

MONITORING ATHLETES

TAKING ADVANTAGE OF TECHNOLOGY

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Many coaches struggle to find ways to have their athletes monitor key performance factors. To name a few, this list could include training volume, training intensity, sleep, stress, and nutrition parameters. For the coach, this information is vital for modifying the training plan on a weekly or daily basis. It is therefore vital that athletes provide this information as it directly enhances the training environment and ultimately better performance.

Thankfully, there are a number of technological advances that certainly help to enable the athlete to monitor performance factors and provide this information to coaches or other support practitioners. This article will examine strategies that coaches can utilize to help athletes monitor performance, and will specifically look at one possible monitoring tool as an example.

WHAT NEEDS TO BE MONITORED?

The first question that the coach needs to consider is what factors should be monitored. The question should identify the difference between what is “nice to know” information versus what is “need to know” information. Ideally the factors are scientifically validated to result in either enhanced training adaptation or performance outcomes directly. In other words, factors that result in confident actionable outcomes. Furthermore, what does the coach intend to do with the data once it is received. For example, in endurance sport physiological factors such as heart rate, perceived intensity and training volume are critical for establishing subsequent training objectives and detailing the training stimulus to the athlete’s response to previous sessions. In other sports, monitoring training parameters may assist coaches in understanding whether the planned training was actually done and whether the athlete is accountable to the training plan. This is important in decentralized training environments or when different types of training have been prescribed outside of regular practice.

There are also other factors such as the athlete’s mental status, which can provide some good indicators related to competition readiness or training perseverance. Factors like perceived stress, mood status and journaling can provide the coach or performance practitioner with information that can be used to modify training or pre-competitive plans. Finally, other critical performance factors like sleep and nutrition can certainly impact the athlete’s preparation for both training and competition.

WHEN DOES IT NEED TO BE MONITORED?

The second question that could be considered is the frequency in which information is required. Is the monitoring done on a daily, weekly, monthly basis or at strategic times throughout the year based on periodized plan or main competitive events? Another consideration is whether the coach will need all of the information or only some of the information. As in technical skill practices, the aim is to create a monitoring habit for the athlete so that the behavior becomes repeatable and not just a one off attempt. In this circumstance it may be better to start off monitoring smaller chunks of information, rather than monitoring several factors at one time. With the explosion of technology and monitoring tools, one needs to be wary of the sheer amount of data and ultimately not being able to ‘see the forest from the trees’. Certainly, as habits and interpretation expertise develop, more factors can be added.

The monitoring strategy that the coach uses should be proactively planned using the Yearly Training Plan (YTP). The table below provides some examples of different monitoring factors and the timing within the YTP. Coaches can use a similar table to assist in planning when monitoring a particular factor.

Monitored KPI	Importance H - High M - Medium L - Low	Frequency T - Every Training D - Every Day W - Weekly S - Strategically	YTP Scheduling Daily Microcycle # Mesocycle Phase	Duration(number of days) 1 - Every Day 2 - Two Days 3 - Three Days etc..
Training Volume	H	T	Daily	1
Training Intensity				
Sleep Length	M	S	Comp Phase	7
Sleep Quality				
Stress	M	S	SPP	3
Mood				
Journaling	H	D	Daily	1
Nutrition				
Hydration				

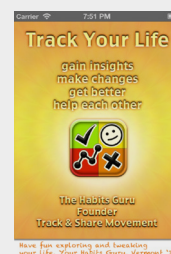
HOW IS IT MONITORED?

The last consideration is how the monitoring is done. Certainly technology has come a long way and there is little excuse for athletes to use some type of monitoring tool. The Canadian Athlete Monitoring Program (CAMP) was established to provide critical metrics on Canada's high performance athletes. While CAMP provides an excellent scope and depth of monitoring, it is currently available to targeted athletes and training groups. Other strategies that coaches use successfully are freeware software that is readily available through computer applications. Various forms can be tailor made to assist in gathering specific information, some of which can be purchased (go to link <https://academy.sportlyzer.com/rowing-misc/the-ultimate-list-of-sports-coaching-software/> for a list of software). Freeware options also exist which may include setting up a live/virtual Google doc tracking tool that both athlete and coach can work off of.

Hand held devices seem to be the communication tool of choice for many athletes. A recent review by Bort-Roig (2014) suggested smartphone technology can be useful in accurately measuring a variety of behaviours and that there is likely some potential for the use of this technology for promoting physical activity. Finding strategies that use handheld device apps can provide some utility and "ease of use" for athletes to monitor their training behaviours. One free app is called TrackNshare and is featured briefly below.

TrackNshare

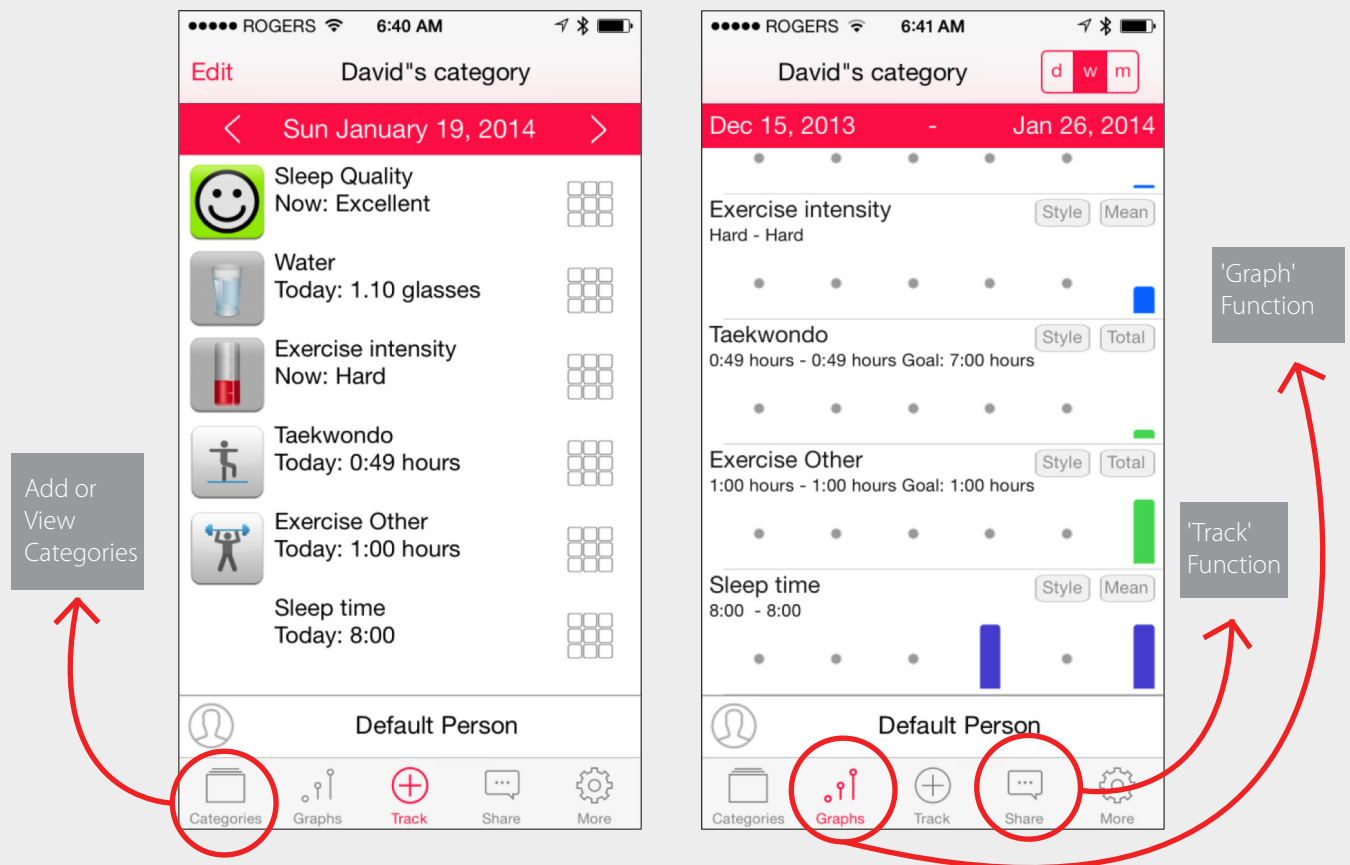
This app was originally developed as a medical tool to help doctors and therapists monitor patient information. The app includes a number of pre-designed categories, like mood, health and food. Each category has a number of items that can be customized to suit user need. Another great feature is the ability to establish goals based on meeting tracked targets. The user or athlete can share tracked information by html or csv file. One limitation to the app is that the tracking items need to be set up on each handheld device, which can easily done with each athlete. The pro version does provide the ability to



track multiple people, if the coach chooses to do some tracking themselves. The description below provides some basic information on using the app.

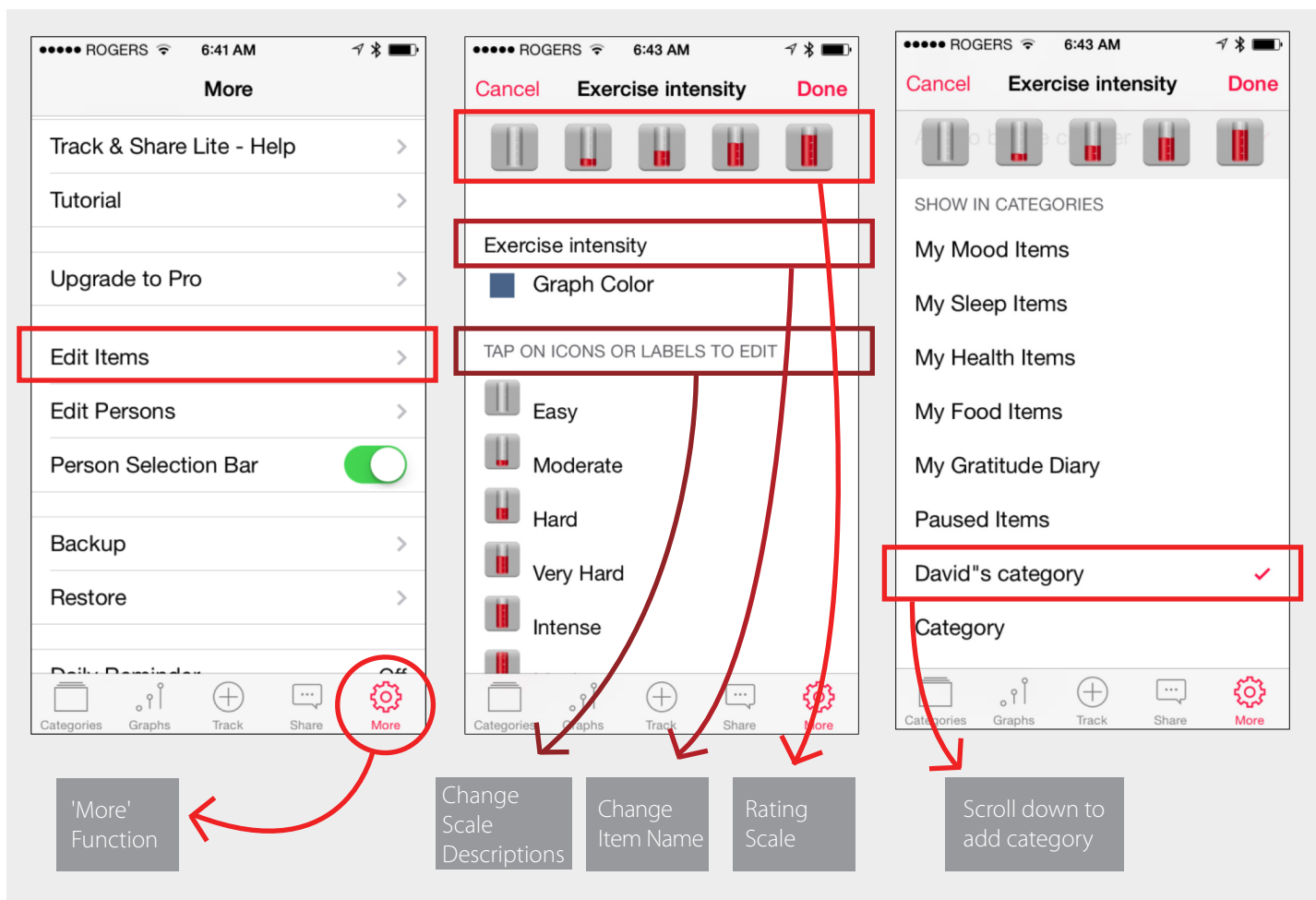
USING THE APP

Example Categories: The pictures below identify some customized items that have been added to a new category "David's category". The Track function allows the athlete to track different items based on a predetermined scale that can be customized. The Graph Function provides a visual description of tracked items which can be viewed on a daily, weekly or monthly basis.



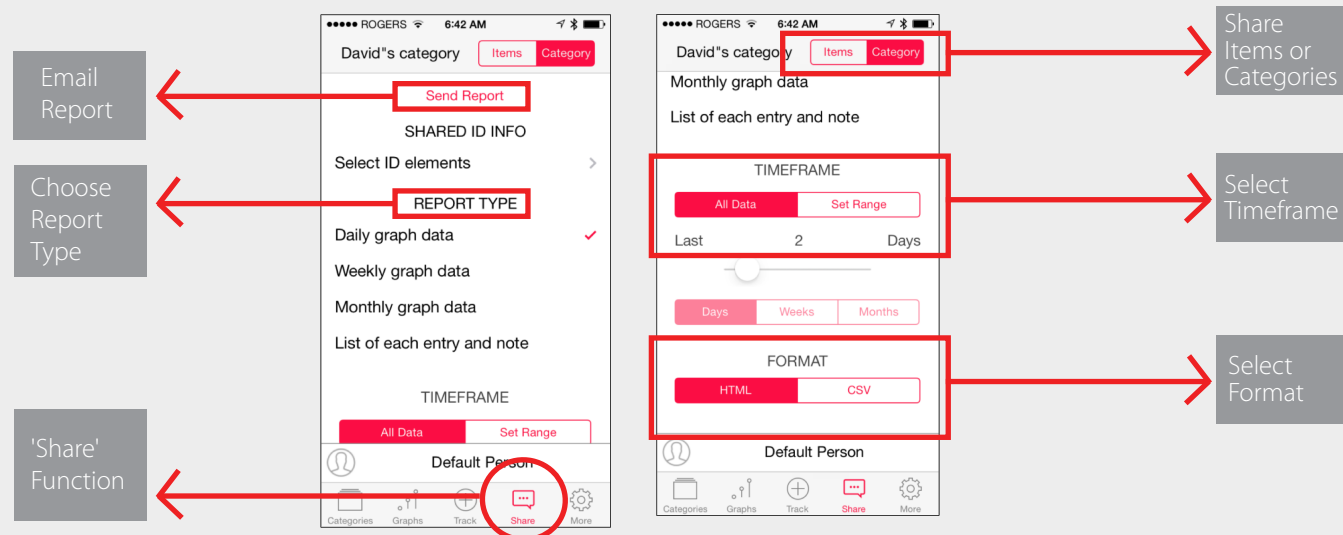
CUSTOMIZING ITEMS

The following pictures provide some strategies on customizing an item. The first step is to click on the More function which will give access to editing items. In this example, exercise intensity has been added as a new item by first selecting a relevant scale for rating the item. Once the type of scale is selected all of the features can be updated as indicated below. Another useful tip is to look through the pre-existing items to see if there is one that has a similar rating to what you are looking for. You can copy the item and then edit it. Lastly, you can select the item to appear in various categories that you have added to pre-existing categories.



SHARING THE ITEMS

The picture below demonstrates how items can be shared. The share function provides access to how the athlete can share the tracked information as a full category or an individual item. As shown here, there are a number of options that can be selected as well as the output format. Once selections are made, tapping on "send report" will open an email message that can be sent to the coach.





SUMMARY

In conclusion, the opportunities that technology can give both coaches and athletes to monitor performance and establish training goals are exhaustive. Coaches should not shy away from implementing some monitoring strategies with their athletes, but should instead consider the amount of information to be tracked and the frequency by which the information is required in the YTP. Further, coaches should try to create tracking habits with their athletes so the burden of tracking does not rest entirely on the coach.

REFERENCES

1. Bort-Roig, J., Gilson, N. D., Puig-Ribera, A., Contreras, R. S., & Trost, S. G. (2014). Measuring and Influencing Physical Activity with Smartphone Technology: A Systematic Review. *Sports Medicine*, 1-16.