



**HPSI**  
HIGH PERFORMANCE  
SPORT INSTITUTE



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**RECOVERY IN COMPETITIVE SWIMMING:  
INTEGRATING SCIENCE WITH  
ATHLETE-CENTRED PRACTICE**

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# CONTENTS:

- 1 HPSI PHYSIOLOGY
- 2 DEFINING RECOVERY
- 3 COMMON RECOVERY STRATEGIES
- 4 WATER IMMERSION
- 5 HOT, COLD, BUBBLY?



# SPORT PHYSIOLOGY



## 1

### SYSTEMIC FUNCTION ANALYSIS

We fine-tune performance using data from

- **cardiovascular**
- **muscular**
- **metabolic** responses to exercise.

## 2

### OPTIMISING TRAINING ADAPTATIONS

We optimise training and adaptations by:

- understanding how the body adapts to **heat**, **altitude**, and other stressors.
- implementing individualised **recovery** strategies



# RECOVERY

WHAT DOES RECOVERY  
MEAN TO YOU?



join at [menti.com](https://menti.com)





# RECOVERY

- Recovery is an umbrella term
- Multi-faceted
- Biopsychosocial balance
- Can be characterized by different modalities of recovery such as:



PHYSIOLOGICAL

PSYCHOLOGICAL



(Recovery and Performance in Sport: Consensus Statement-  
Kellman & Michael, 2018)

# RECOVERY STRATEGIES

WHAT RECOVERY STRATEGIES  
DO YOU USUALLY USE?

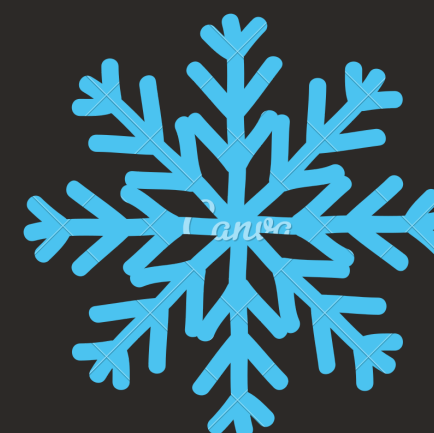
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# RECOVERY STRATEGIES



FOCUS: WATER IMMERSION



# COLD WATER IMMERSION



10-15 (°C), 10-15mins

**Benefits:** Reduced DOMS, Reduced markers of muscle damage

**When to use:** After high-intensity training, During multi-day competitions

**When to avoid:** After resistance training, Potentially NOT more than ONCE a week (mixed findings of long-term usage)



(Leeder et al., 2012; Dupuy et al., 2018)



# HOT WATER IMMERSION



~40 (°C), 10-15mins

**Benefits:** Stimulate limb blood flow, Potentially improve recovery for muscular strength & power

**When to use:** After resistance training

**When to avoid:** During intense training blocks/ high intensity endurance sessions



(Leeder et al., 2012; Dupuy et al., 2018)

# CONTRAST BATH



**Benefits:** Reduce DOMS, Perception of pain & fatigue

Contrast baths might beat doing nothing, but research shows they're not better than ice baths for post-ex recovery.

For ease and effectiveness, go for either or, not both!

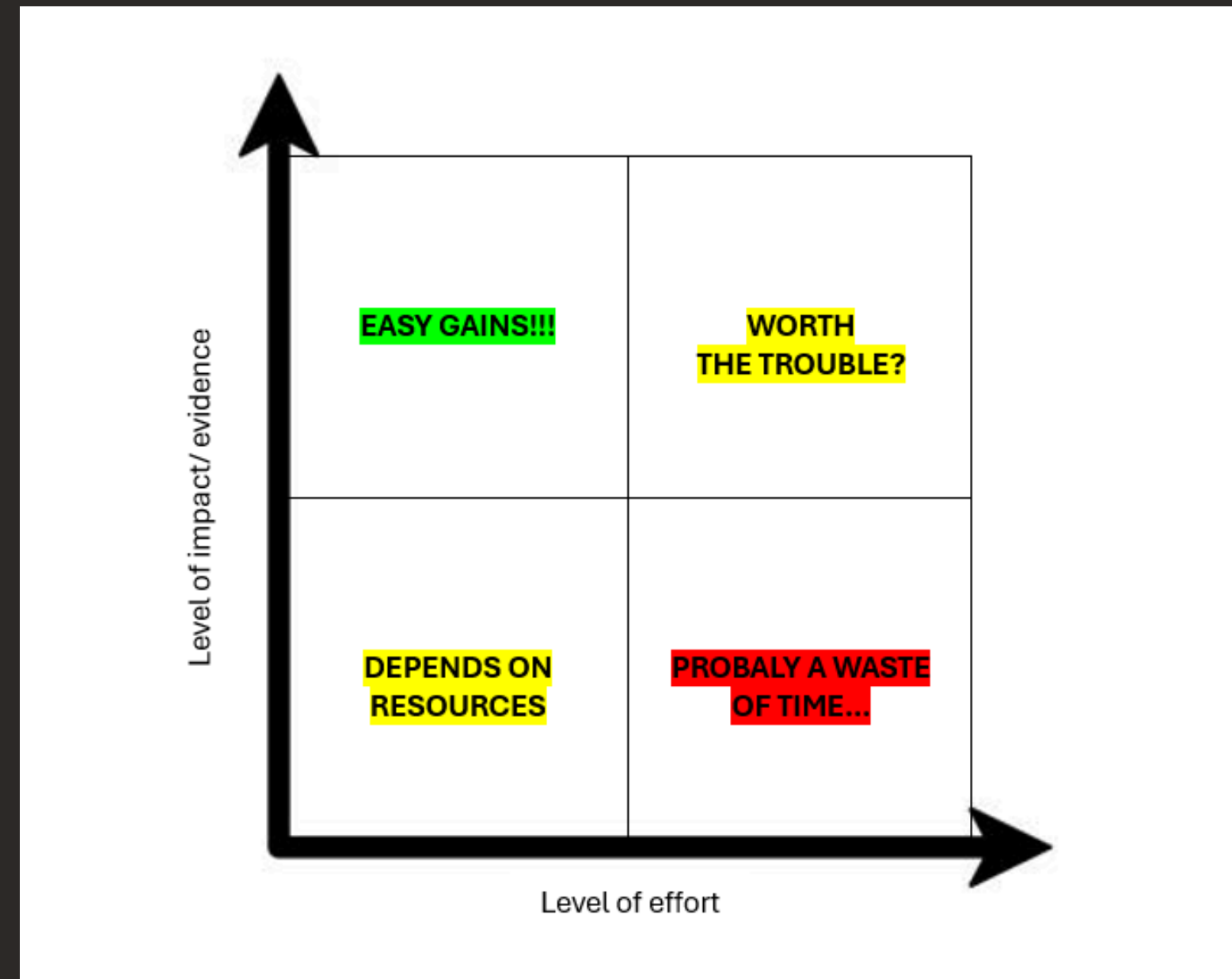


(Leeder et al., 2012; Dupuy et al., 2018)

# IMPACT VS EFFORT?

## TAKING INTO CONSIDERATION:

Sport Specific Requirements  
Accessibility of Equipment  
Price of Equipment

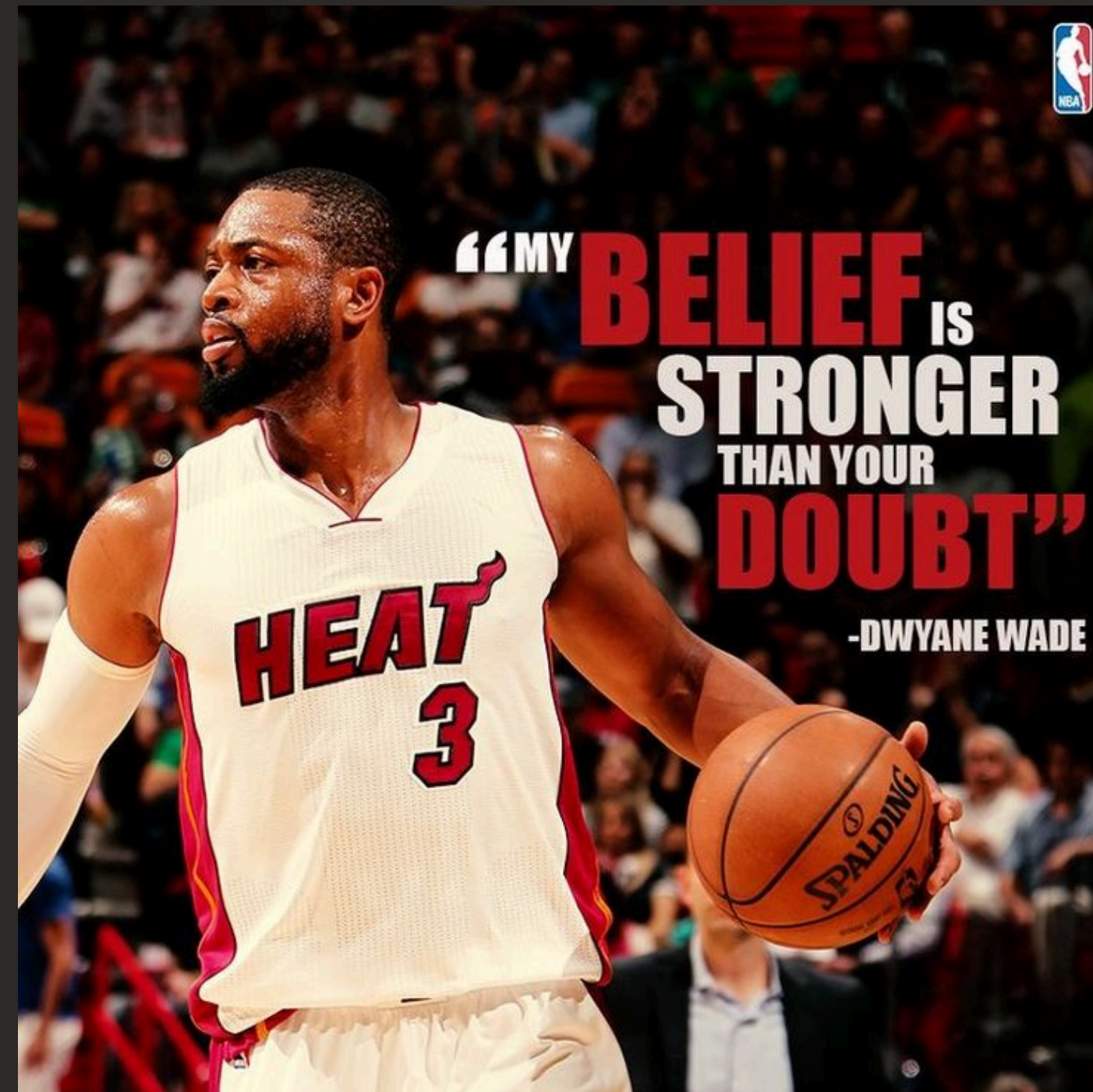




# THE BALANCE



INTEGRATING SCIENCE WITH  
ATHLETE-CENTRED PRACTICE





# SUMMARY.....



- Importance of big blocks of recovery- improve the good and reduce the bad.
- Evaluation of recovery strategy choices.
- Adapt recovery strategies- find the balances!



# PRACTICAL TIME!!!



What differences do you feel in hot, cold, CO2 immersion?  
Do the different strategies affect performance output?

Pre Handgrip → 3min Water Immersion → Post Handgrip

