

# APEX Body Suit

## The personal assistant bodywear

By Nathan and Blake

**Purpose:** The purpose of this research paper is to develop an workout assistance bodywear that will aid a person's workout routine

*Methods:* We conducted observations at IM West multiple days for about 1 and a half to 2 hours, where we observed people working out checking to see if they were using correct form, overexerting themselves and what other activities were they doing during their exercises. We also conducted interviews asking about why they workout, where they work out and so forth.

*Findings:* We had come to find that there are many different types of individuals that workout for many different reasons. Most people that were interviewed had specific reasons for working out. These included individual health reasons (meaning there's something specific with their health that makes them have to workout, diabetes, high blood pressure, etc.), pushing their bodies to their limits, weight loss, having something productive to do on down time, social interaction and to keep their minds off of personal issues. For people that don't workout their reasoning for not doing so usually dealt with three things these included, not having the time to do so, no interest in working out and intimidation. We also came to find that about 58 percent of people that were studied worked out in groups and not by themselves. 28 percent of those participating in group workouts were couples. Many people that work in groups spent much more time on one machine 100 percent of groups observed spent 10 or more minutes on one machine. Time spent usually involved conversing, correcting individuals on machines, using their mobile devices, or giving encouragement to their peers to finish a set or rep. Since most of the people we interviewed were college students, many of them cannot afford a personal trainer every month that would help guide them through their workouts. 100 percent of people that were interviewed separately from our observations stated that they would use a device created to help you workout accurately and achieve your best results. Their reasonings behind using this device included, achieving the results they desire, injury prevention, and gaining knowledge.

*Recommendations:* Since 100 percent of people we observed had a mobile device with them as they worked out I recommend using an app to communicate with the users. This would allow users to physically see what they have to correct while working out on a device that many individuals are familiar with. Also since 100 percent of women that were observed wear leggings or some form tight clothing while working out because it allows for easier movement the women

we recommend that we use sports bras or tight fitting dry fit shirts and leggings to capture movements during workouts. As for men, our observation gave us the impression that men prefer to wear tight fitting dry fit clothing as well while working out. We also recommend tight fitting clothing for men as well this would include compression shorts as undergarments and dry fit shirts as well to capture movements during workouts. We also recommend that we have a group activity within the app that allows users to track each other's progress within the app. This gives users something to discuss while doing group workouts with each other.

## **Introduction:**

### *Initial Product:*

Technology can be a great help for people achieving their fitness goals, by all of it depends on the individual's motivation and goals. Not everyone wants to look the the 1st round draft pick in the NFL, some people might just want to lose five pounds here and there. Many people are search for the one product of magic diet that will just have them shed all the weight with little consequences, which does not exist. Yes, you can invest in hundreds, maybe thousands, of dollars and it may work but the *Apex Body Suit* gives an individual the ability to have a personal assistant that would help make their workouts more effective and track their progress as they do so for a one time fee.

### *Initial Personas:*

The persona that this product is made for people who want to get started working but do not know where to start. There are so many different workouts and benefits that if one does not do their research, it can end up to being a insufficient workout or even a serious injury.

## **Location:**

We choose to do our research at the IM west because that is where most students go for their workout. IM east was a lot smaller and did not have as many people as IM West so it would not let us realize the full potential of what the product could do. Also after talking to some people, they prefer IM west because it offers a larger variety of machines and workout stations since it is a multi storied building. East only seem more of a convenience for those who did not feel like going to the other side of the campus to west, unless the person was one who wanted to get sufficient results from a workout. We chose to focus on the upper and lower levels of the gym as well. The upper level of the gym is focused more on cardio workouts and weightlifting is done more on the lower level of the gym.



## Observation Categories:

*Criteria Observed Include:*

	A	B	C	D	E
1					
2	Problem	Bad Form, Over/Under Exertion, Wandering Around/Sitting For Long Periods Of Time			
3	Workout	Cardio, Weightlifting, Callanetics			
4	Type of Clothing	Loose Fitting, Tight Fitting, Accessories			
5	Group/Single	Group, Single			
6	Gender	Male/Female			
7	Time Spent On Each Workout	1-5 mins, 5-10 mins 10 Or More			

- Issue while working out
- Gender
- Clothing
- Individual working out/ Group workout
- Workout (Cardio, Weightlifting, Callanetics)
- Time spent on workout

During our observations, we focused mostly on those who had bad form, were taking too long to complete their workout and on the attire they would be wearing. Mostly of what we saw was those performing with bad form and that they would be on their phones for a long amount of time. With the bad form, people would either be doing too much weight for them to handle, and even though they could complete the reps and sets, but would not get the full benefit of the workout, or would be one move away from a serious injury. An example of this was when a younger gentleman was doing squats with about 275 on the bar. He could not keep his back straight and would repeatedly bend over and come up with his back as he squatted, which resulted in him not getting full range of motion in the squat. Doing this the weight of the bar is pushing you to lean forward, having you curl your back in the process, which would result in injury such as a torn disk. If he would have lowered the weight he was doing a focus on his form, he would get more of a benefit and would also get stronger in the right places.

About most of those we observed had their cell phones out while they were in the workouts, causing a delay in the workout. In a group it would only be a slight detail, nothing that would be that bad. However if the person was working out by themselves, this would cause them to be distracted and prolong the rest between sets. This would cause the muscles to get cold and when exercising they would have to warm back up, doing this too much would result in pulling a muscle and increased fatigue. There was a younger woman who at one point was on her phone for about 5 minutes in between some of her sets and when you see her exercise you can notice the discomfort on her face. This however gave a great case for the bodysuit to be connected to an

app on the phone, which could time them on breaks or let them know when their body is turning cold.

The reason why we also observed what people were wearing was so we knew what attire people would wear when working out. Most of the women we observed were wearing tight fit, such leggings, and men wore loose fitting clothing like basketball shorts and loose t-shirts. We concluded that women would wear tight fitting leggings with a matching sport bra, and men would wear a tight fit shirt with tight fit underwear. This would allow them to wear it under their clothes if they do not want anyone to know they are wear it.

### **Interviews:**

We conducted interviews with 4 different individuals. These individuals were two men and two women. We chose one person from each gender that we deemed as a fit individual and one person that we thought might be working towards a healthy lifestyle at the moment. We felt that this would give us a variety of answers that were geared towards our target audience. We asked each of these individuals six questions. These questions included simple questions such as do you workout, Where do you workout and what is your routine, Do you workout in groups and would you use a device to help guide you through proper training techniques during your workout. After conducting the interviews we came to find that all four individuals worked out in some form or fashion whether it was something as small as playing a sport once a week or going to the gym 5 days a week. Also we came to find that women tend to workout in groups more than men. The two men we interviewed for this device did not workout in groups with 2 or more individuals. The two women we interviewed loved working out with at least one partner because it motivates them in the gym. Since we are on a college campus and there are many gyms available throughout the day many people don't have a hard time finding a gym to workout in. Everyone we interviewed did their workouts in a gym of some sort. We also came to find that men tend to do more weight lifting than cardio when it comes to the type of workout that is preferred for an individual. One of the women we interviewed told us that women tend to tone up rather than bulk up so she preferred cardio and callanetics. 100 percent of the people interviewed stated that they would use a device to help guide you through proper training techniques during your workout. The two fit individuals stated that they would love to use it for injury prevention and the others stated that it would be a great tool to use that would help guide them to using things that they had no clue about and keep them from being intimidated while working out in the gym because they would have prior knowledge of each workout before they tried it. It was also stated that since college students can't really afford personal trainers this would be a great learning tool.

## Final Product Outcome:

After doing our observations, secondary research and interviews, we have concluded on the what the final product should be. The pictures below will demonstrate a breakdown

1. The Apex Body Suit will be tight fitted clothes that analyzes a person's body, such as muscle and body fat count, and a person's metabolism since everyone has a different metabolism. It would also have an app suitable for both iOS and Android phone users since most people have either one.



2. Once a person puts on the suit, it will have them go through a series of small calisthenic exercises (running in place for a certain amount of time, body squats, push ups, sit ups, etc) so it can personally adjust to the person wearing it. Once done performing the exercises, the data will then be transmitted to the app on the phone and the suit will adapt.



3. Once adjusted, the will then ask a series of questions to see how many times a week do you workout, where you work, exercises you do, how long you work for and even give you diet plans for more effective weight loss, muscle gains, etc

EX:

What days do you workout? **M Tu W Th F Sa Su**

What type of workouts do you do?  (choose as many that apply)	Callaestics	Weightlifting	Cardio	N/A
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4. Once the workout portions are selected, it will then bring up difficulty levels with a customization option. For an example if a person does not workout at all and is starting to get into it, they would choose beginner and let apex pick for you,

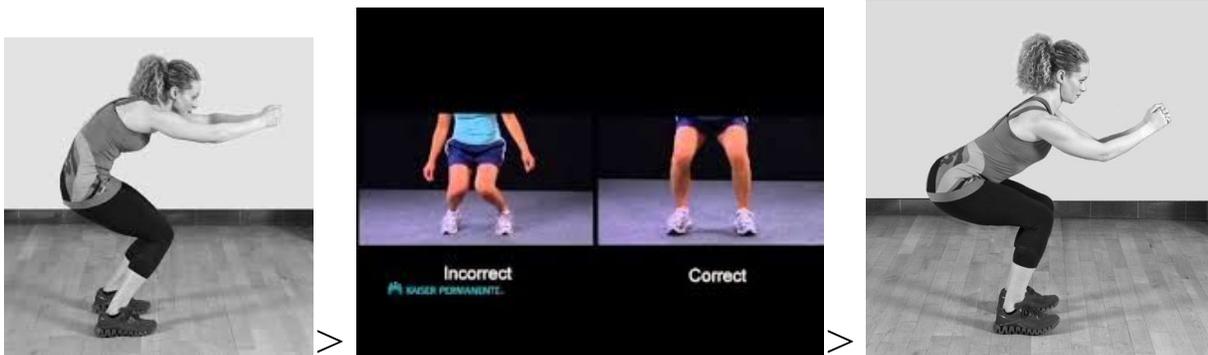
Beginner	Skilled	Fitness Junkie	Athlete
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Do you want to customize your workout routine or let Apex pick it for you?

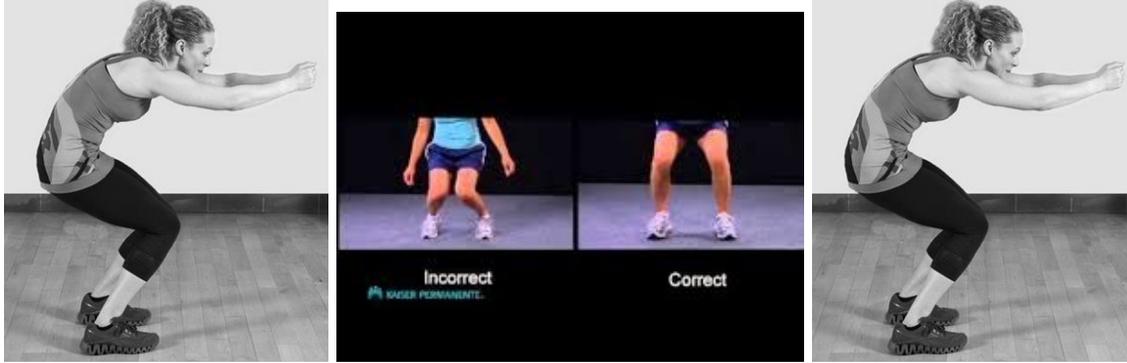
5. Once everything is setup, you will be able to use the bodysuit, it will have a calendar with workouts throughout the week with the recommended rest days and diet for the days that would best suit the person wearing it



6. While performing the workouts, the suit will all so alert the user when they are performing a working out. If they have headphones in, it will send an alert sound; if not wearing head phones, the suit will slightly vibrate. Once that happens your phone will have a video ready to play saying “Form” and the video will show you the correct form. If you still can not get the form right, it will give you alternative workouts that will work the same muscle groups so you can get the same benefit without getting hurt.

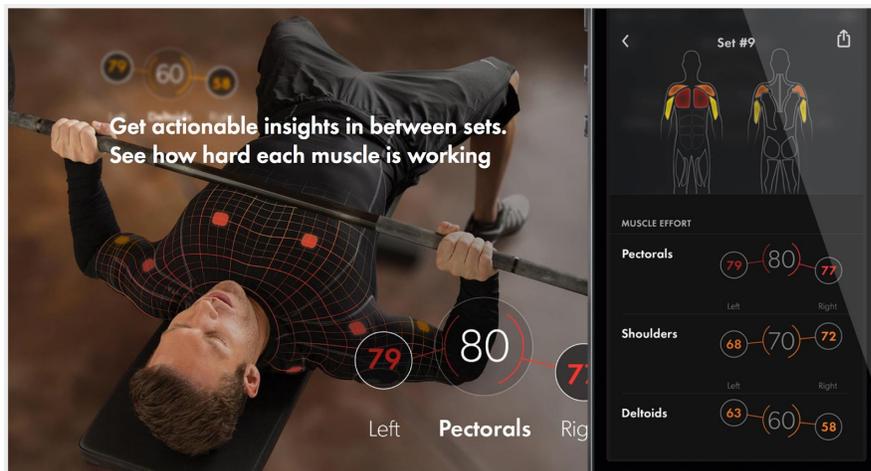


When you watch the video and do it right



An example if you keep doing the squats wrong, then it will give you alternative workouts you can do that will give you the benefits as regular squats

7. During your workout, the suit will measure how much stress your muscles are going through. If you are doing the Apex workout it will tell you the amount of weight you should be doing the reps and sets or how long you should be running and at what speed. If doing your customized workout, if you are overexerting yourself, it will vibrate and suggest to lower down the weight, speed or reps you are doing





8. After you finish your workout routine, it will show you the result of the workout. Such as how much your muscles were worked out, calories burned and what to expect for the next workout you do.



**Insert Your Core**

**Select Training Goal**

Choose your Training Goal

GET STRONG  
Increase strength and apply to build strength

Select a training goal for your workout.

**70-80** Target Muscle Effort

The muscle effort score you should strive to achieve in each set, based on your training goal.

**Live View**

63

Muscle Effort

30% 33% 65% 83%

Measured from 0-100. Represents how much you are exerting each muscle.

**63** ATHOS Score

Total representation of how hard you worked. Includes muscle effort, heart rate, and active time.

**Set Summary**

79

67

Pectorals Training Goal

See how each muscle performed on your previous set, how evenly you exerted each muscle, and how close you are to your selected training goal.

**Workout Summary**

361

Session Recap

Evaluate your total workout performance. Review and compare sets, evaluate your muscle effort vs. your goal, and analyze key workout stats.

Set History

51 69 61 58

Review and compare previous sets at any time or post workout.

**LOOK WITHIN**