Personal Training Academy

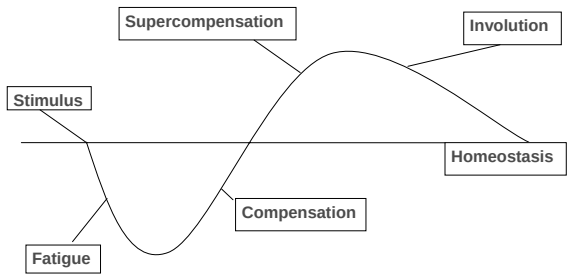
# Program Design For Hypertrophy & Body-Shaping

Paul Taylor & Craig Harper

## General Principles of Exercise Prescription

- Progressive Overload
  - Fundamental to continuous improvement
- Specificity
  - SAID Principle
- Individualisation
  - Specific stimulus
- Reversibility
  - Use it or lose it
- Recovery
  - Adaptation to stimulus
- Variety
  - Give your muscles a reason to change

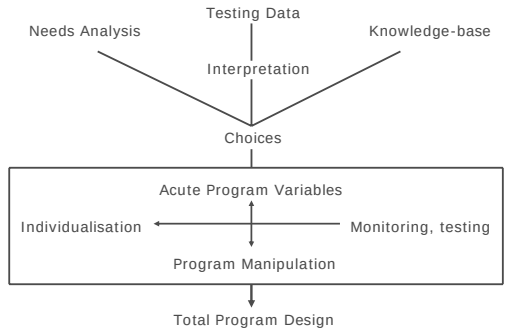
## The Supercompensation Cycle




## F.I.T.T.E . Principles

- Frequency
  - 2-5 per week
- Intensity
  - Individual & varied
- Time
  - 30-60 mins
- Type
  - Energy source & gravity/direction specificity, periodisation
- Enjoyment
  - Client retention!

## Model For Exercise Prescription




## Variable Components of a Program

Modified from:: Designing Resistance Training Programs 3rd ed. Fleck & Kraemer : Human Kinetics

**Choice of exercise**
Structural, isolated, multi-joint, contraction type, equipment type

**Order of exercise**
Exercise sequences, large vs small muscle groups, complex vs simple, high vs low skill

**Intensity**
Resistance used, power vs high load, muscle fibre type, repetition speed

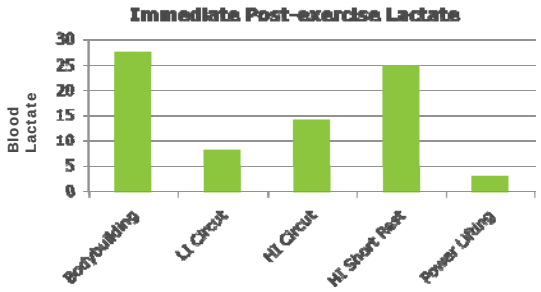
**Volume**
Number of sets, Number of reps

**Rest Periods**
Hormonal responses, lactate responses, energy system used

## Hormonal Requirements For Hypertrophy

- Testosterone
  - Large muscle mass
  - Relatively high intensity (70-85%)
- Growth Hormone
  - Lactic Acid

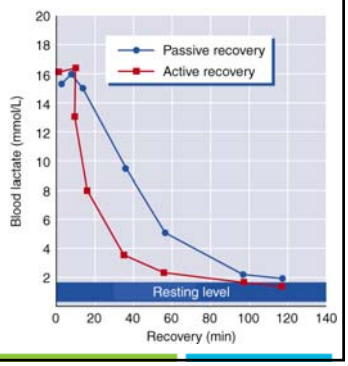
## Blood Lactate & Workout Type




Adapted from: Keul et al, 1978; Kraemer et al, 1987

## Dissipating Lactic Acid

- Low-intensity exercise
  - Increases oxygen uptake
- Mobilisers
  - Fascia
  - Blood flow
  - Between sets & as cool-down




## Loading techniques

- Ascending pyramid
- Descending pyramid
- Single set system
- Multiple set system
- Super set system
- Drop set system
- Circuit training
- Push-pull system
- Super-slow training (TUT)
- Negatives

## Periodisation Concepts

- Used to optimise strength, power & hypertrophy and to avoid overtraining
- Varies volume & intensity by the utilistion of macrocycles (usually 1 year) and mesocycles (two weeks to several months)
- Training volume is usually decreased as intensity increases
- Periodised programs consistently shown to result in greater strength gains

## Linear Periodisation

- Employs linear increases in intensity with concomitant reduction in volume
- Particularly useful in initial stages of training and in rehabilitation
- Developed for sports where major competition occurred annually or bi-annually
- Not as effective as undulating periodisation in the long-term, as decreasing volume does not support hypertrophy

## Linear Periodisation

| | | |
|---|---|---|
| Microcycle 1 (Preparation) | 1 to 3 sets of 12 to 15 RM | Very high volume (number of exercises) |
| Microcycle 2 (Hypertrophy) | 3 to 4 sets of 8 to 12 RM | Very high volume |
| Microcycle 3 (Strength) | 3 to 5 sets of 2 to 6 RM | High Volume |
| Microcycle 4 (Power) | 3 to 5 sets of 2 to 8 RM (varied speeds) | Moderate |
| Microcycle 5 (1-2 weeks of peaking) | Active rest/rest OR Competition followed by active rest/rest | Low to Moderate |

## Non-Linear (Undulating) Periodisation

- The concept of alternating periods of high volume training (hypertrophy) with periods of high intensity training (neural)
- Used to avoid physiological and psychological stagnation from continued emphasis on volume or intensity
- Can be varied each training session, each week or fortnight

## Non-Linear Periodisation - Per Training Session

| | |
|---|---|
| Monday- Light | 1- 2 sets of 13 - 15 RM |
| Wednesday - Moderate | 2 - 3 sets of 8 - 10 RM |
| Friday - High | 3 - 4 sets of 4 - 6 RM |
| Monday - Power | Power/plyometric workout |
| Wednesday - Light | 1 - 2 sets of 15 – 20 RM |
| Friday - High | 4 sets of 2 - 3 RM |

The protocol uses a 4-day roatation with 1 day rest between workouts

## Program design considerations

- Always perform muscle testing and start with a base foundation
- Set realistic goals for every session – keep sight of long-range goals
- Record acute variables such as load, tempo, rest, reps and sets
- Note performance fluctuations and fatigue levels
- Increase training according to loading principles
- Schedule training over entire year
- Schedule periodic assessments
- Consider gravity orientation & functional anatomy
- Can mix periodisation models to suit a sport

## Beginner Progression

- Huge window of adaptation
- Large Neural Adaptations in first 12 weeks
- Increasing weight
- Changing exercises
- Changing number of sets
- Changing number of repetitions
- Introduce instability

## Intermediate - Advanced Progression

- Decreasing window of adaptation
- Increasing weight
- Changing exercises
- Changing order of exercises
- Changing number of sets
- Changing number of repetitions
- Changing speed of movement
- Changing rest interval
- Adding more intense training methods e.g. drop sets, pre-fatigue, super-sets
- Adding more volume through more exercises on each body part, split program
- Increase instability