Wrist and hand Injuries in Diving Practice

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But what about lesion of the wrist in platform diving?

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In page 9 of « l’Equipe » the French Sports newspaper

Results of the French championship

Wrist and hand Injuries in Platform Diving

21 divers 14 male, 7 female
14 to 28 years (mean: 21 y.)
No pain 3
Occasional or frequent pain 18 (86%)
– Pain when diving 18
– Pain required medical care 9
– Pain required surgery 2
– Pain affecting their job 2

Position of the hands and wrists in water entry

To provide a smooth water entry and avoid splashes

Fists closed 3
Supposed hands 18

Thumb held in the palm of the dominant hand

Dominant hand overlap the other hand, wrist and fingers in extension and radial deviation

Wrist and hand Injuries in Platform Diving

Position of the hands and wrists in water entry

Wrist and hand Injuries in Platform Diving

In a good water entry the diver’s body enter in water without splashes with a characteristic noise

In page 9 of « l’Equipe » the French Sports newspaper

photo of the swimming pool from the 10 meters platform

Wrist and hand Injuries in platform diving.

Duration of dive
1,4 second
Wrist and hand Injuries in Platform Diving

We have missed a lot of photos.

Wrist and hand Injuries in Platform Diving

Until we take good pictures explaining the lesion of the wrist.

Water hole created by the impact of the hands on the water surface.

Wrist and hand Injuries in Platform Diving

We have used
- A videocamera
- For air evolution
- For the air-water interface
- And an underwater camera
  - The film was analysed
  - With time decomposition (25 images/s)
  - And recomposed and computer.

Normal speed

Kinetic analysis of the platform pathology

We have used
- A videocamera
- For air evolution
- For the air-water interface
- And an underwater camera
  - The film was analysed
  - With time decomposition (25 images/s)
  - And recomposed and computer.

Duration of dive: 1.4 second.
When hitting water the body speed is suddenly reduced, slowing from 51 km/h to 33 km/h.

The variation of speed does not change during the entry of the body.

Air speed: 51 km/h
Water speed: 33 km/h

Kinetic computer decomposition

0.00s 0.04s 0.08s 0.12s

0.16 second

The entire body is included in the turbulence cone.

Fists closed.

The variation of speed does not change during the entry of the body.

Fists closed.

Wrist and hand injuries in Platform Diving

Pathology function of water entry: 21 divers

- 18 Fractures
  - 7 wrist++, metacarpal, thumb
  - 11 Strapping for sprains
  - 2 Surgery

175 cm
Braking effect ++ 175 cm²
Radial aspect of the wrist
Dominant hand

16 pains / 18 divers (89%)

Superposed hands have a more pronounced braking effect.

85 cm²
Less braking effect 85 cm²
Thump, trapezio-metacarpal wrist are
None dominant hand

3 pains / 3 divers (100%)

Superposed hands have a more pronounced braking effect.
Institut de la Main

Wrist and hand Injuries in Platform Diving

Case N° 1 PIE, Frédéric
Born the 03/07/69
2 time French champion
23 th. O.G. Séoul 88
- operated L. wrist 3/9/89
- operated R. wrist 3/8/90
S.T.T. chondrolysis
19 th. O.G. Barcelone 1992
8 th. O.G. Sydney 2000

Case 2: Mrs. JAI... Marielle
Born the 13/02/66
5 time French Champion
- operated 26/3/90 R. wrist
- operated 20/11/91 L. hook
3 th. Europe championship 1993
stop diving in 1995

Wrist and hand Injuries in Platform Diving

Other lesions:
cervical syne
Elbow arthrosis
in old diver

Training
20 h by week
12 h to dive
Duration of the dive: 1.4 s
20 dives per h = 240 dives / week
Muscular training neglected
Small sizes athletes advantaged
Forbidden for less than 15 y. in France

Conclusion

Thank you
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