Correct the sport posture for people with Kinect

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STATEMENT OF THE PROBLEM
To correct the sport posture for people is important in overall health of individuals. Posture is the foundation for fitness. But now, television, video games, computers are popular. Some injuries start with poor posture.

Research in movement and daily habits indicated that more and more high school student encountered skeletal deformity and poor posture[1]. Follow-up studies also showed that the population will greatly benefit from the promotion of its postural foundation by lowering injury[2-3]. As more and more people like gaming, so there is the possibility that we can use Kinect to automatically analyzing the correct sport posture. A research presented running posture is a highly effective way of interacting with a system when running [4], this is the reason that I choose to running to make a research.

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Then I will collect the theoretical model from the professional coaches. Meanwhile, I will also take the professional athletes’ postures’ dataset.

In the following step, I will get a virtual people’s model.

At last I will test the untrained people and compare their sport posture with the proper virtual model. Actually I want Kinect to tell me that how can the untrained people make an adjustment when poor posture happens.

RESEARCH QUESTIONS AND/OR HYPOTHESES
As mentioned above, the aim of the study is to focus on analyzing the correct sport posture of young people and comparing them against the professional coaches and athletes who are skill in sports, with the following research questions:

1. Can the Kinect be used to correct the sport posture in the future?
2. In which kind of ways for correcting the sport posture by Kinect?

These research questions are taken into consideration with the following hypotheses:

1. Kinect will have a good influence on the poor posture people
2. Kinect can make a model about everyone. When someone is doing sport by Kinect, the Kinect can analyze the person features, then judge the people’s sport posture.

METHODS AND PROCEDURES
First because of many kinds of sports in the diary life, I will only take two kinds of sports into consideration. There are running and chin-up.

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Variables
Some variables here are age, gender, weight, height, the force proportion of feet on the ground, the height of gravity.

Sampling
10 professional coaches will be recorded for the data collection.
50 professional athletes will be recorded at the same time. 25 of them are males and 25 are females. It would be better if they are strictly randomly selected, but for my reason this is my first time to do research. Other way is to get more data. But I do not know how to get more data.

10 untrained people will be tested.

Instrumentation
The instrument used for data collection is statistics.
Data collection
Data will be collected in separate testing sessions. Recording the theoretical data and the practical data. Then combine them to get the virtual model data.

Data analysis
First I will divide the 25 males into 5 groups. In the first group they are age range 10 with 17. The second group they are age range 18 with 23. The third group they are age range 24 with 30. The fourth group they are age range 31 with 36. The fifth group they are age range 37 with 42. And the same with the 25 females.

Then I will analyze the every group data. After taking many times to collect the data in every group, I will put the measured data into average. Within a group, the age is regarded as the same. I just need to analyze the professional athletes’ weight, height, the force proportion of feet on the ground, the height of gravity.

The data analysis will be done using Excel and SPSS.

LIMITATIONS AND DELIMITATIONS
The following points list some of the limitations that could possibly be faced during the period of research.

1. Limited the number of samples. Lack of considering all the stage of age people.
2. Limited the application used by Kinect to make the test. Although many people do exercise through gaming by Kinect, but it still cannot be used to correct the people sport posture.
3. Limited species of sports. There are many other sports, not just running and chin-up. If including many sports, there are many variables to be taken into consideration. It will be much more hard for me to make the research.

The scope of study, especially data collection and collection and sampling is narrowed down by applying the following delimitations

1. The Kinect machine has time delay. But in the test, the time of Kinect is quite less, so it make no influence in the untrained people.
2. In one group, the professional athletes’ age is different. But in small scope, ignoring the variable of age is better for the study.

SIGNIFICANCE
As far as I know, Kinect is a motion sensing input device by Microsoft for the Xbox 360 video game console. It enables users to control and interact with the Xbox 360, through a natural user interface using gestures. Because the Kinect launched on November in 2010, research related to correct the sport posture is not studied very much. It seems a new field.

This research tried to make people more healthy, because it is not necessary for you to take extra time to do sports. I mean that you will have a good posture about the proper sports if you are a crazy gamer. It is a significant research.

REFERENCES
5. Microsoft Crop. Redmond WA. Kinect for Xbox 360