Optiknee Consensus Paper

Adolescents and young adults who undertake sports are at a higher risk of traumatic knee injuries such as ACL (Anterior Cruciate Ligament) and meniscal tears. This population is significantly more likely to suffer Post Traumatic Knee Osteoarthritis (PTOA). The rate of joint replacement and arthroplasty in this group is 6 times more than in the general population.



A consensus group comprising of 36 expert physios, physicians, and scientists as well as patients with previous knee injuries from 9 different countries formed to look at the research data on PTOA. The aim of the group was to look at:

- WHO to target to prevent post traumatic knee OA.
- WHAT and WHEN to target to prevent post traumatic knee OA.
- WHAT to do after ACL tear.
- WHAT to monitor after knee injury.
- HOW to monitor.
    - Patient reported outcomes after knee injury.

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- Muscle function after knee injury.
- Functional performance after knee injury.

- INTERPRETING patient reported outcomes, muscle function and functional performance.

The reviews included over 230 studies and data from 130,000 individuals with traumatic knee injuries, with a focus on ACL and meniscal tears. From reviews of the data compiled, the group came up with the eight clinical recommendations tabled below.

TABLE 1 - CLINICAL RECOMMENDATIONS TO PREVENT POST-TRAUMATIC KNEE OSTEOARTHRITIS AND OPTIMIZE KNEE HEALTH

Clinical recommendation		Description
1	Target population	Individuals with single and multi-structure injuries, especially those whose symptoms or impairments linger longer than normal and those who sustain a subsequent injury
2	Prevention targets and timing	Person-centered education, self-management, and mitigation of risk factors (e.g., weight gain, inactivity, muscle weakness), starting as soon as possible post-injury and continuing in perpetuity
3	ACL tear treatment and rehabilitation	Education plus exercise- and criterion-based rehabilitation that incorporates patient preferences and begins under supervision and continues into self-management; specific, measurable, attainable, relevant, and timebound (SMART) goals to promote adherence
4	Monitoring of clinical outcomes*	Knee pain and other symptoms, episodes of giving way or locking, cognitive behavioral factors, physical function, quality of life, physical activity (e.g., step count), sports participation, and subsequent injuries

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5	Monitoring of patient-reported outcomes*	Monitor multiple domains with the International Knee Documentation Committee Subjective Knee Form (IKDC-SKF), Knee Injury and Osteoarthritis Outcome Score (KOOS), and Western Ontario Meniscal Evaluation Tool (WOMET); monitor single domains such as pain and injury-related mental health (e.g., anxiety, depression) when more in-depth information is needed
6	Monitoring of muscle function*†	Peak knee extensor and flexor strength using concentric isokinetic dynamometry (≥60°/s), hand-held isometric dynamometry, or weight machines (isotonic 1-repetition maximum knee extension and leg curl, average of at least two trials)
7	Monitoring of functional performance*†	A battery of forward, diagonal, and vertical hop tests (e.g., crossover hop, single hop, triple hop, 6-meter timed hop, and vertical hop) as well as balance and agility tests
8	Interpretation of monitoring	Document baseline and follow-up scores; ask patient about meaningfulness and acceptability of the changes and outcomes, both in terms of total scores and individual items

One of the main recommendations from the group was a change in thinking regarding management of ACL tears, which have previously been managed quite aggressively with surgery in Australia and around the world. The group advocated delaying surgery on ACL injuries until the knee had settled and patients had managed to undertake appropriate conservative rehabilitation without achieving what they felt was an appropriate level of function in the knee.

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