

# MDI

SupplementaryTable 2: Modalities for assessing patients with multidirectional instability within included studies.

Author	History			Clinical Examination	
	Presentation	Voluntary	Traumatic Onset	Anterior / Posterior	Inferior
Alpert et al. <sup>16</sup>	Instability, pain	Not mentioned	Included	Apprehension test, jerk test	Sulcus test
Bak et al. <sup>17</sup>	Dislocation, pain	Not mentioned	Included	Apprehension, drawer test	Sulcus test
Baker et al. <sup>70</sup>	Assessed	Excluded	Included	Assessed	Assessed
Barden et al. <sup>71</sup>	Assessed	Excluded	Not mentioned	Translation	Translation
Barden et al. <sup>72</sup>	Not mentioned	Not mentioned	Not mentioned	Apprehension test, load-and-shift test	Sulcus test
Caplan et al. <sup>18</sup>	Sensation of excess shoulder motion, pain, subluxation, dislocation	Not mentioned	Included	Not mentioned	Not mentioned
Castagna et al. <sup>19</sup>	Subluxation, dislocation, pain	Excluded	Excluded	Apprehension test, relocation test	Sulcus test, Gagey hyperabduction test
Chen et al. <sup>73</sup>	Not mentioned	Excluded	Not mentioned	Not mentioned	Not mentioned
Choi et al. <sup>20</sup>	Pain, subluxation, dislocation	Not mentioned	Included	Subluxation or dislocation	Subluxation or dislocation
D'Alessandro et al. <sup>58</sup>	Persistent deep shoulder pain	Not mentioned	Included (acute trauma, repeated mild trauma)	Apprehension test, relocation test, translation	Sulcus test
Dewing et al. <sup>74</sup>	Assessed	Not mentioned	Not mentioned	Translation, apprehension and relocation test	Sulcus test
Duncan et al. <sup>21</sup>	Instability, dislocation	Excluded	Included (acute trauma, recurrent trauma)	Assessed	Sulcus test
Emery et al. <sup>75</sup>	Not mentioned	Not mentioned	Not mentioned	Drawer test	Sulcus test
Engelsma et al. <sup>22</sup>	Pain, instability	Excluded	Included	Jerk test, apprehension test	Sulcus test
Fitzgerald et al. <sup>23</sup>	Dislocation, subluxation, vague instability, pain	Excluded	Included (acute trauma)	Assessed	Sulcus test
Frostick et al. <sup>24</sup>	Instability, pain	Not mentioned	Included (acute trauma, overuse)	Assessed	Sulcus test
Gartsman et al. <sup>25</sup>	Dislocation, sensation of looseness and slipping, pain	Not mentioned	Included	Translation, Rowe test	Sulcus test, Rowe test

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Hsu et al. <sup>76</sup>	Not mentioned	Not mentioned	Excluded	Jerk test, apprehension test	Sulcus test
Ilyés et al. <sup>61</sup>	Symptomatic instability, subluxation, dislocation	Excluded	Not mentioned	Translation	Translation
Jacobson et al. <sup>77</sup>	Not mentioned	Not mentioned	Included	Not mentioned	Not mentioned
Jalovaara et al. <sup>52</sup>	Sensation of transient subluxation occurring with arm in abduction and external rotation	Excluded	Included	Apprehension test, drawer test	Downward traction test, autotractor test (sulcus sign)
Joseph et al. <sup>26</sup>	Pain, instability, subluxation, dislocation	Not mentioned	Included (traumatic event, repetitive microtrauma)	Assessed	Assessed
Kim et al. <sup>27</sup>	Pain, fatigue, paresthesia or looseness during daily or sports activities	Not mentioned	Excluded (except minor trauma)	Fulcrum test, jerk test	Sulcus test
Kiss et al. <sup>28</sup>	Pain, dislocation, subluxation, 'dead arm feeling' of extremity	Included	Included	Apprehension test, drawer test	Sulcus test, subluxation on active elevation
Kiss et al. <sup>63</sup>	Instability	Not mentioned	Excluded	Apprehension test	Sulcus test
Kjær et al. <sup>29</sup>	Recurrent subluxation, dislocations, pain	Not mentioned	Excluded	Apprehension-relocation test, jerk test, load-and-shift test	Sulcus test
Krishnan et al. <sup>30</sup>	Instability, pain	Not mentioned	Included	Not mentioned	Sulcus test
Lebar et al. <sup>15</sup>	Pain, subluxation, dislocation	Not mentioned	Included (acute trauma, repeated mild trauma)	Subluxation test	Sulcus test
Lee et al. <sup>31</sup>	Pain, looseness, episodic shoulder dislocation	Not mentioned	Excluded	Apprehension test, relocation test	Sulcus test
Levy et al. <sup>32</sup>	Recurrent symptoms of instability (consisting of pain, subluxation, true dislocation)	Not mentioned	Excluded (except repetitive micro-trauma or minimal traumatic event)	Apprehension or reproduction of symptoms	Apprehension or reproduction of symptoms
Lim et al. <sup>33</sup>	Instability, pain	Not mentioned	Excluded	Apprehension test, drawer test, jerk test	Sulcus test
Lippitt et al. <sup>64</sup>	Disabling instability	Not mentioned	Excluded	Drawer test, push-pull test, fulcrum test	Sulcus test
Lo et al. <sup>34</sup>	Symptomatic instability, pain, inferior subluxation or dislocation	Not mentioned	Not mentioned	Load-and-shift test, apprehension test, relocation test, surprise test	Sulcus test
Longo et al. <sup>78</sup>	Not mentioned	Not mentioned	Included	Not mentioned	Not mentioned
Lubiatowski et al. <sup>79</sup>	Assessed	Not mentioned	Excluded (Except minor trauma)	Assessed	Assessed

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Lyons et al. <sup>35</sup>	Pain, symptomatic instability, subluxation, dislocation		Included	Subluxation	Subluxation
Ma et al. <sup>36</sup>	Pain, instability	Excluded	Not mentioned	Translation	Sulcus test
Misamore et al. <sup>37</sup>	Pain, instability, intermittent paresthesia in upper extremity	Excluded	Excluded	Translation, load-and-shift test, apprehension test, relocation test	Sulcus test
Mitchell et al. <sup>38</sup>	Pain, dislocation or instability	Not mentioned	Not mentioned	Drawer test	Sulcus test
Mohtadi et al. <sup>39</sup>	Pain, subluxation, dislocation	Not mentioned	Not mentioned	Apprehension test, load-and-shift test, fulcrum test, relocation test, Fukuda test, push-pull test	Sulcus test
Mohtadi et al. <sup>40</sup>	Pain, discomfort on translation, subluxation or dislocation	Not mentioned	Not mentioned	Apprehension test, load-and-shift test, fulcrum test, relocation test, Fukuda test, push-pull test	Sulcus test
Moon et al. <sup>80</sup>	Not mentioned	Not mentioned	Included	Assessed	Sulcus sign
Morris et al. <sup>41</sup>	Pain, instability	Not mentioned	Excluded	Drawer test	Sulcus test
Neer et al. <sup>1</sup>	Uncontrollable and involuntary subluxation or dislocation, pain	Excluded	Included (trauma, repetitive mechanical stress)	Stress test, apprehension test	Assessed
Nyiri et al. <sup>65</sup>	Symptomatic instability	Not mentioned	Excluded	Anterior-posterior shift test, apprehension test	Sulcus test
Ogston et al. <sup>42</sup>	Pain, subluxation or dislocation	Excluded	Included	Apprehension test, load-and-shift test	Sulcus test
Park et al. <sup>66</sup>	Instability	Not mentioned	Excluded	Assessed	Assessed
Perkins et al. <sup>59</sup>	Pain	Excluded	Included	Drawer test, relocation test Also: Clunk test for labrum	Sulcus test
Pollock et al. <sup>43</sup>	Instability, pain	Excluded	Included (major trauma, recurrent microtrauma)	Apprehension test, posterior stress test	Sulcus test
Raynor et al. <sup>44</sup>	Dislocations or subluxation, persistent shoulder instability or pain that interfered with daily life and/or athletic endeavors	Excluded	Included	Apprehension test, relocation test, jerk test	Sulcus test
Schaeffeler et al. <sup>45</sup>	Pain, recurrent involuntary sensations of instability, subluxations, or dislocations during movements of daily	Excluded	Excluded	Apprehension test, relocation test, jerk test, translation	Sulcus test, Gagey hyperabduction test

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life or during sleep

Sciascia et al. <sup>46</sup>	Pain with ADLs, painful recurrent subluxation, dislocation, sensation of shoulder "giving way"			Apprehension test, relocation test, load-and-shift test	Sulcus test
Spanhove et al. <sup>47</sup>	Instability, pain	Not mentioned	Excluded	Apprehension-relocation test, Jerk test, load-and-shift test	Sulcus test
Spanhove et al. <sup>48</sup>	Recurrent subluxation, dislocation, apprehensive muscle tension, sensation of shoulder 'giving way', pain	Excluded	Excluded	Load-and-shift test, jerk test, assessment of degree of external rotation	Sulcus test, Gagey hyperabduction test
Staker et al. <sup>60</sup>	Pain	Not mentioned	Excluded	Translation, apprehension test	Translation, sulcus test
Toth et al. <sup>49</sup>	Pain, instability	Not mentioned	Included (acute trauma, repetitive trauma)	Load-and-shift test	Assessed
Treacy et al. <sup>50</sup>	Symptomatic subluxation, pain	Excluded	Excluded	Not mentioned	Symptomatic subluxation
Vavken et al. <sup>51</sup>	Pain, subluxation, dislocation	Not mentioned	Excluded	Load-and-shift test	Sulcus test
Voigt et al. <sup>52</sup>	Painful sensations of looseness and slipping, or dislocation	Not mentioned	Excluded	Apprehension test, Jerk test	Gagey test, sulcus test
Warby et al. <sup>53</sup>	Subluxation, dislocation, discomfort, pain, or apprehension / guarding with movement	Not mentioned	Excluded	Apprehension test, drawer test	Sulcus test
Warby et al. <sup>13</sup>	Instability, pain	Not mentioned	Included	Apprehension test, load-and-shift test	Sulcus test
Warby et al. <sup>54</sup>	Instability, pain	Not mentioned	Included	Apprehension test, load-and-shift test	Sulcus test
Watson et al. <sup>55</sup>	Discomfort, pain, subluxation	Excluded	Excluded	Apprehension test, drawer test	Sulcus test
Wichman et al. <sup>69</sup>	Not mentioned	Excluded	Included (acute dislocation, repetitive microtrauma)	Apprehension test, relocation test, subluxation test	Sulcus test
Witney-Lagen et al. <sup>67</sup>	Subluxation, dislocation	Excluded	Excluded	Apprehension test, external rotation exceeding 90' (with arm by side of body)	Sulcus test
Yeargan et al. <sup>56</sup>	Pain, instability, difficulties with activities	Not mentioned	Included	Translation	Translation
Yoldas et al. <sup>68</sup>	Subluxation, dislocation	Excluded	Not mentioned	Load-and-shift test	Translation
Zabinski et al. <sup>57</sup>	Recurrent subluxation or dislocation, pain		Included (acute trauma)	Translation, apprehension test, Jobe relocation test	Sulcus test

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