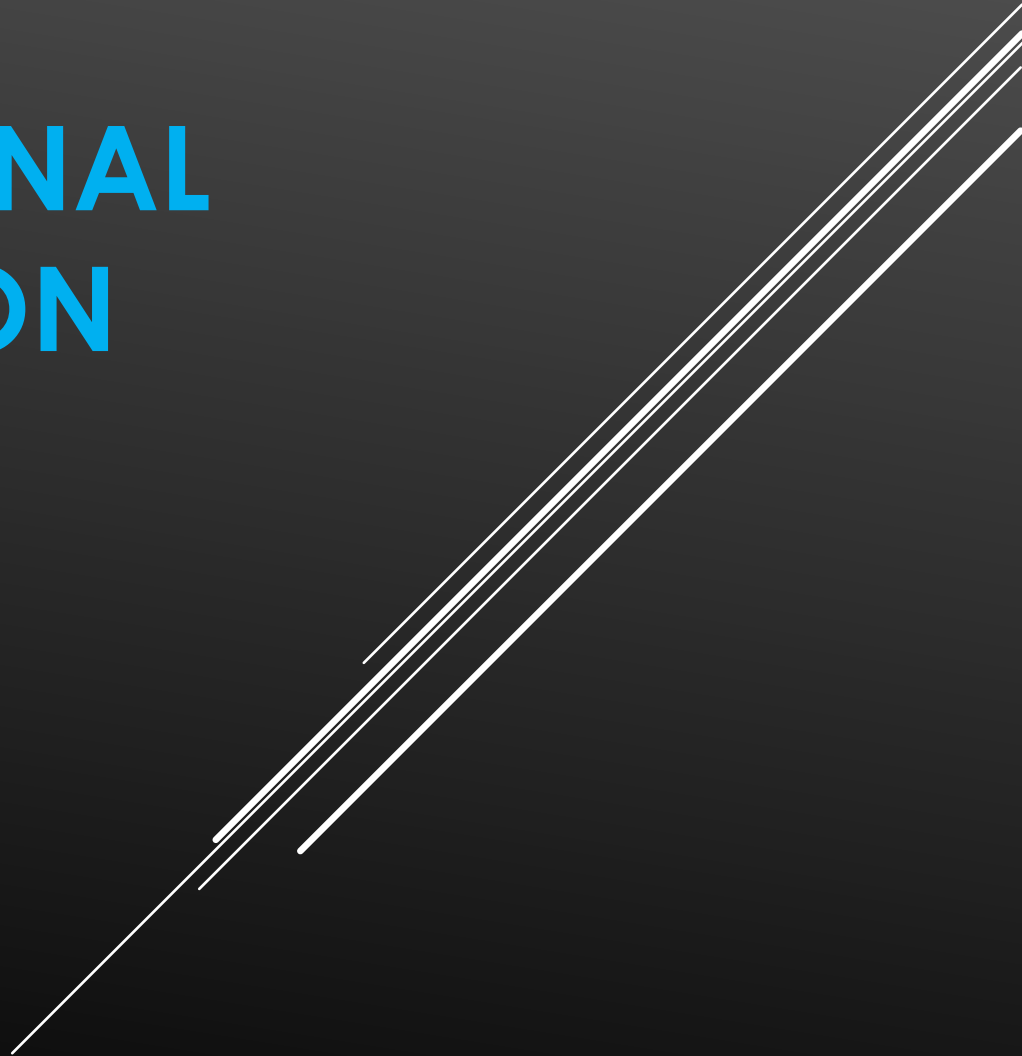


HANDBALL ACL FUNCTIONAL REHABILITATION

Dr. Lior Laver, MD

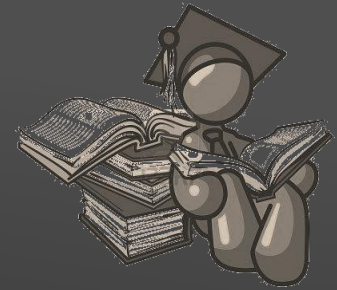
Antonio Delo Iacono, PhD



Biomechanical and functional effects of a progressive re-education program following ACL tear



Evidence Based Medicine (Science)



in cooperation with.....



Experience Based Evidence (Field)



long term strategies leading to...



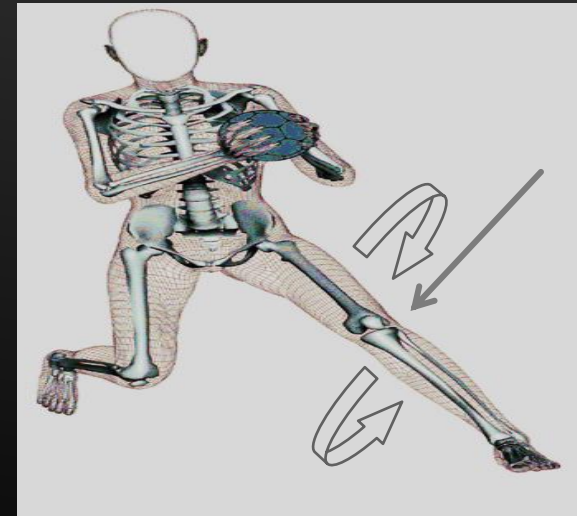
Case Presentation



- Age: 28 years
- Height: 184 cm
- Weight: 92 kg
- Role: Pivot
- No relevant previous lower limbs` injuries

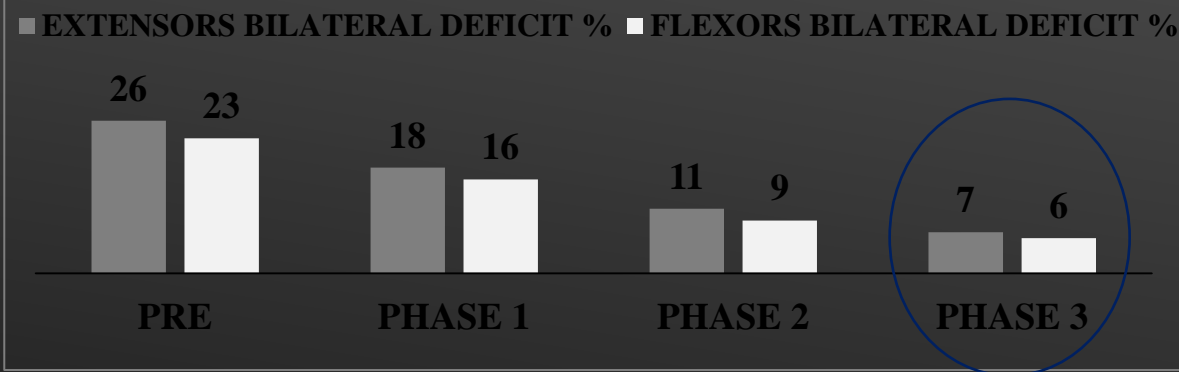
Injury Mechanisms

- Non-contact nature
- Cutting/turning movement
- Knee valgus pattern
- High knee abduction moment
- “Knee-knock” position



Biomechanical/Functional Assessment

ISOKINETIC TEST 60°/s



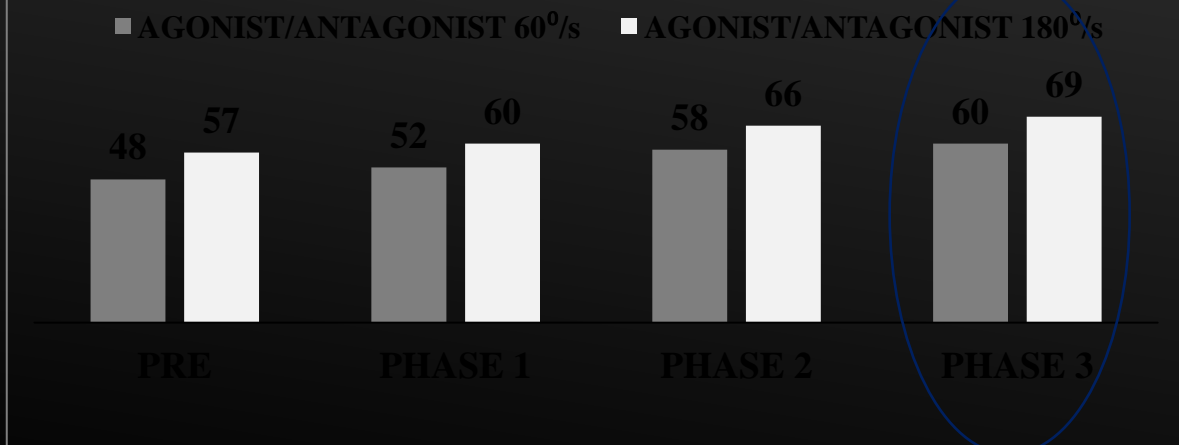
NORMATIVE DATA

INTER-LIMBS DIFFERENCE < 10%

RATIO AT SLOW SPEED ≈ 60%

RATIO AT HIGH SPEED ≈ 70%

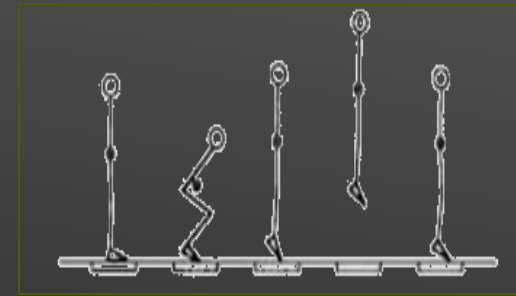
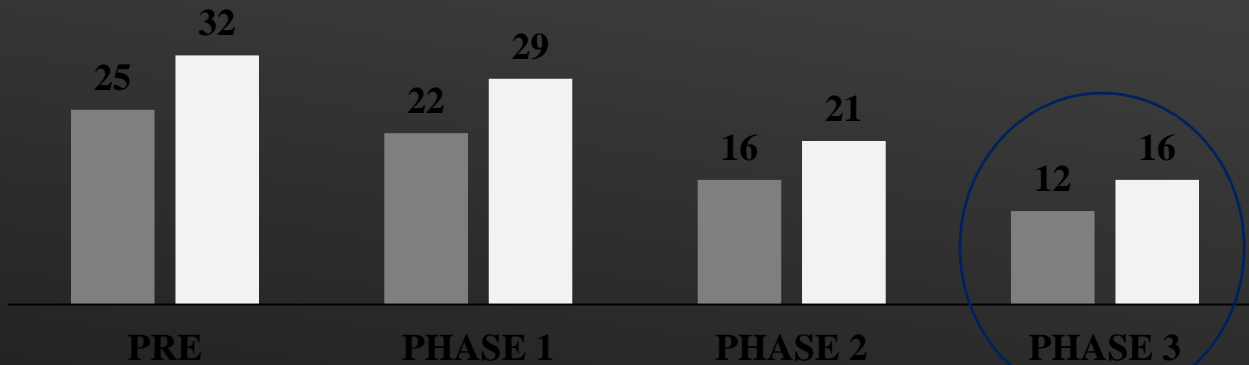
RATIOS %



Biomechanical/Functional Assessment #2

SINGLE LEG VERTICAL JUMP TEST

■ INTERLIMBS DIFFERENCE % ■ INTERLIMBS DIFFERENCE % (POST-FATIGUE)



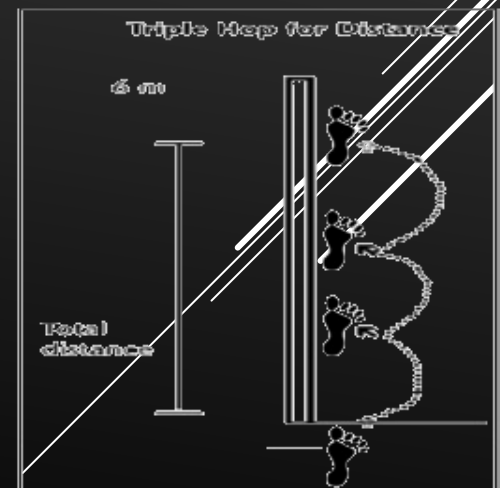
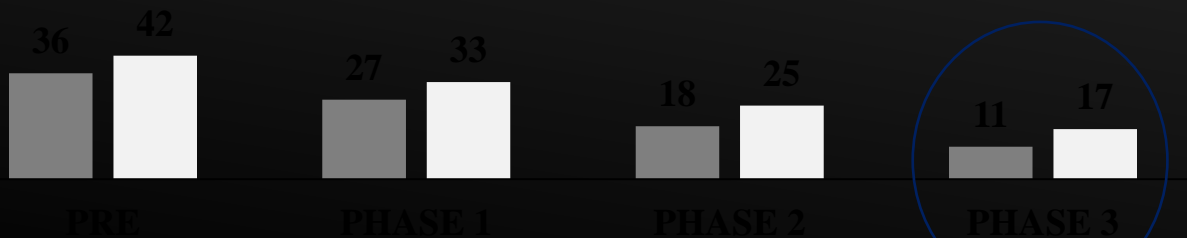
NORMATIVE DATA

INTER-LIMBS DIFFERENCE

< 15%

TRIPLE HOP FOR DISTANCE

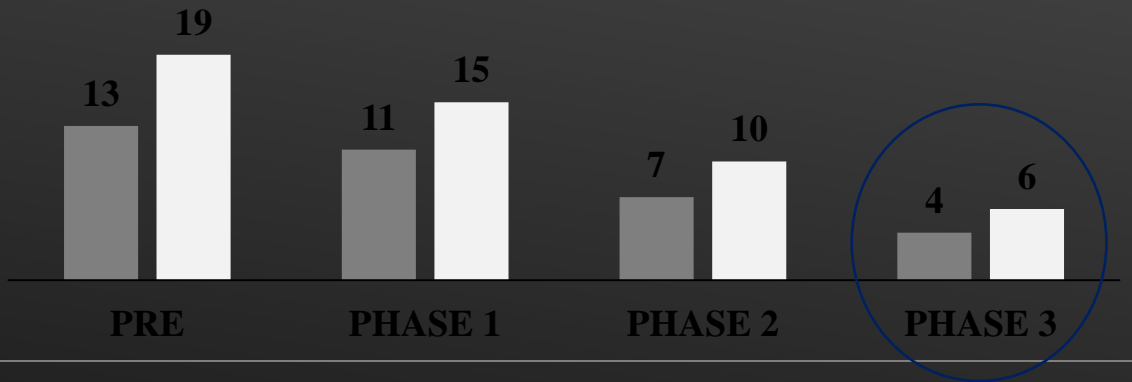
■ INTERLIMBS DIFFERENCE % ■ INTERLIMBS DIFFERENCE % (POST-FATIGUE)



Biomechanical/Functional Assessment #3

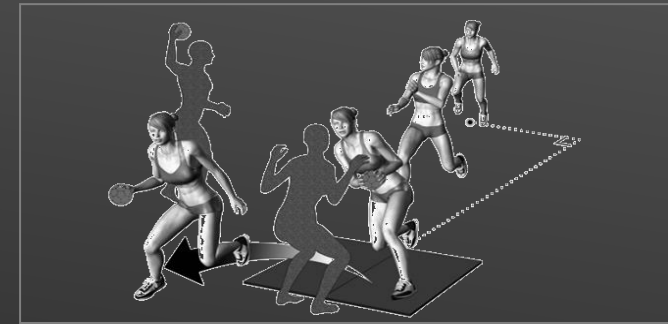
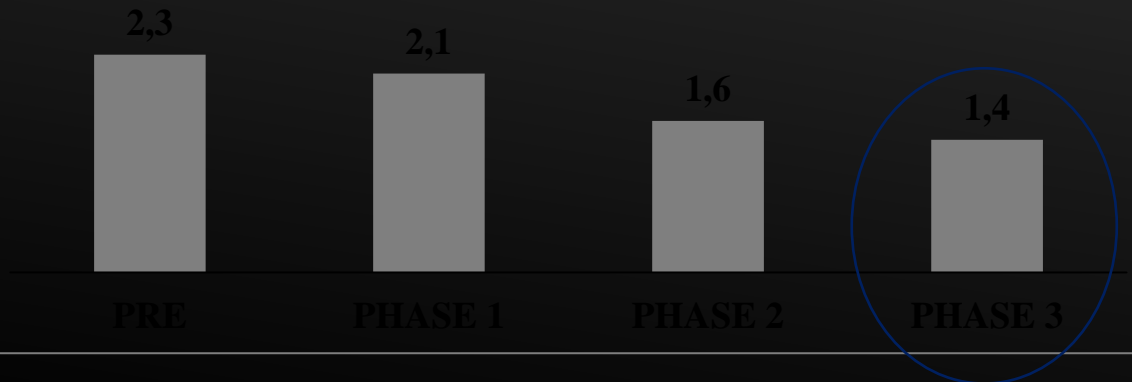
SIDE STEP CUTTING TEST

- KNEE VALGUS ($^{\circ}$) AT INITIAL CONTACT
- FOOT ROTATION ($^{\circ}$) AT INITIAL CONTACT

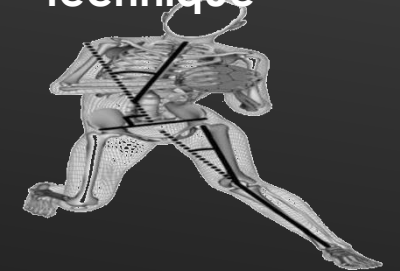


SIDE STEP CUTTING TEST

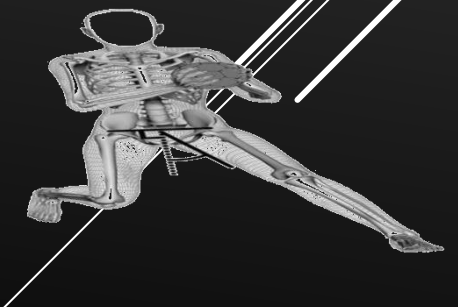
- MAX KNEE ABDUCTION MOMENT (Nm/Kg)



Pre-intervention cutting technique

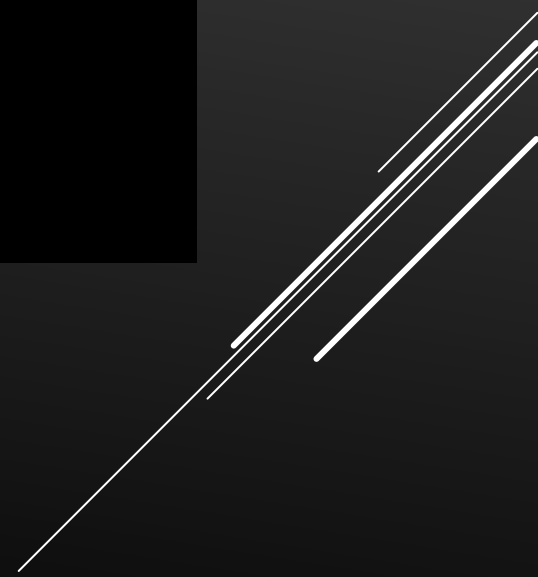


After 9-week intervention cutting technique





Lower Quarter Y Balance Test

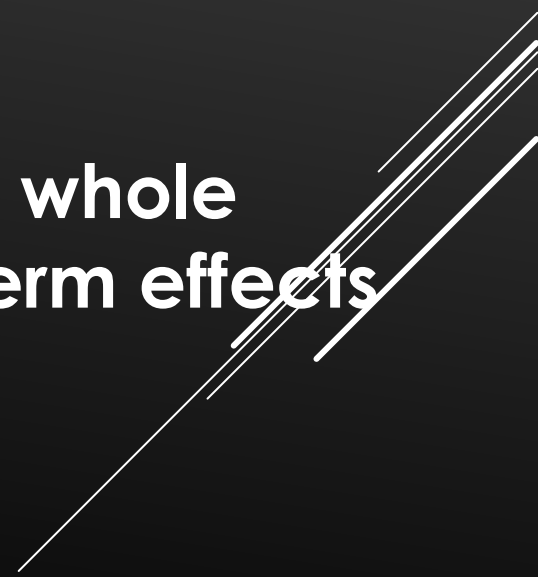




CREATIVE STIMULATION



Conclusion and Clinical Relevance

- **Successful effects – Specific requirements**
 - **Design, periodization, optimal duration**
 - **Further strategies (over the whole competitive season) for long term effects**
- 
- A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, located in the lower right quadrant of the slide.





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Traumatology



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THANK YOU!

