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Knowledge sessions and continuous posture assessment: Impact on benefits of running

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Abstract

Running has started picking up as a fitness tool among the working-class Indian population. Its simplistic nature and cheaper in-terms of gadgets has made people to take running as one of the platform for their healthy living. But, are they really getting all the goodness of Running? In this paper, we have detailed a case study on distance runners from South India who took running for their healthy living. The paper is organised in such a way that runners' basic knowledge about running posture, body biomechanics and other supporting factors like awareness about clothing, picking right shoe are gathered at their early stages of running. An analysis on impact of continuous knowledge advisory about running essentials and feedback on slow motion video playback analysis at regular intervals has been carried out with the results.

Keywords: distance running, biomechanics, video playback analysis, knowledge advisory

1. Introduction

The technological age is undergoing a massive revolution where the benefits out of advancement in our daily life are equally compensated by the stress factor as well as lack of physical activity. But amidst of this massive revolution, people wants to dedicate some time for their healthy life and the awareness about healthy living is increasing steadily. Running is one of the major tools adopted by the population in India. The individuals' running distance could vary from less than a kilometre to hundreds of kilometre. This fact can be well supported by the increase in number of running events across India. As per article published by *The Asian Age*, in 2014 alone, more than 700 major running events happened^[3]. This clearly shows the awareness that people got about healthy living and more importantly, how running allows an individual to customize it based on their ability. Mid-distance running and Marathons has helped people to spend time at their own pace on the course as a moderate Aerobic exercise. Even though running is simplistic in nature, and the pre-requisites are minimal, it still needs to fulfil basic requirements to enjoy its maximum health benefits. As per recommendation from major Sports medicine institutes, it is advisable to undergo fitness test as well as completing Physical Activity Readiness Questionnaire (PAR-Q) to determine whether running is a proper form of physical activity for an individual. Post assessment, individuals can get themselves aligned to a particular distance (advisable to start with minimal distance) and in reality, the individuals practice for a while and they tend to participate in events to test their physical capacity which has made the significant contribution to the increase in the number of running events. But over a period of time, the runners make themselves competitive and try to achieve targets (beating their own personal bests) which is appreciable only when they consider adopting the appropriate posture and also other factors like healthy diet, proper hydration, enough recovery, right attires like shoes and clothes and most importantly strength training.

2. Key parameters influencing the benefits of running

2.1 Running form: Keeping head level, elbows at right angles with arms not crossing midline of the body, hips tall, maintaining stride control and trying to be quick and light on the feet are some of key posture guidelines. And also there is an argument that, customizing the above running template based on individuals gait could result in optimum performance^[5].

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2.2 Foot type and picking up right Shoe: Picking up a shoe of correct size based on biomechanical needs like arch type, pronation and supination, orthopaedic injuries; training and event conditions

2.3 Rest and Recovery: Adequate sleep, following warm-up and cool-down stretches regularly; following RICE methodology during injury and individualized rehabilitation techniques

2.4 Running Nutritional: Diet schedule with healthy foods, fruits, vegetables and individualized diet plan if necessary, appropriate supplements during as well as pre and post-race/training

2.5 Strength training: To improve the overall form by strengthening muscles; reduced risk towards injury; customized workouts to balance weaker muscles and strengthening it

3. Experimental setup- Gathering details of runners at early stages of running

Runners have been asked to provide information about their awareness on key knowledge parameters following the PAR-Q and fitness assessments. As the part of training, runners underwent below process.

- Running schedule proposed by *Run Less Run Faster* from *Runner's World*® based on individuals' fitness test results and running experience [1]

- Runners underwent medium intensity strength training twice a week and also Aerobics exercise, *Zumba*® dance sessions twice a month.

- Knowledge sessions about clothing, selecting right shoe for their foot Type, about running posture by concentrating on their head, arm movements, hip, stride and also inputs about

the importance of nutritional hydration were given twice a month. Runners have been consistently advised to look after the above parameters during their practice sessions.

- Slow motion video playback analysis has been conducted at regular intervals to guide them for adopting their posture effectively.

The above modelled training was initiated by many, but only 5 runners have continued for more than 6 months and the intensity of the program was gradually increased. The case study has been carried out with data of the team, which comprised of a woman (national level athlete once and resuming sports after 22 years), couple of Information Technology employees (most of the time need to be in sitting posture for their job), a sales person (travels a lot), a top-level executive of a company (notable stress factor). The data about runners' race performance has been recorded between 4th Quarter (Q4) of 2013 to 1st Quarter (Q1) of 2015. For every runner, the first race record given here is completely a reflection of their own training and they started training with the mentioned schedule after their first race.

4. Analysis on recorded figures – Knowledge advisory, Race records

Firstly, let us analyze the runners' knowledge and the key parameters they have carried with them when they ran their first race which is labelled as Runner<value>_initial and their latest race during Q1 in 2015 after undergoing the above format of training for more than 6 months which is labelled as Runner<value>_latest in the Chart 1.

All the runners were able to follow the running schedule and strength training workouts as scheduled either by attending the sessions physically or carried out workouts and runs in their (remote) location. Also, please note that there was no change carried over the diet other than advice about avoiding unhealthy and junk foods.

Chart 1: Knowledge advisory as recorded by the participants

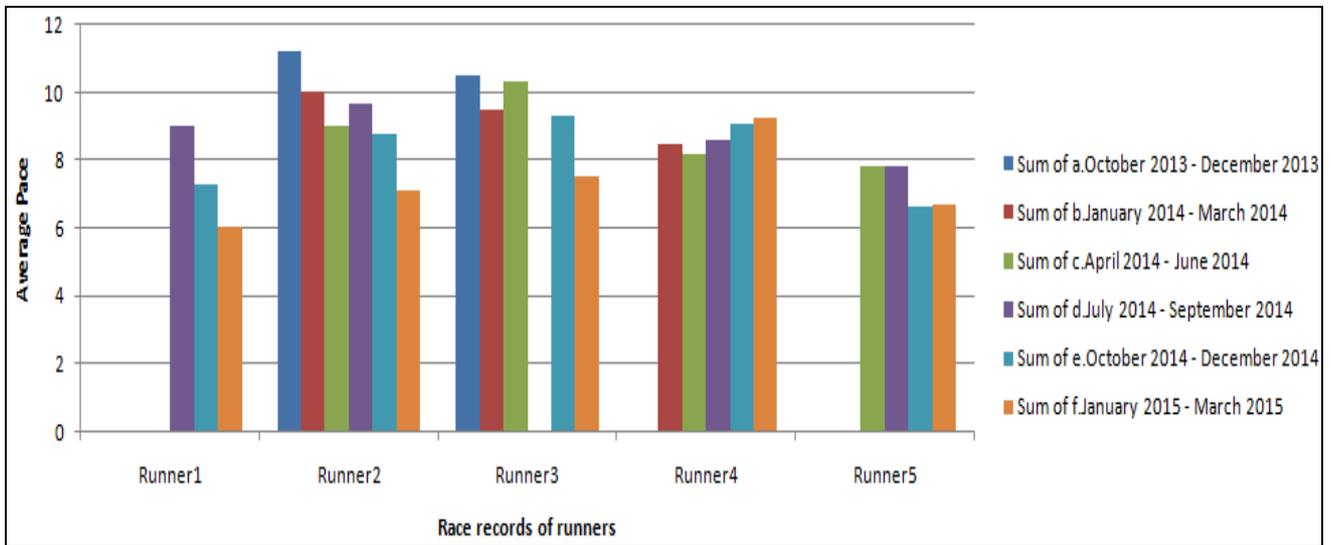
Agent type	Foot Clothing	Right Type	Shoe	Nutritional hydration	Head posture	Arm Shoulder	movement	Torso	Hip posture	Legs / Stride	Ankle / Feet
Runner1_initial	Yes	No	No	No	No	No	No	No	No	No	No
Runner1_latest	Yes	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No
Runner2_initial	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Runner2_latest	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No
Runner3_initial	No	No	No	No	No	No	No	No	No	No	Yes
Runner3_latest	No	No	No	Yes	Yes	Yes	Yes	No	No	Yes	No
Runner4_initial	Yes	No	Yes	Yes	No	No	No	No	No	No	No
Runner4_latest	Yes	No	Yes	Yes	No	No	No	No	No	Yes	No
Runner5_initial	Yes	No	No	No	Yes	No	Yes	Yes	No	Yes	No
Runner5_latest	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Out of 5 runners, the person who travelled a lot (Runner4) did miss many of the knowledge sessions as well as video playback analysis. Other runners also had misses, but were comparatively minimal. Based on the response from runners, the percentage increase in their awareness on the key parameters is indicated in the Table 1. The value is an outcome of the number knowledge sessions they have attended as well as the amount of information they were able to grasp during the assessment and runners have been conscious on those

during their latest race.

Table 1: Knowledge advisory snapshot

Agent	% increase in awareness- Key parameters
Runner1	45
Runner2	36
Runner3	36
Runner4	9
Runner5	54



Graph 1: Comparison of race results (average pace) between Q4 2013 and Q1 2015

As expected the table clearly shows that runners, who attended most of the knowledge sessions and video playback analysis sessions, ran their latest race with awareness about almost all the key parameters. And interestingly the effect has got reflected directly proportional in their subsequent races.

The Runner4 who was irregular to the Knowledge sessions, but was practicing running almost maintained same level of performance over the events he participated. But the rest of the team has showed the positive response towards the race result. The percentage has not been derived because the number of runners who undertook the test is less. But the results clearly shows that many common runners who are picking up running for fitness, are entering without the adequate knowledge on key components and lack of awareness persists, if the necessary trainings are not integrated. And practicing without awareness and customization of their posture along with supporting elements might result in injury.

5. Conclusion and Future work

The results depict that creating awareness about adopting the appropriate posture, proper hydration, enough recovery, right attires like shoes and clothes, strength training and also healthy diet is must in order to help the population to enjoy the maximum health benefits of running. In the above data set, all the runners comes under one roof i.e. they have accessibility to technology and hence providing a technological solution to cater their knowledge advisory needs is a viable option to keep them updated of their biomechanics and making suitable changes in their workout schedule will help them running throughout the year without risk of injuries. So, here is one such technological solution – Internet based running analysis tool. The idea is to encourage the full potential of web technologies where, a runner needs to upload a video wherein they are running on frontal and sagittal planes. And on the other end, biomechanical analyst or a coach could analyse his video and provide the feedback. This kind of technology comes handy in the cases like, if the runner needs to train at some remote location, but will be getting the complete trainings which other runners do get in the actual location. This will bring the positive effect of graph of runners who often travels as well. And furthermore this give flexibility to coaches to satisfy multiple clients on ease. The current internet technology is sufficient to implement the given idea. But the real power of technology lies when it starts giving live feedback as soon as the runner uploads his running video

through technologies like pattern recognition and analysis. Here the job of the coach is only to train based on the automated biomechanical results and needless to work on the analysis part.

6. References

1. William Pierce J EdD, Scott Murr M EdD, Raymond Moss F PhD, Run Less Run Faster. Edn 2, Runner's World registered trademark of Rodale Inc., 733 Third Avenue, New York, NY 2012; 10017:1-287.
2. Christina Strohrmann, Julia Seiter, Gerhard Troster. Feedback Provision on Running Technique with a Smartphone, Journal of Ubiquitous Systems & Pervasive Networks 2014; 5(1):25-31.
3. Marathons spur sportswear mart. <http://www.asianage.com/business/marathons-spur-sportswear-mart-570>. 11 Mar, 2015.
4. Hsiang-Ling Teng, Christopher M. Powers. Sagittal Plane Trunk Posture Influences Patellofemoral Joint Stress during Running, Journal of Orthopedic & Sports Physical Therapy, 2014; 44(10):785-792.
5. Finding Your Ideal Running Form. <https://www.acsm.org/about-acsm/media-room/acsm-in-the-news/2012/09/04/finding-your-ideal-running-form>. 4 Sep, 2012.
6. Rekha MR. Effect of Interval running and Aerobic dance on selected body composition variables of college women, Asian Journal of Physical Education and Computer Science in Sports (ISSN 0975-7732), 2014; 10(1):12-14.
7. Mian OS, Thom JM, Ardigo LP, Narici MV, Minetti AE. Metabolic cost, mechanical work, and efficiency during walking in young and older adults. Acta Physiologica Scandinavica 2006; 186:127-139.
8. Shannon Crumpton. Selecting and Effectively Using Running Shoes. ACMS's Consumer Information Committee, www.acsm.org/access-public-information/brochures-fact-sheets/brochures ©Copyright to American College of Sports Medicine, 2011.
9. Heather K Vincent, Kevin R Vincent. Selecting Running Shoe. ACMS's Consumer Information Committee, www.acsm.org/access-public-information/brochures-fact-sheets/brochures ©Copyright to American College of Sports Medicine, 2014.