches
- What devices do people currently use to assist in Muay Thai training?
  Sometimes force plates - devices to quantify how hard a fighter can hit a bag
- What are some barriers to using data collection gear?
  General acception, durability, ease of use, usefulness of the data. If the data doesn't really add any useful information or add insight to how a fighter is doing, there is no real point to using our device.
- When would this information be useful to the user and how can it help them?
  This is really useful for users who want to empirically check their defense. More casual users might not get the same advantage as a more competitive user. Stiff suspension makes sense when a car is racing, not when it's going to the shops. This data could also help get a user from a novice level to a more competitive level faster through the extra data that is provided. Seeing where and how hard you are being hit can make a big difference.

Research methods
- In-person interviews with 3 Muay Thai students, recruited from the CU Rec Center. The interview covered participants' training habits and what types of devices (if any) they currently use to aid their training.
- Contextual inquiry with 2 martial artists to understand their training routine and how they might use a device like the one we propose to assist them.

Design recommendations
1. Durability of material and technology.
Although only one participant brought up the durability issue, we feel that it is a key attribute to the success of our product. Therefore, we should look for high-quality materials that are commonly used in the Muay Thai and martial arts industry to ensure a standard of durability that accommodates our product.
2. Comfort.
When asked about possible drawbacks to our product, all participants were concerned about how comfortable a device like ours will be. To this point, we need to have our device be no more restrictive than what the user is already comfortable with and should mimic the design of current training wear as much as possible.
3. Range of motion and weight.
Our participants all shared the same concerns about range of motion and weight of our device. Being that this device is meant to be worn during training sessions and rarely, if ever, used during competition, we understand the need to have this device not hinder the user in any way. We plan to use light-weight materials and have an even distribution of weight over the wearer's body to accomplish the intended goal.