STRENGTH TRAINING AND CONDITIONING IN TRIATHLON

- PHYSICAL DEMANDS
- PREPARATION
- FREQUENT INJURIES AND PREVENTION

Figure 1: Illustration of the three disciplines in triathlon. Obtained from https://www.spreadshirt.ie/shop/design/triathlon+logo+bike+run+swim+triathlete+sticker-D5f3aa5995fd3e41a951e1475?sellable=XyVARyx1nQu17ZNwb11y-1459-215

PHYSICAL DEMANDS

(SLEIVERT & ROWLANDS, 2012; NIYAZOVA & BAXIMOVA, 2021)

- Perform in three different disciplines
- Develop characteristics that are a blend of the characteristics in endurance swimming, cycling and running
- High VO2 max levels
- Perform good → these abilities, especially endurance

Influence of physical qualities and physique on performance in the sport of triathlon

Physical qualities and physique	The level of influence	Symbols
Speed abilities	2	average influence
Muscle strength	2	average influence
Vestibular stability	2	average influence
Endurance	3	significant influence
Flexibility	2	average influence
Coordination abilities	2	average influence
Body type	2	average influence

*Symbols:

3 - Significant impact; 2 - average impact; 1 - minor impact

Figure 2: Table over the influence of physical qualities and physique on performance in triathlon. Obtained from https://cyberleninka.ru/article/n/analysis-of-physical-fitness-of-triathletes-at-the-stage-of-improving-sports-skills/viewer

TRAINING

(ETXEBARRIA ET AL., 2019)

- Well-organized and periodized training program
- Peak performance alligned with the competitions
- Most use the traditional periodization as basic guidelines → preparatory, competitive and transition periods
  - Preparatory → lower intensity, higher volume for aerobic endurance and technique. Strength training
  - Competitive → specific race preparation, increased intensity, interval training and speed work
  - Transition → bridge between two faces. Rest phase, recovering while maintaining a level of fitness, lower intensity and lower volume

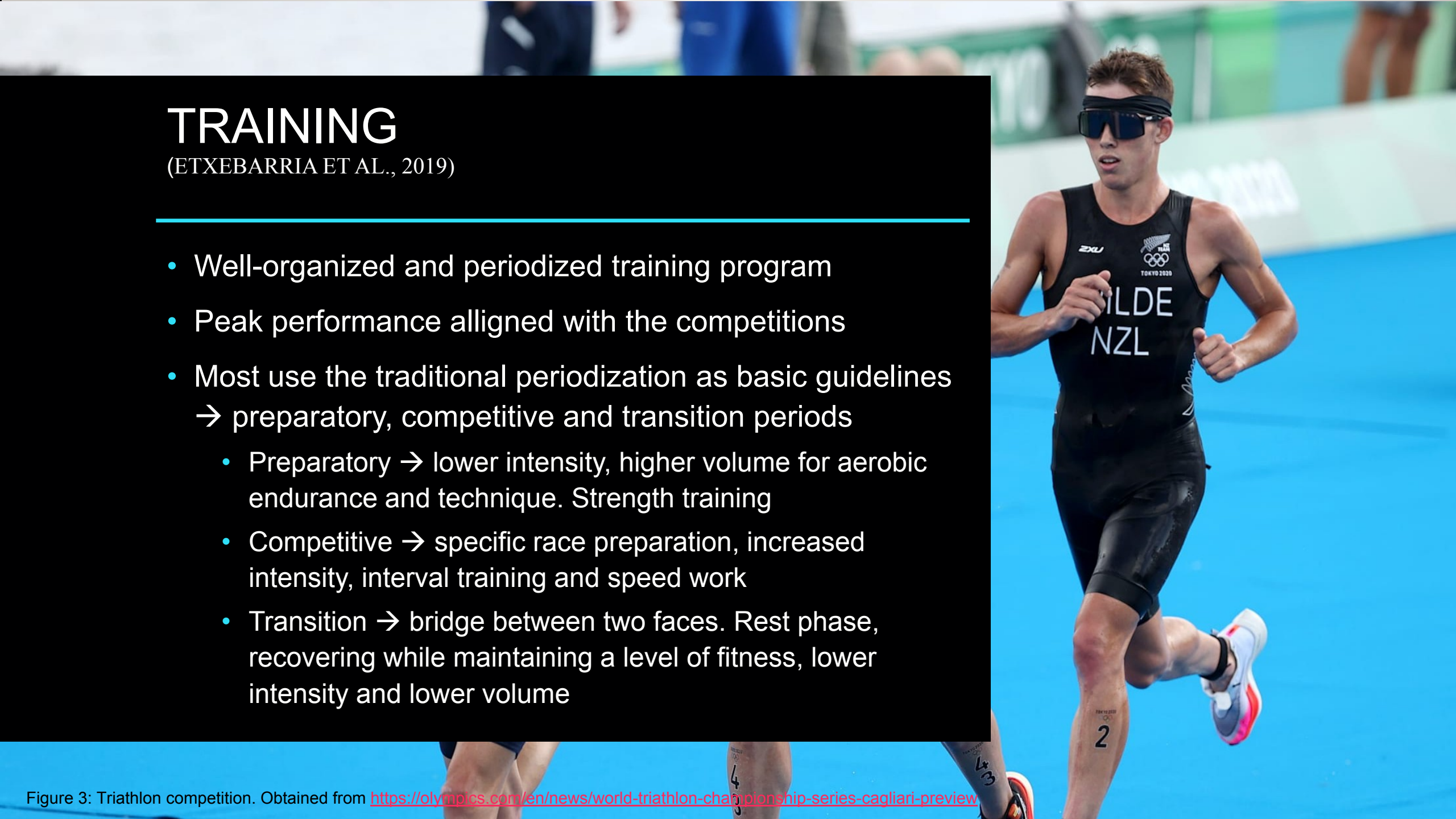

Figure 3: Triathlon competition. Obtained from https://olympics.com/en/news/world-triathlon-championship-series-cagliari-preview

PREPARATION/OFF-SEASON

(CEJUELA & SELLÉS-PEREZ, 2022)

- Study from 2022 that followed a male elite triathlete towards the Olympics in Tokyo 2020
- Preparation for 43 weeks
- General preparation period from week 1-14 → increasing in volume progressively, most of the trainings in low to moderate intensity
- Specific preparatory period from week 15-30 → two altitude camps
  - Develop higher training zones, closer to race intensity

Figure 4: Triathlon competition. Obtained from https://circledna.com/blog/do-you-have-what-it-takes-to-participate-in-a-triathlon/

COMPETITION PERIOD

(CEJUELA & SELLÉS-PEREZ, 2022)

- First competition period lasted 5 weeks, from week 31-35
- Performed two olympic distance competitions
- Tapering period during these weeks → reduce load to achieve supercompensation and improve recovery
- Decreased volume, maintained high intensity training
- 5-week training block from week 36-40 → specific preparations for Tokyo, increased the load again
- 2-week tapering period in week 41-42 → supercompensation

Figure 5: Triathlon competition. Obtained from https://www.mapquest.com/travel/outdoor-activities/triathlons/triathlon-distances.htm

STRENGTH TRAINING

(CEJUELA & SELLÉS-PEREZ, 2022)

- Two weekly strength sessions during the most part of the season
- Multi-joint exercises for upper and lower body
  - Movements over several joints and muscle groups.
  - Squats, deadlifts, bench press, pull-ups.
- Loads from 55-75% of 1RM
- 2-4 sets per exercise
- 4-8 reps per set
- Complementary exercises 3-4 days per week → hip, ankle and shoulder mobility, core training
- Achilles tendon prevention

Figure 6: Triathlon competition. Obtained from https://edition.cnn.com/2021/07/26/sport/men-triathlon-tokyo-2020-false-start-scli-intl-spt/index.html

INJURIES AND PREVENTION

(ANDERSEN ET AL, 2013; RHIND ET AL., 2022; KIENSTRA ET AL., 2017; ETXEBARRIA ET AL., 2019)

- Overuse injuries
- Knee, lower leg, lower back, shoulder
- 3 disciplines at the same time will result in high total load → training load, appropriate changes in volume and adequate recovery
- Strength training effective to prevent injuries
- The athlete performed multi-joint strength exercises for muscle endurance and joint stability
- Mobility exercises
- Specific injury prevention exercises
- Be careful with compensating by increasing volume another discipline

Figure 7: Triathlon competition. Obtained from https://mgoblue.com/news/2021/7/30/olympics-michigan-olympic-updates-womens-triathlon

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