Menu of the Day

- Code of practice and responsibility of S&C professionals

- Underlying concept: Biomechanics and exercise physiology for S&C

- Stimulus-Response-Adaptation concept

- Chorological Order of Systematic Process

- Application Examples

Code of Practice

"Provide physical exercise and training prescription for the purpose of reducing risk of injury and increase performance, via systematic and evidence based practice. It is within the responsibilities of the strength and conditioning professionals to determine training objectives, perform need analysis, develop training plan, develop training program, do performance monitoring, determine effectiveness and perform modification for further enhancement"

(Nur Ikhwan Mohamad, Ali Md. Nadzalan & Muhamad Hafiz Zainol, 2019)(7)

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Underlying Concept

Mechanical:

- Strength = force
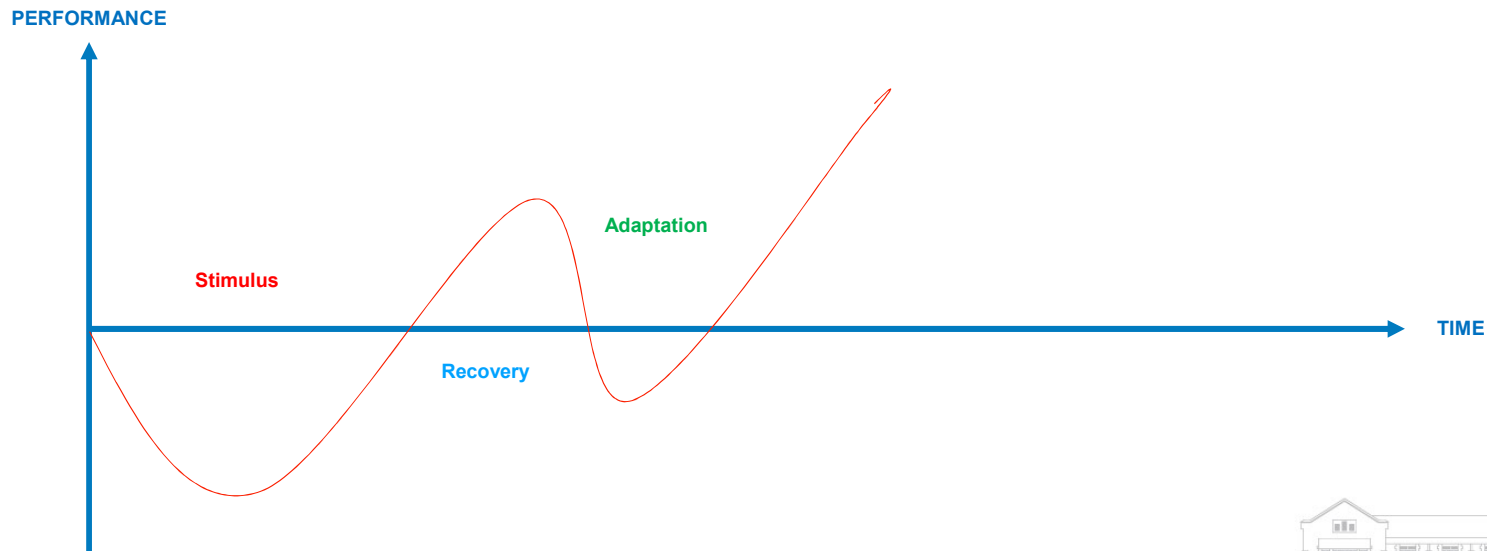
- Force = mass x acceleration

Neural-hormonal-metabolic:

- Force = musculoskeletal

- Musculoskeletel = neural-hormonal-metabolic

Stimulus-Responses-Adaptation

PERFORMANCE

Stimulus

Adaptation

Recovery

TIME

Interpretation based on Selye, H. (1946). The general adaptation syndrome and the diseases of adaptation. *The journal of clinical endocrinology, 6*(2), 117-230 [9].

Systematic Process

Goal Setting → What do the athlete's want?

Need Analysis →
- Sport's physical demand
- Athlete's physical state
- Surrounding factors

Training Plan →
- Microcycle
- Mesocycle
- Macrocycle

Programming → Manipulation of training variables / parameters

Monitoring →
- Test-retest
- Analysis

Effect →
- Discussion & conclusion

Modification →
- Enhancement

APPLICATION

Suggested Session's Plan

Briefings

↓

Gradual warm-up with dynamic stretching

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Fitness Activities / Games

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Cooling down

↓

Myofacial Release (foam rollers etc)

↓

Passive stretching

↓

Wrap-up
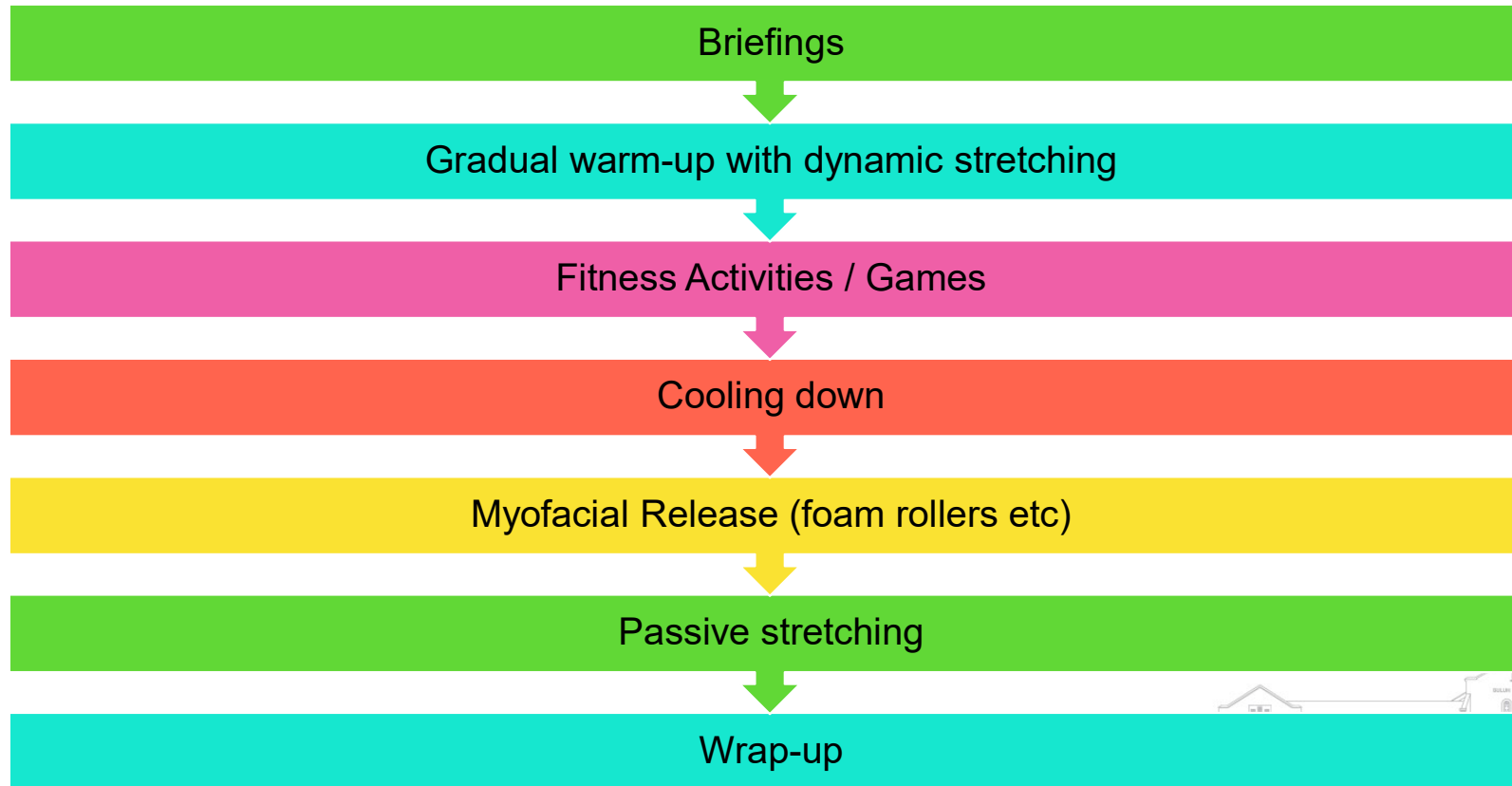
Sample Program

DAY	TRAINING FOCUS	SAMPLE ACTIVITY
1	Aerobic	Long Slow Distance (LSD). 45 min duration, 70% THR
2	Anaerobic	Strength Training Session 20 min (Program 1), Repeated Sprint 15m x 5 reps x 1set x 4min Rest Interval
3	Technique	
4	Active Rest	Swimming Pool activity (Program B) / Foam Rolling session
5	Aerobic	Repeated Sprint 15m x 5 reps x 5 set x ~1 min Rest Interval x 70-75% THR
6	Anaerobic	Strength Training Session 20 min (Program 1), Repeated Sprint 15m x 5 reps x 1set x 4min Rest Interval
7	FULL REST	SLEEP, EAT, RECOVERY MASSAGE

Suggested Flow of Exercises

Assisted → Body Weight → External Load → Fast/Explosive } For loading

Structural → Core } For type of exercises sequencing

Power based → Push → Pull → Core } For movement sequencing

Question

Do you know what is the best heart rate beats per minute for fat loss?

Selecting Intensity

EFFORT **EFFECT**

MAXIMUM 90-100% BENEFITS: HELPS FIT ATHLETES DEVELOP SPEED

HARD 80-90% BENEFITS: INCREASES MAXIMUM PERFORMANCE CAPACITY FOR SHORTER SESSIONS

MODERATE 70-80% BENEFITS: IMPROVES AEROBIC FITNESS

LIGHT 60-70% BENEFITS: IMPROVES BASIC ENDURANCE AND FAT BURNING

VERY LIGHT 50-60% BENEFITS: HELPS WITH RECOVERY

Image source: https://hamiltonsport.com/2019/01/heart-rate-training-part-1-why-zones/

Measuring Heart Rate

Carotid Pulse

Radial Pulse

Calculating Intensity

220-age X % desired

Example:
220-41 = 179
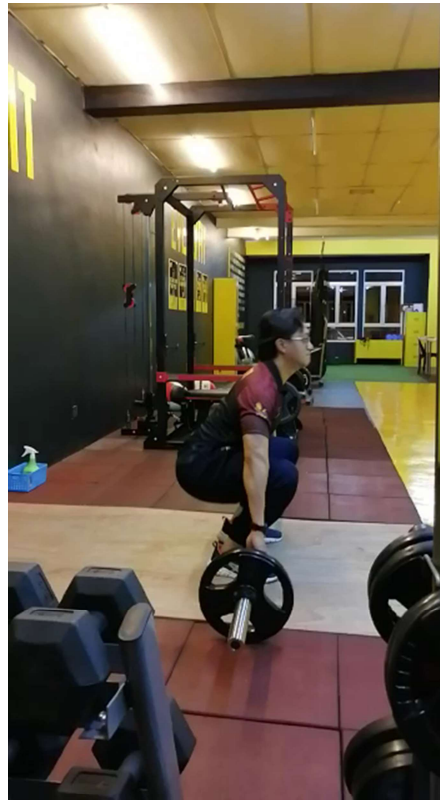
179 x (70/100) = 125.3 bpm

Let's Try This !

WORK 70% HRmax

Conclusion

- Exercise programming involves systematic process for safety and effectiveness.

- Qualified trained personnel suggested.

- Must have items: goal setting, need analysis, assessment, monitoring and modification.

Thank you

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