
PRIMA
WORKSHOP PRIMA,
HIGH PERFORMANCE OPERATION PLAN (HIPOP)
ROAD TO 28th ASIAN GAMES 2018
"PROGRAM PERFORMA TINGGI DENGAN IMPLEMENTASI SPORT SCIENCE"
BANDUNG, 6 - 9 DESEMBER 2105
Assoc. Professor Stephen Bird
James Cook University, Cairns QLD Australia
GINO FERUCI KEBONJATI BANDUNG
Jln. Kebonjati No. 71-75 Bandung - Jawa Barat


Rio2016
PRIMA
2017
SEA Games
MALAYSIA
2018
High Performance Operation Plan (HIPOP) Seminar
Gino Feruci Hotel Kebonjati Bandung Dec 7-9, 2015
Part 2 - Sport Science: Applications in monitoring fatigue and managing recovery
A/Prof Stephen Bird PhD, BHMvt(Hons), AEP, CSCS, RNutr
Associate Professor, Sport and Exercise Science | James Cook University
Sport Science - Fatigue Monitoring - Recovery Management
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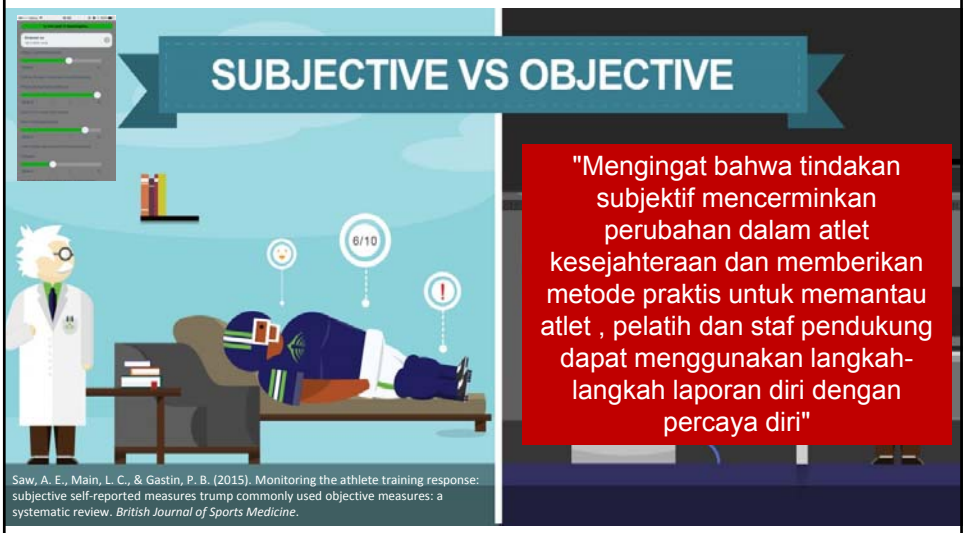
pemantauan atlet? atlet kesehatan?

Subjective vs objective measurements:



"Mengingat bahwa tindakan subjektif mencerminkan perubahan dalam atlet kesejahteraan dan memberikan metode praktis untuk memantau atlet , pelatih dan staf pendukung dapat menggunakan langkah-langkah laporan diri dengan percaya diri"

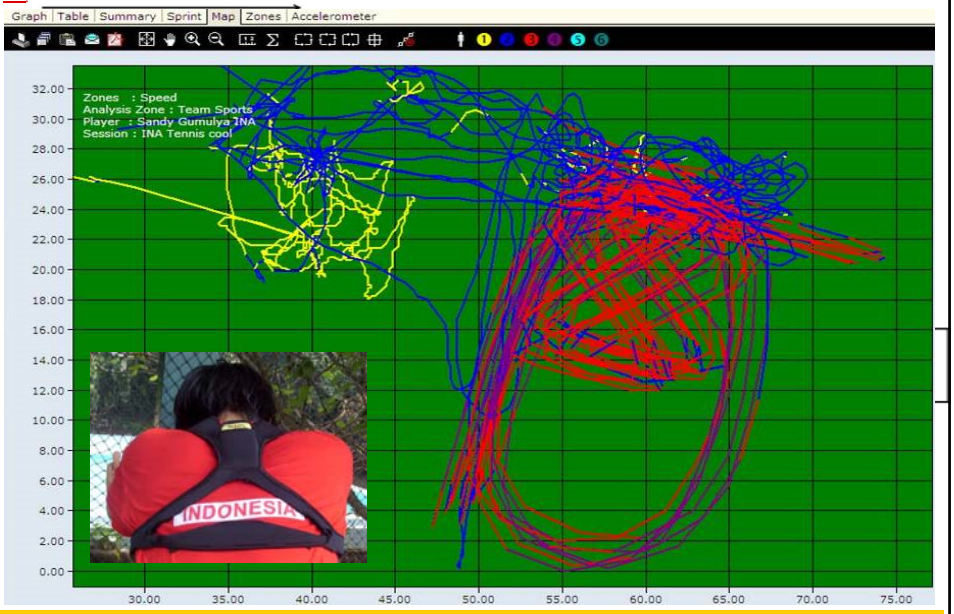
Saw, A. E., Main, L. C., & Gastin, P. B. (2015). Monitoring the athlete training response: subjective self-reported measures trump commonly used objective measures: a systematic review. *British Journal of Sports Medicine*.

"Given that subjective measures reflect changes in athlete well-being and provide a practical method for athlete monitoring, coaches and support staff may employ self-report measures with confidence."

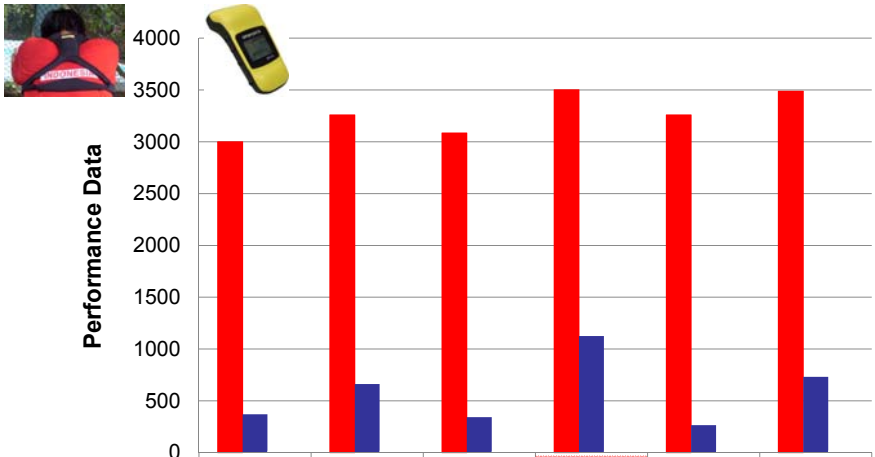
GPS System: *GPS performance monitoring systems* are common place in elite sport allowing sports scientists to compare day to day practice statistics season to season.

- Speed
- Distance
- Accelerations
- Decelerations
- HR Variability
- Sprints
- Dynamic Stress Load
- High Speed Running
- Metabolic Load Dist

Perry, C. (2015, May 28) Breaking Down The Top 3 Player Performance Tracking Systems.
Retrieved from www.sporttechie.com/2015/05/28/breaking-down-the-top-3-player-performance-tracking-systems/



Schematic representation of the movement patterns of on-court conditioning drills; including (A) Suicide, (B) Star, (C) Big 'L', (D) Box and (E) Star with side-stepping drills



	Ayu	Sandy	Jeremy	Sunu	Chris	Nesa
Total Dist	3000	3260	3085	3502	3259	3487
HIR dist	371	662	343	1126	265	731
Max speed	18.0	19.1	17.4	19.2	18.1	20.7

Duffield, R., Bird, S. P., & Ballard, R. J. (2011). Field-based pre-cooling for on-court, tennis-specific conditioning in the heat. Journal of Sports Science and Medicine, 10(2), 376-384.

Pentingnya pemantauan respon pelatihan atlet dan proses pemulihan

Importance of monitoring the athletes training response and recovery process

5 Key Areas

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Hug, M. et al. (2003). Training modalities: over-reaching and over-training in athletes, including a study of the role of hormones. Best Pract Res Clin Endocrinol Metab, 17(2), 191-209.

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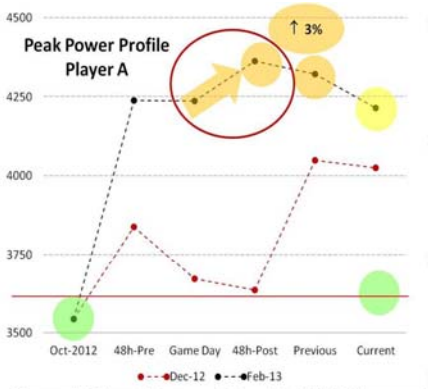
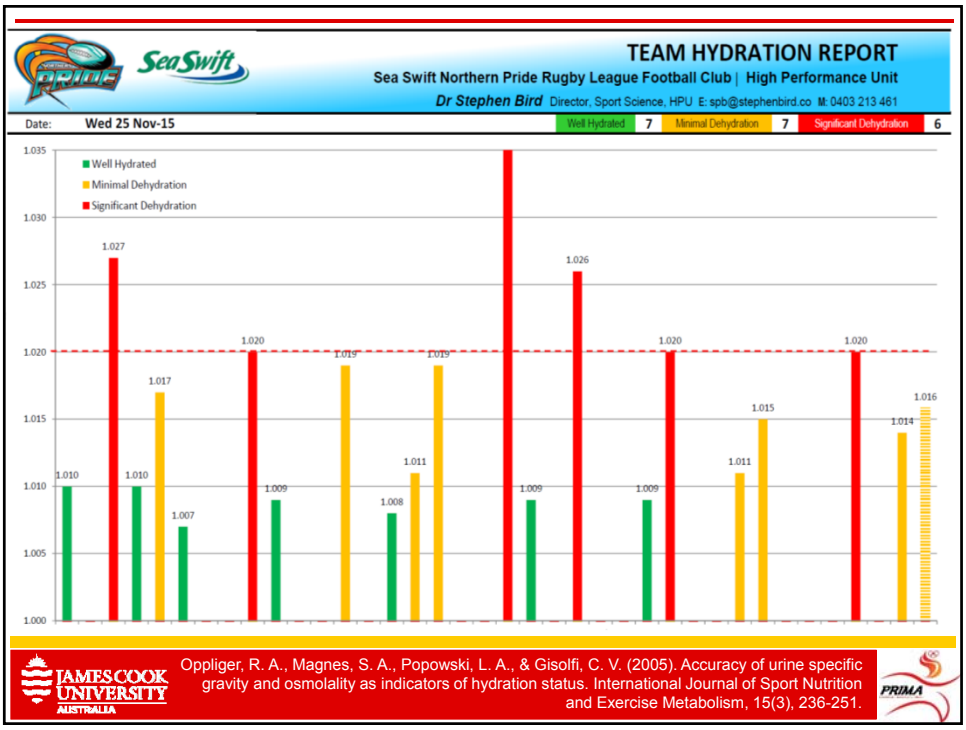
48h-post-game neuromuscular fatigue/recovery comparison between two players.



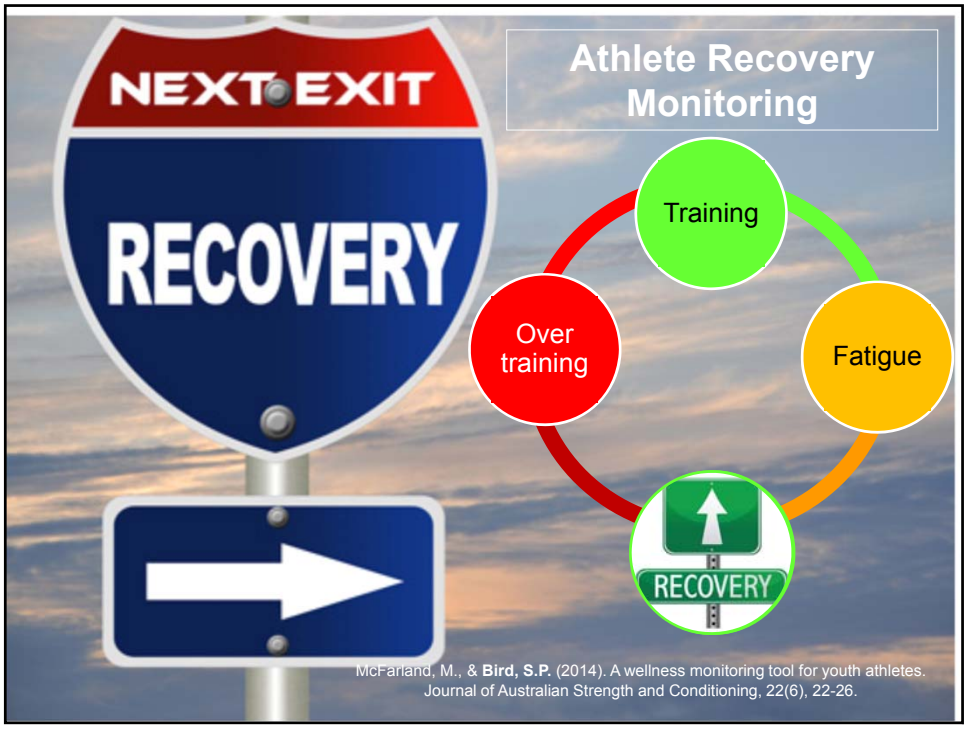
Power profile: Shows athlete recovery/fatigue status (cut off -10%).
Current: current jump. **Threshold** = your lower limt (measure of fatigue).
Previous: % change vs. previous jump. **Oct-12:** % change vs. Oct av.
Oct-12: % change vs. Oct. *We look for trend: ≥3 consecutive ↓ jumps*

Current Jump vs.	Previous	48h-Post	Oct-12	Threshold
	Stable	Stable	Higher	Higher
4215	-2%	-3%	19%	15%
	4322	4363	3544	3653

Casa, D.J. et al. (2000). National Athletic Trainers' Association Position Statement: Fluid replacement for athletes. Journal of Athletic Training, 35(2), 212-224.



Oppliger, R. A., Magnes, S. A., Popowski, L. A., & Gisolfi, C. V. (2005). Accuracy of urine specific gravity and osmolality as indicators of hydration status. International Journal of Sport Nutrition and Exercise Metabolism, 15(3), 236-251.


NEXT EXIT
RECOVERY
Athlete Recovery Monitoring
Training
Fatigue
RECOVERY
Over training
McFarland, M., & Bird, S.P. (2014). A wellness monitoring tool for youth athletes. Journal of Australian Strength and Conditioning, 22(6), 22-26.

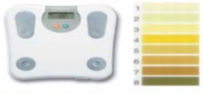

WHITE GOLD FITNESS
INFLATABLE ICE BATH

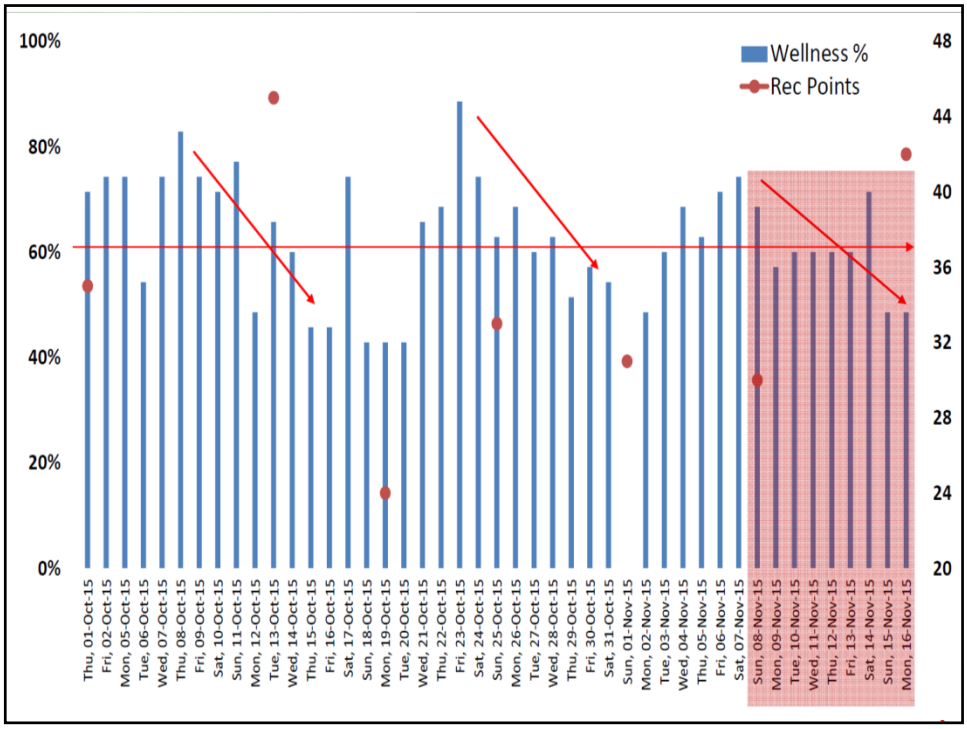
Pemantauan stres

- stres dapat dikategorikan menjadi tiga bagian
  Stressors fall into 3 categories

1. *stres fisik* — Physical stress
2. *stres psikologis* — Psychological stress
3. *stres emosional* — Emotional stress

Komite Olympiade Indonesia
100 point Weekly Recovery Checklist
Games of the XXIX Olympiad, Beijing, China Aug 8 -24, 2008

Recovery tool	Description	Recovery Points
	*Compression Garments* • *Worn during travel (> 2 hrs)* • *Worn during sleep (8 hrs)*	10 pts 15 pts
	*Contrast Shower (hot/cold)* • *Alternate 1 min hot / 30 sec cold.* • *Repeat 10 times*	5 pts
	*Pool Recovery Session* • *Alternate swim strokes, running drills, stretching* • *20–30 min*	10 pts
	*Hydration Status* • *Pre- and post-training bodyweight* • *Fluid ingestion = 1.5 x kg lost*	5 pts
	*Athlete Training/Recovery Diary* • *Training Diary Berapa intensitas untuk exercise ini?* *1. Sangat Sangat Ringan → 5. Tentangan → 10. Maximum* • *Recovery Diary RHR, sleep, bodyweight, energy, muscle soreness*	5 pts 5pts
	*Massage* • *Deep tissue massage 20-30 min* • *Self-Massage (tennis ball, foam roller) 15 min*	15 pts 10 pts
	*Nutritional Supplementation* • *Pre, during, post-training*	5 pts



Mentransver efek dari latihan yang dilakukan

Transfer of training effect

Tenaga putar /gerak berputar Rotation forces

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Sepaktakraw / Judo training
SEA Games 2007

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Athlete profiling

- Aim of athlete profiling is to determine the "performance gap"
- Pictorial representation (Radar plots)
  - provide coach with greater understanding of athletes current physical status
  - Indonesian Olympic Archery Team

Excellent	**> 90%**	**5** Optimal performance
Good	**80-89%**	**4** High quality
Average	**70-79%**	**3** Improvement required
Below Av	**60-69%**	**2** Further assessment required
Poor	**< 60%**	**1** Immediate attention (medical; physio)

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Newton, R. U., & Dugan, E. (2002). Application of strength diagnosis. Strength and Conditioning Journal, 24(5), 50-59.

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INDONESIAN ARCHERY ASSOCIATION (PERSATUAN PANAHAN INDONESIA - PERPANI)
DAILY TRAINING PROGRAM FOR PHYSICAL OLYMPIC GAMES BEIJING 2008

SAT			
Pk. 05.30 – 07.00 am	• Jogging • Stretching	• Jogging 2 km • WT with dumbell	1.5 hrs
Pk. 08.30 – 12.00 pm	• Shooting actual distance	• 70m: 150 arr.	3.5 hrs
Pk. 02.00 – 05.00 pm	• Shooting actual distance (*Olympic round)* • Stretching	• 70m: 60 arr	2.5 hrs 0.5 hr **8.0 hrs**
SUN			
Pk. 05.30 – 07.30 am	• Jogging • Stretching • Strength training	• Jogging 2 km • WT with dumbell	2.0 hrs
Pk. 08.30 – 12.00 am	• Scoring sesi 1	• 70m: 150 arr.	3.5 hrs
Pk. 2.00 – 5.00 am	• Scoring sesi 2	• 70m: 60 arr	2.0 hrs **7.5 hrs**

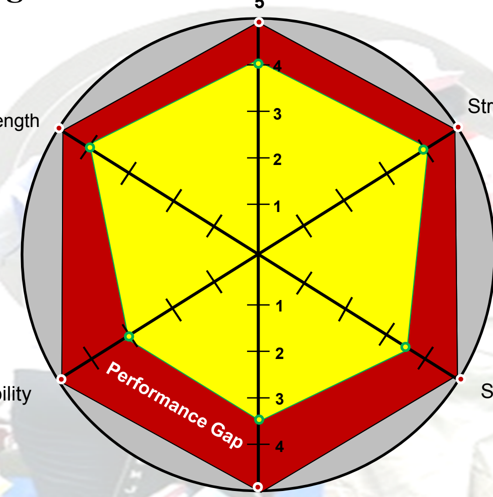
Hour of training wk:	**44.5**	Hours of bow work:	**34.5**	Total training sessions:	**16**
Total arrows:	**1410**	Av daily arrows:	**235**	Av session duration:	**2:48 hrs**
Bow (draw) weight:	**35 lbs**	Total weekly strain:	**49350 lbs**	Av daily strain:	**8225 lbs**
Strength training:	**3 x wk**	**13 exercises/ 3 x 10 (39 sets)**			

Bench Press; Long Pull; Shoulder Press; One Arm Dumbell Row; Sit Up Good Morning Bends; Lateral Pull Front; Wrist Curls; Leg Press; Leg Extention; Arm Curl; Tricep Extention; Low Pulley Row.

Athlete Profiling

Optimal level

Ika



S&C reports colour coded

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The athlete profiling system employed by the Indonesian Olympic Team was adapted from the strength diagnosis model. *Newton & Dugan (2002). Strength and Cond J, 24, 50-59.*

Cates, W., & Cavanaugh, J. (2009). Advances in rehabilitation and performance testing. Clinics in Sports Medicine, 28(1), 63-76.

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Archery-Specific S&C: Program Goals/Design

Phase I

1. *Develop ability to stabilise pelvis;*
2. *Concentrate on deep abdominal/ pelvic/ spinal musculature;*
3. *Target muscle imbalances.*

Progression

1. *Develop ability to stabilise pelvis under load;*
2. *Develop oblique sling synergy;*
3. *Correct muscle imbalances.*

Phase 2

1. *Integrate functional strength;*
2. *Coordinate oblique sling and pillar strength;*
3. *Maintain muscle balance.*

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George, S. Z., & Delitto, A. (2002). Management of the athlete with low back pain. Clinics in Sports Medicine, 21(1), 105-120.

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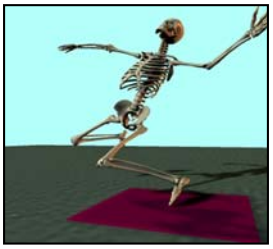

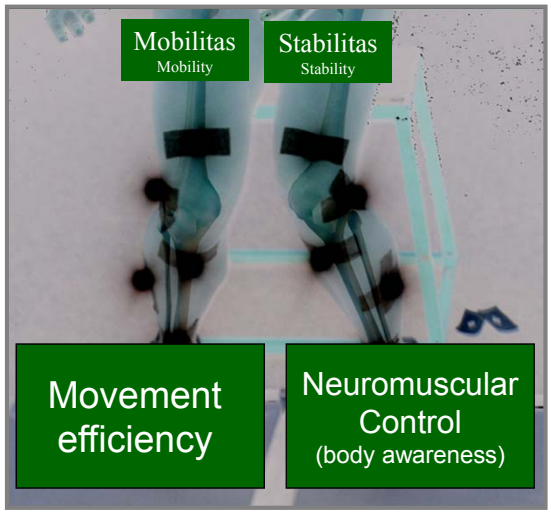

Kualitas gerakan
Movement quality

Hambatan karena cidera
Impeded by injury

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Mann, K., Edwards, S., Drinkwater, E. J., & **Bird, S.P.** (2013). A lower limb assessment tool for athletes at risk of developing patellar tendinopathy. Medicine and Science in Sports and Exercise, 45(3), 527-533.

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NSCA CEU QUIZ
Available at: http://www.nsca-cc.org/ceus/quizzes.html

Integrating Balance and Postural Stability Exercises into the Functional Warm-up for Youth Athletes

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Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site (http://journals.lww.com/nsca-scj).

SUMMARY

THE GOAL OF THE FUNCTIONAL WARM-UP IS TO STIMULATE SENSORY AND MOTOR COMPONENTS RELATED TO PREPARATORY (FEED-FORWARD) AND REACTIVE (FEED-BACK) SYSTEMS THROUGH FUNCTIONALLY INTEGRATED MOVEMENT PATTERNS. THIS ARTICLE PRESENTS BALANCE AND POSTURAL STABILITY EXERCISES THAT ARE EASILY IMPLEMENTED INTO THE FUNCTIONAL WARM-UP AS A MOVEMENT PREPARATION STRATEGY FOR YOUTH ATHLETES.

INTRODUCTION

In recent times, there has been a significant interest in the application of balance and postural stability (BAPS) exercise as part of a functional warm-up to enhance neuromuscular activation (16,20). The use of BAPS exercise stems from the field of neuromuscular rehabilitation, with such exercises believed to promote integration of the neuromuscular communication pathway via preparatory (feed-forward) and reactive (feed-back) systems (23,26). That is to say, BAPS exercises enhance proprioceptive input and kinesthetic awareness (15), increasing muscle activation, leading to greater dynamic core stability and postural control (2). For purposes of this article, dynamic core stability is defined as the body's capacity to maintain or resume a relative position of the trunk after perturbation (25).

Conversely, impaired neuromuscular control of core stability and balance may increase the risk of back and lower extremity injuries in athletes (23). From a movement preparation perspective (1,22), the inclusion of BAPS exercises has been shown to enhance proprioceptive input and kinesthetic awareness (18,21). This is of particular importance before strength training because many strength training exercises aimed at enhancing athletic performance, such as the hang power clean and jump squat, are inherently unstable and require neuromuscular control to maintain dynamic core stability and postural alignment (9). During such exercises, neuromuscular control of the trunk is based on reactive (feed-back) control (24). The information concerning the position of each segment in the kinetic chain is fed back and used to modify the descending movement commands. Therefore, deficits in neuromuscular control contribute to unstable or faulty movement patterns throughout the kinetic chain (25).

Strength and conditioning coaches often prescribed BAPS exercise as part of neuromuscular training programs, with injury prevention/rehabilitation (6,19) and balance/core training (4,6,19) described as key areas of development.

Published surveys indicate that 40% of strength and conditioning coaches associated with the National Basketball Association (19), 17% associated with the National Hockey League (4), and 9% associated with Great Britain

KEY WORDS:
balance and posture; functional warm-up; youth athletes; warm-up; dynamic; balance; postural stability

Bird, S.P., & Stuart, W. (2012). Integrating balance and postural stability exercises into the functional warm up for youth athletes. Strength and Conditioning Journal, 34(3), 73-79.

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PROGRAM INDONESIA EMAS

Terima kasih:

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