

Supplementary Table I. The influence of smoking on meniscus surgery and clinical outcomes(studies on meniscus repair surgery marked with asterisk).

Author	Mean follow-up	BM I	Type of injury	Surgical implications	Outcomes	Overall effect
Johnsen et al. [1]	n/a	26.7	50% of meniscus injuries in smokers were degenerative; 59.3% of meniscus injuries in non-smokers were degenerative	n/a	The prevalence of knee OA in patients with meniscus tear was 37.7% (52 of 138) in current smokers and 45.0% (217 of 482) in non-smokers; there was no statistically significant relationship between current smoking and knee OA	Neutral
Moses et al. [2]*	39.9 months	25	38 medial meniscus ruptures (74.5%), 13 lateral meniscus ruptures (25.5%); 28 of the 51 patients (54.9%) had a concomitant ACL injury	38 medial meniscus repairs (74.5%), 13 lateral meniscus repairs (25.5%); 28 of the 51 patients (54.9%) had a concomitant primary ACL reconstruction (24 patients) and revision ACL reconstruction (4 patients)	There was no association between smoking and failed meniscus repair (p=0.7706)	Neutral
Buyukkusu et al. [3]*	31.1 months	n/a	Medial meniscus tear and chondropathy in >90% of patients, (chronic tears >8weeks, longitudinal, 1-3 cm) Zones: red-red (42.4%) and red-white (57.6%)	n/a	The preoperative and postoperative Lysholm and IKDC scores did not significantly differ in the smoker and non-smoker groups (p>0.05) There was no statistically significant difference between the smokers and non-smokers in terms of the distribution of patients with at least one physical examination finding before and after surgery (p>0.05)	Neutral

Laurendon et al. [4]*	31 months	n/a	<p>58.6% of lesions (n=51) concerned the medial meniscus, 36.8% (n=32) the lateral meniscus, and 4.6% (n=4) both</p> <p>61% (n=53) involved one segment, 25.3% (n=22) two, and 13.8% (n=12) three (bucket-handle lesion).</p> <p>70% had a concurrent ACL injury</p>	n/a	Smoking was not associated with failure after all-inside meniscus repair	Neutral
Astur et al. [5]	6 months	n/a	<p>107 patients had an isolated ACL injury (group 1), 72 an ACL tear associated with the meniscal injury (group 2), and 60 cases had an isolated meniscal injury (group 3).</p>	n/a	6 months after the surgical treatment, there was no difference in quality of life between the groups assessed	Neutral
Haviv et al. [6]	13.5 months	26.9	<p>Meniscus tear patterns: bucket handle 24 (12%), radial 55 (28%), discoid 6 (3%), degenerative 110 (55%)</p> <p>Cruciate ligaments tears 23 (11%)</p>	Partial meniscectomy	Smoking was not correlated with worse post-operative function	Neutral

<p>Beletsky et al. [7]</p>	<p>24 months</p>	<p>25.9</p>	<p>Meniscus tear patterns: degenerative 52 (41.27%), complex 26 (21.43%), flap 20 (15.75%), radial 18 (14.29%), root 11 (8.66%), oblique 6 (4.76%), bucket handle 5 (5.56%), vertical 4 (3.17%), discoid 1 (0.79%)</p> <p>Pre-existing arthritis had 89 patients (70.6%) Osteochondral defects had 32 patients (25.4%)</p>		<p>Important factors for consideration of the timeline of achieving clinically significant outcome doesn't include smoking</p>	<p>Neutral</p>
<p>MOON Knee Group et al.[8]</p>	<p>6 years</p>	<p>24.9</p>	<p>ACL tears in all population</p>	<p>Primary ACL repair in 3059 subjects, revision in 217 subjects reconstruction type</p> <p>Medial meniscal repair and/or meniscectomy occurring almost twice as frequently as lateral meniscal repair and/or meniscectomy (7.4% vs 4.3%, respectively)</p>	<p>Patients who had quit smoking (compared with nonsmokers) had greater likelihood of subsequent meniscal surgery</p>	<p>Neutral</p>

Zabrzyński et al. [9]*	6 months	n/a	37 patients had simple medial meniscus tear (longitudinal, radial, horizontal) and 13 patients had complex medial meniscus tear	All-inside sutures used in meniscal repairs was 3 (range 2–7; SD = 1.2).	No association was found between smoking indices and functional outcomes after all-inside repair of chronic medial meniscus tear.	Neutral
Blackwell et al.[10]*	13 months	26.5	Meniscus injury + ACL tears in 71% of patients	All-inside suture - 37 (71 %),inside-out -13 (25 %), outside-in - 2 (4 %)	15 failures in 56 menisci; 27 % failure risk (p=0.0076); the risk of meniscus repair failure was 3.8 times higher for smokers compared to non-smokers	Negative
Uzun et al. [11]*	63.2 months	n/a	Lateral meniscus tears; including 22 (51.2%) for vertical longitudinal tears and 21 (48.8%) for bucket-handle tears Zones: red-red 23, red-white 20 ACL tears in 17/43	All-inside suture in 33, and hybrid method in 10	Smoking was identified as a risk factor for repair failure. Smokers were found to have a higher rate of repair failure for both vertical longitudinal and bucket-handle repairs (P < .05). Three of these patients (4 failures) were smokers, their meniscal tears were located in the RW zone, and a horizontal or oblique mattress configuration was used in their repairs. the failure rate among smokers was 25.0% (3 failures among 12 repairs) compared with 3.2% for nonsmokers (1 failure among 31 repairs).	Negative
Uzun et al. [12]*	51.2 months	n/a	Bucket handle tears in 67% Zones: red-red - 62.5%, red-white - 37.5% ACL tears in 56/80	The mean time between trauma and surgery was 5.6 weeks	Failure rates were higher for smokers than for nonsmokers (9/24, 37.5% vs 3/56, 5.3%; P=0.008). Higher failure rates were detected in red-white zone repairs compared with red-red zone repairs (10/30, 33.3% vs 2/50, 4%)(P=0.004), when repairs were >8 weeks after injury (12/45, 26.6% vs 0/35, 0%)(P=0.008) and in smokers (9/24, 37.5% vs 3/56, 5.3%)(P=0.008)	Negative
Basques et al. [13]*	n/a	17.1	n/a	Meniscectomy	Smokers have an increased odds of readmission (OR, 1.67;P=0.033)	Negative
Haklar et al. [14]*	48.39 months	n/a	85/112 of medial	The mean time between trauma and	Among patients with isolated meniscal tears (n =23), the length of tear, smoking status, and suture type	Negative

			meniscus tears were 2 cm in length; full thickness tears in 66 (58.9%) cases and partial thickness tears in 46 (41.1%) cases ACL tears in 89/112	surgery was 122.62 days Double vertical sutures were used for full-thickness tears, and single vertical sutures were used for partial-thickness tears	had no significant effect on healing (P=0.05) Based on univariate analysis including all patients (n =112), concurrent ACL reconstruction at the time of meniscal repair, type of tear (full or partial thickness), length of tear, and smoking significantly affected meniscal healing(P=0.05)	
Franovic et al. [15]	3 months after surgery	31.5	n/a	29.6 days to operation	Smoking status showed significant differences in outcomes scores; “never smokers” displaying significantly greater improvements than “former smokers” or “current smokers” (p<0.048, p<0.035) Being a “never smoker” yielded a 13.7 times greater likelihood of achieving good outcomes than those that are “current smoker”	Negative
Domzalski et al. [16]*	24 months	24.4	Traumatic isolated meniscus tear	Inside-out technique	Knee Injury and Osteoarthritis Outcome Score (KOOS) was 73 + 15 for the entire population, with significantly higher mean scores for the non-smokers’ group (80.2 + 13.6) as compared to the smokers’ group (67.4 + 14.7) (p ¼ 0.001)	Negative
Heyer et al. [17]	1 month after surgery	30.8	n/a	Knee arthroscopy with meniscectomy (medial or lateral) (KAM), (knee arthroscopy with meniscectomy (medial and lateral) (KAB), knee arthroscopy with chondroplasty (KAC), knee arthroscopy with anterior cruciate	Smokers have significantly higher odds of having any complication event (the composite outcome) when they underwent knee arthroscopy with meniscectomy of medial and lateral menisci (KAB). Smoking did not affect any examined thirty-day complication or mortality for knee arthroscopy with meniscectomy (medial or lateral) (KAM) or knee arthroscopy with chondroplasty (KAC). Smoking was associated with increased wound complications following knee arthroscopy with anterior cruciate ligament (KACL) reconstruction, as well as cardiac, sepsis, wound, and pulmonary complications following knee	Negative

				ligament reconstruction (KACL)	arthroscopy with medial and lateral meniscectomy (KAB).	
Cox et al. [18]	2 and 6 years	22.3	<p>ACL tears in all population</p> <p>Medial meniscal pathology was noted in 38% of subjects (19% of those undergoing partial excisions, 13% undergoing repairs, and 7% undergoing no treatment for their tears)</p> <p>Lateral meniscus pathology was noted in 46% of subjects (28% of the cohort undergoing partial excisions, 6% undergoing repairs, and 18% undergoing no treatment)</p>	<p>Primary ACL repair in 1278 subjects, revision in 122 subjects</p>	<p>Current smokers and previous smokers have lower IKDC and KOOS scores</p>	Negative
Kraus et al.[19]	24 months	n/a	<p>Confirmed meniscal pathology, and acute meniscal tear or chronic/degenerative tears and failed nonoperative treatments including injections and physical therapy.</p>	<p>Partial meniscectomy</p>	<p>Patients who were active smokers at the time of partial meniscectomy had significantly worse baseline and postoperative patient-reported outcome measures (PROMs) compared with nonsmokers.</p>	Negative

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