Hardest Working Knees: Occupational Activities That Can Cause or Aggravate Knee Osteoarthritis

Information Sheet

As the overall population of America ages, the incidence of osteoarthritis (OA) is on the rise. According to the Center for Disease Control and Prevention (CDC), nearly half of the adult population will develop symptomatic knee OA by age 85 years, and two thirds of those who are obese will develop knee OA in their lifetime.1 Every day, millions of Americans are affected by debilitating chronic knee pain. For those who live with knee OA on a daily basis, the pain they endure often makes it exceedingly difficult to perform even routine daily tasks others take for granted. Walking the dog, taking the garbage out, and even getting into and out of a car, can be a painful ordeal, lowering overall happiness and quality of life. Imagine then, living with this painful condition, and additionally having to perform a job which requires repetitive stress on the knees, hour-after-hour, week-after-week, magnifying and worsening this painful condition.

Multiple research studies have demonstrated that specific key occupational activities: squatting, kneeling, climbing, lifting, standing, and carrying physical loads, lead to knee OA at a rates several times higher than in sedentary workers, and may accelerate this painful disease in those who already have it.2-10 Additionally, obesity is a known independent factor in the incidence of knee OA. Combined with repetitive squatting or kneeling, a high Body Mass Index (BMI, >28) increases the risk of developing OA an additional 8-10 fold.11,12 [Coggon – Table 1 (8.3), Vrezas, Abstract (10.8)]
The CDC states the prevalence of obesity in the U.S. adult population is slightly over one-third, (34.9%, 78.6 million Americans).13 Women are known to have a higher incidence of knee OA, compared to men, so their general risk of developing knee OA as a result of a physically demanding occupation is automatically higher than for men.10

Several occupations, such as construction worker, floor layer, and farmer, are well-known to be physically demanding. Some studies have shown the incidence of knee OA is four-to-six times higher in people who work in those jobs, than those who work in sedentary jobs.2-10 A recent study of U.S. active military members found that the overall incidence of OA was similar to the general population.14 However, the authors of that study reported that OA presented in service members much earlier in life than in the general population. For example, service members aged 35-39 reported painful OA at twice the rate as the non-military population of the same age. Female service members experienced a nearly 20 percent higher rate of OA compared to men.14

November 29, 2015
DSUS/JRC/1015/1086b
Other occupations may seem less demanding but actually require a significant amount of physical activity that leads to knee OA. One example is someone in the nursing profession, whose job may require a significant level of standing, lifting, and carrying physical loads. According to one study, after 10 years on the job an individual in the nursing profession can expect to experience knee OA at twice the rate of someone in an office job.\textsuperscript{15}

Certain jobs carry increased risk of developing knee OA, especially if they include activities known to increase this risk. Those with this painful disease who work in physically demanding occupations often experience debilitating pain, and lower quality of life, compared to people that work in less demanding jobs. The people performing jobs that require repetitive, physically demanding activities are among those with the “hardest working knees” in America.

**Occupations Associated with an Increased Risk\(^*\) of Developing or Worsening Knee OA\textsuperscript{2,12,14,15}**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Relative Risk of Developing Knee OA vs. General Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Fishing</td>
<td>6.2</td>
</tr>
<tr>
<td>General Construction</td>
<td>5.7</td>
</tr>
<tr>
<td>Farmer</td>
<td>5.1</td>
</tr>
<tr>
<td>Carpet / Floor Layer</td>
<td>4.7</td>
</tr>
<tr>
<td>Mining</td>
<td>3.0</td>
</tr>
<tr>
<td>Firefighter</td>
<td>2.9</td>
</tr>
<tr>
<td>Asphalt Worker</td>
<td>2.8</td>
</tr>
<tr>
<td>Plumber</td>
<td>2.3</td>
</tr>
<tr>
<td>Cleaner</td>
<td>2.2</td>
</tr>
<tr>
<td>Brick Layer</td>
<td>2.1</td>
</tr>
</tbody>
</table>

November 29, 2015
DSUS/JRC/1015/1086b
Osteoarthritis is not the only risk associated with these occupations.

References